The Impact of Oil-Related Pollution

on Housing Satisfaction of Kuwaiti Households

by

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(ABSTRACT)

The 1991 oil fires that were set by the Iraqis as they retreated from Kuwait during the Gulf War are still considered the worst and biggest oil fires in the history of the world. An initial study was conducted in 1992 to investigate the negative effects of the pollution caused by the oil fires on the socio-psychological values of housing and the cultural meanings of home and homeownership of Kuwaiti households. In 1994, a follow-up study was conducted to examine how time between the two studies and treatments of residential interiors and exteriors might have affected Kuwaiti households' perceptions regarding the negative effects of ORP on the socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction.

Three-hundred and forty-seven non-smoking and non-institutionalized Kuwaiti household members participated in the follow-up study. Only eighty-nine of the participants in the follow-up study has also participated in the initial study. All the

participants were 18 years or older, and were randomly selected from 60 different cities and suburbs in Kuwait. Six trained interviewers collected the data via telephone using survey questionnaires constructed specifically for that purpose.

A comparison of frequencies and percentages from both the initial and the follow-up studies showed that more than two-thirds of the participants continued to be very concerned about the unclear hazardous effects of ORP on their health and safety and the health and safety of their family members. There was a decrease in the negative effects of ORP on most of the socio-psychological values of housing and cultural meanings of home and homeownership. The overall housing satisfaction of Kuwaiti households with their contaminated homes remained high.

It was concluded from this study that only time and treatment of residential interiors had significant influence on Kuwaiti households' perceptions about the negative effects of ORP on the housing values, cultural meanings of home and homeownership, and housing satisfaction. The implications of this study could be beneficial mainly to Kuwaiti households who wish to solve their housing problems caused by ORP; to the Kuwaiti government to seek, through the United Nations, financial compensations from Iraq; and to Kuwait University and Kuwait Institute for Scientific Research to expand their research base and investigate the best methods to remedy the problem of ORP in the Kuwaiti residential environment.

DEDICATION

This dissertation is dedicated to the following family members for their remarkable impact on my life:

* My father, Saleh Hassan Al-Najadah, who died on the second day of the Iraqi invasion of Kuwait, for teaching me my first few words in English and for planting the seed of love for knowledge in me.
* My mother, Abbodah Abdulhassan Al-Shemali, who taught me how to be independent and persistent.
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Chapter I

INTRODUCTION

On August 2, 1990, Kuwait was invaded and occupied by the neighboring country of Iraq (see Appendix A for general background on Kuwait). That occupation resulted in the deaths of hundreds of men and women of all ages, as well as the destruction of Kuwait's infrastructure, economy, social fabric, educational system, and environment. On the last few days of Operation Desert Storm [the specific name of the war operation in the Arabian Gulf that took place between the international troops and the Iraqi troops to liberate Kuwait from the Iraqi occupation] the retreating Iraqi troops started more than 700 oil well fires and damaged another 96 oil wells (Al-Besharah, 1992). Massive efforts were undertaken to rebuild the damaged country and environment immediately after the liberation of Kuwait. Many contracts with national and international businesses and construction corporations were signed to insure the fast rebuilding of Kuwait. Also, many national and international symposiums and conferences were held within and outside Kuwait to assess the extent of the damage and suggest proper remedies.

Kuwait's oil fires and oil spills were one of the most devastating outcomes of the Gulf War. Daily, those fires produced 50,000 to 100,000 tons of sooty smoke, 25,000 to 50,000 tons of sulfur dioxide (a prime cause of acid rain), and many health-hazardous gasses, volatile components, and particulate emissions (United Nations,

1991; Wicker, 1991). As a result, air pollution in many residential areas in Kuwait exceeded by many times the most polluted residential areas of the world (Schmitt, 1991). Also, Kuwait's land and buildings were covered with huge amounts of soot and other oil-fire fallout. In addition, more than 200 lakes of oil of different sizes, shapes, and depths were formed through out the country (Al-Besharah). Finally, water and sea food supplies for the people of Kuwait were endangered by an oil spill that exceeded by 20 times the Exxon Valdez oil spill of Alaska (Environmental and Natural Resources Policy Divisions & Environmental Research Division, 1992). As a result, the people of Kuwait have been exposed to numerous oil-related problems that could seriously harm them and their micro and macro environments.

Oil-related pollution (ORP) damaged the vegetation and wildlife in most of Kuwait, and it has left distinct marks on the land and buildings. Preliminary studies on the effects of ORP on the environment and people of Kuwait have been going on since the liberation of Kuwait. However, the extent and true effects of ORP on the environment and people of Kuwait are still far from being fully examined and understood.

Statement of the Problem

Although many research studies have been conducted to investigate the impact of ORP on marine life, vegetation, land, birds, animals, buildings, and people of Kuwait, few studies (Al-Daeej, 1992; Al-Mudhaf, 1994; Al-Mutairi, 1994; Al-

Najadah & Parrott, 1992) were directed toward investigating the effects of ORP on Kuwaiti households or housing. Kuwaiti households and housing had to be included more in the exploration and investigation process because the Kuwaiti households are the most valuable assets of Kuwait and houses are the places that those households spend most of their time in or around. This situation could mean that Kuwaiti households might be subjected to long periods of serious exposure to ORP if the homes are contaminated above the risk level.

People think of their homes as places for protection from human and nonhuman dangers, places to raise happy and healthy families, places for privacy, places that reflect self-identification and self-expression, places where an essential part of ownership dreams are accomplished, and places for the biggest form of economic investment (Fitchen, 1989). So, an invasion of any form on people's homes is often perceived as an attack on the owners and residents of those homes.

Based on some preliminary findings (Al-Najadah & Parrott, 1992), the disastrous environmental aftermath of the Gulf War was expected to leave ugly and long-lasting distinctive marks on the people, as well as on the institutions of home and homeownership in Kuwait. Therefore, it was essential to reexamine the effects of ORP on Kuwaiti households, as well as on the institutions of home and homeownership, to determine ways and methods of treatment to recover or reduce the outcome of ORP on Kuwaiti households and housing.

Purpose of the Study

In May 1992, five months after the last oil fire in Kuwait was extinguished, Al-Najadah and Parrott began an initial study to explore the effects of ORP on Kuwaiti households and housing. The purpose of that effort was to investigate the effects of ORP on the socio-psychological values of housing and the cultural meanings of home and homeownership of Kuwaiti households. They investigated nine socio-psychological values of housing including: health, safety, beauty, comfort, convenience, human relations, privacy, economy, and social prestige. They also examined five cultural meanings of home: homes are places for families; homes provide protection and represent security; homes are affective anchors with sacred connotations; homes are expressions of their owners' and residents' identities; and homes provide privacy; as well as three cultural meanings of homeownership: homeownership is a significant part of people's dreams; homeownership is thought to promote independence and confer rights; and homeownership makes homeowners members of a respected category.

Findings from the 1992 study showed that ORP had negative effects on most of the socio-psychological values of housing and cultural meanings of home and homeownership of Kuwaiti households. Recommendations from that study included the need to reexamine the effects of ORP on the socio-psychological values of housing and the cultural meanings of home and homeownership of Kuwaiti households every one to two years for five to ten years. This recommendation was made to examine

how Kuwaiti households' perceptions of the effects of ORP on them and their homes may change with home treatment and over time. Therefore, the follow-up to the 1992 study became the subject of this dissertation, and the original survey questionnaire, with additional questions, was utilized to reexamine the socio-psychological effects of ORP on Kuwaiti households with an extended focus on housing satisfaction.

Objectives

The objectives of this dissertation were to:

1) Examine the impact of time difference between the initial and the follow-up studies on the perceptions of Kuwaiti households regarding the effects of oil-related pollution (ORP) on their socio-psychological values of housing and cultural meanings of home and homeownership;

2) Examine the impact of home treatment against the visible effects of ORP on the perceptions of Kuwaiti households regarding the effects of ORP on their socio-psychological values of housing and cultural meanings of home and homeownership; and

3) Investigate the impact of ORP on housing satisfaction of Kuwaiti households.

Significance of the Study

Examining and understanding the impact of ORP on the socio-psychological

values of housing, the cultural meanings of home and homeownership, and the housing satisfaction of Kuwaiti households are important issues because of their assumed strong impact on the health, comfort, and well-being of Kuwaiti households. Therefore, this study was undertaken to examine how time differences between the initial and follow-up studies and treatments of residential interiors and exteriors against the visible effects of ORP might influence Kuwaiti households' perceptions regarding the effects of ORP on their residential environments. If the socio-psychological effects of ORP on Kuwaiti households are still high or are close to the ones from the initial study, then the outcome of the follow-up study, along with other related studies, may be used by the Kuwaiti government and people to document the extent of ORP damages on Kuwaiti households and housing. Through the United Nations, this document and other related ones may be used as evidence to seek compensation from Iraq for damages caused by the ORP.

Findings of this study may also help in supporting the development of effective remedies to restore the damaged socio-psychological values of housing and the cultural meanings of home and homeownership. Those remedies could be used to reduce Kuwaiti households' dissatisfaction with their residences which may have resulted from exposure to ORP. Also, findings of this study may assist in qualifying the significantly affected Kuwaiti households and their housing for governmental aids for any necessary health treatment or treatment of residential interiors and/or exteriors, decontamination, and rehabilitation. Finally, findings of both the initial and

the follow-up studies may have some significant historical value in the future for documenting the effects of ORP on Kuwaiti households and housing. The findings of this study may be of special importance to the following:

1. The National Housing Authority (NHA), as well as the Supreme Housing Council (SHC) in Kuwait;
2. The housing industry in Kuwait (housing developers, contractors and lenders);
3. Kuwaiti households; and
4. Professionals and educators who are related to the field of housing such as housing specialists and managers, sociologists, psychologists, interior designers, and architects.

Limitations

Participation in both the initial and follow-up studies was limited to only households of Kuwaiti citizenship. The sample for the initial study was randomly pre-selected from non-smoking and non-institutionalized Kuwaitis age 18 years and more by the Environment Protection Council (EPC) in Kuwait for studying "Indoor and Outdoor Personal Exposure to Pollutants: Preliminary Assessment of the HEAL Project." The HEAL project refers to the study of Human Exposure Assessment Location (Abdulraheem, 1992). Both limitations were recognized to form a bias in the sample selection. The first limitation was essential to this study mainly because most

of the non-Kuwaiti households have limited stays in Kuwait. Thus, the limitation of sample selection to Kuwaiti households was expected to increase the chances of high participation in future follow-ups. Also, while it was obvious that using only non-smoking and non-institutionalized Kuwaiti male and female householders would put more limitations on generalizing the findings of this study, it was assumed that this limitation would give more realistic results, especially on questions related to the impact of ORP on health and safety.

Sample selection from only those Kuwaiti households who returned to Kuwait after its liberation from Iraq imposed another limitation and bias. Approximately 90% of the Kuwaiti citizens were expected to return to Kuwait by the time the HEAL projects started. Therefore, the sample was not totally representative of the entire population of Kuwaiti citizens.

Another limitation imposed on the initial study was the use of nine socio-psychological values of housing, as well as five cultural meanings of home and three cultural meanings of homeownership, from American research; these values and meanings had not previously been examined for Kuwaiti households. Therefore, the study of those values and meanings in relationship with exposure to ORP did not mean that Kuwaiti households were limited only to those values and meanings. However, since those values and meanings had been studied in some depth in the United States (Cutler, 1947; Fitchen, 1989; McCray & Day, 1977; Ryd, 1991; Vars, 1969), the author of this dissertation wanted to use the same values and meanings

with different households as a basis for this study.

For this dissertation, the author was faced with another challenge and a new limitation. All the personal data sheets and original survey forms from the initial study were lost in Kuwait while they were being transferred from one storage facility to another by the EPC. Luckily, the author had the identification or code numbers of all the family files of all individuals who participated in the initial study. Each participant has two code numbers: one for the initial study and the other for the HEAL study. As a result, the author had to go to the original files of the HEAL study in an effort to identify the original participants. The author succeeded in including 89 original participants, and the remainder of the participants were either selected randomly from the same original sample or replaced randomly from Kuwait's Public Telephone Directory (see Selection of Sample in the Methodology Chapter for more details).

Delimitations

Health symptoms reported in this study were not medically examined by the researcher, but they were reported by the participants themselves. Similarly, the health symptoms that affected some or all of the family members of the participants were not medically proven, but the symptoms were, again, reported by the surveyed participants.

Research Questions

The last oil fire was extinguished on November 6, 1991. Since then, the people of Kuwait have not seen the heavy smoke from the oil fires. As a result, it was expected that the fear of Kuwaiti households from exposure to oil pollution had been reduced. Yet, it was very important to investigate the extent of the remaining fear from ORP and how that fear had affected the socio-psychological values of housing, the cultural meaning of home and homeownership, and the housing satisfaction of Kuwaiti households. Answers from this investigation could play a significant role in suggesting the proper remedies to problems related to Kuwaiti households and housing in Kuwait. As a result, this study was essential to answer the following questions:

1) How did the time difference between the initial and the follow-up studies influence the Kuwaiti households' perceptions regarding the effects of oil-related pollution (ORP) on their socio-psychological values of housing and the cultural meanings of home and homeownership?

2) How did treatments of residential interiors and exteriors against the visible effects of ORP influence the perceptions of Kuwaiti households regarding the effects of ORP on their socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction?

3) What can be done to reduce or eliminate the negative effects of ORP that might have influenced each of the socio-psychological values of housing, each

of the cultural meanings of home and homeownership, and the housing satisfaction of Kuwaiti households?

Chapter II

REVIEW OF LITERATURE

Introduction

Winston Churchill once said: "We shape our buildings, then they shape us." This statement is still true for almost any building of residential or commercial use. Buildings' physical limitations and conditions often limit and affect the lives and behaviors of their occupants (Proshansky, Ittelson, & Rivlin, 1970). Residential buildings may have greater effects on people's lives and behaviors than commercial buildings because people often spend most of their time in and around their dwellings.

This chapter focuses on defining the meanings of housing and home. A discussion of human needs for housing is also addressed, based on Maslow's theory of "Human Motivations." Next, the socio-psychological values of housing, as well as the cultural meanings of home and homeownership, are discussed for better understanding of how households relate to their dwellings. Later, the importance of home and homeownership in Kuwait are explained along with the characteristics of Kuwaiti citizens and housing characteristics of the Kuwaitis. Because of the increased awareness of environmental pollution and its relationship to the topic of this dissertation, a portion of this chapter is dedicated to explaining the risks and risk perceptions related to environmental pollution in general and pollution in residential environments in particular. Also, due to the massive outcome of the oil fires of 1991

in Kuwait, another portion of this chapter will address residential contamination by oil pollutants and the effects of those pollutants on the health and housing of Kuwaiti households. Moreover, housing satisfaction will be discussed in relationship to existence of pollution in residential environments. The last part of this chapter will introduce Morris's and Winter's (1993) theory of "Family and Housing Adjustment." This theory forms the conceptual framework for this dissertation.

Housing and Home Definitions

"Residential environment" is often used as a neutral term to represent both housing and home. Tognoli (1987) described housing as "a term that defines the public rather than the private sphere. It emphasizes an ultimately knowable set of physical and spatial parameters rather than behavior of only one individual in one house;" in contrast, home is described as "both the physical place and cognitive concept ... with more emphasis and reliance on social, cognitive, cultural, behavioral issues that concentrate on home security, comfort, and as a symbol of a place of departure and return" (p.655-656).

Housing

Numerous definitions of housing have been developed by researchers from different disciplines, including home economics, sociology, psychology, and economics. Amos Rapaport (1969), in his cross-cultural definition of housing, stated

a number of different conceptual approaches to study the meaning and the nature of the dwelling and of housing. Those conceptual approaches include housing as product, process, function, place, behavioral setting, territory, privacy, and multidimensional entity.

The classic definition of housing is attributed to Coleman Woodbury (1949). Woodbury defined housing as both a product and a process:

> The **product** is not only the shelter or structure of a dwelling but its design and basic, built-in equipment -- the amount and allocation of space, the heating, lighting, sanitary, and similar facilities. It is also the layout and equipment of the neighborhood -- open space, play space, streets, walks, utilities, nursery and elementary schools, shops and other neighborhood facilities. Neighborhoods, of course, are part of the larger community -- e.g., the city, the county, metropolitan area, river basin. Although the growth and development of these larger units takes in much more than housing, the usefulness and quality of housing depends in part in its proper location within them: its relations to transit and transportation, to places of work and recreation, to hospitals and medical centers, to educational and religious institutions, to the open countryside and to specialized urban services, etc. In short, housing is the immediate physical environment, largely man-made, in which families live, grow, and decline.
>
> As a **process**, housing again is more than the construction, important as that

is. It is also the dwelling design, neighborhood layout, materials manufacture and distribution, mortgage finance, city and regional planning, public controls, aids and enterprises through such things as building and housing codes, mortgage insurance, housing and redevelopment authorities. It includes maintenance, repair, remodeling, neighborhood services and neighborhood conservation. It requires technical and social research; fact finding and analyzing, individual, family, business and public policy decisions (pp. 396-404).

Maie Nygren (1969), in her presidential address at the opening session of the fourth annual conference of the American Association of Housing Educators (AAHE), reacted to Woodbury's definition of housing and added more details to it. She stated:

> As good as his (Woodbury) definition of housing is, it still does not reflect as broad an interpretation of housing as we might like to see conveyed. He does not, for example give attention to the basic elements of any housing environment, i.e. the colors, textures, forms, spaces, light, and temperature which constitute the stimuli and which evoke behavior. His definition does not touch on the fact that housing is a social milieu, and that as a social milieu it is a complex of individual and family values, attitudes, goals, and behaviors and of community values, attitudes and public policies and programs. His definition does not convey that housing is a neighborhood comprised of a number of individuals and families having mutual responsibilities toward their

fellow-man and mutual goals for their community; that it is a setting for the interactions, and that it is a social and cultural environment having potential for fulfilling basic social and psychic needs and for influencing the behavior of man (p. 9).

Economists such as Pynoos, Schafer, and Hartman (1973) define housing more in economic terms. They see housing as: "A bundle of attributes such as lot size, floor area, plumbing, kitchen facilities, number of bathrooms, heating systems, structure type, intensity of use, tenure, neighborhood status, neighborhood characteristics (physical and socio-psychological), neighbors, location and quality of public and quasi services" (p. 2).

Home

"Home means refuge, security, and protection from physical strains and psychic stress. It represents an ideal toward which we turn and replenish our energies" (Ryd, 1991). In his study of the concept of home in housing research, Hayward (1977) found that the concept of home has the following nine dimensions:

> **Home as intimate others** is the primary category of meaning to emerge from this research. Exemplary ideas within this category include: (home as:) a sense of belonging, love, and togetherness, "where someone cares for me," intense emotional experience, warmth and security, mutual respect, and feeling welcome. The title to this category reflects its emphasis

on family and close friends, and the feelings, affections, and the security of these relationships.

Home as social network is a second category of meaning, and it refers to a wider context, including relationships among friends, neighbors, the community, local shopkeepers, and acquaintances in the neighborhood.

Home as self identity centers on the idea that what people call "home" serves as a symbol of how they see themselves and how they want to be seen by others. Thus, home may be thought to be a center of one's world, a reflection of one's ideas and values, and an important influence on being comfortable and happy with oneself.

Home as a place of refuge is the fourth category, articulated by ideas such as: getting away from outside pressures, a chance to be alone and not be bothered, a place of peace and rest, where you can do what you want and be safe and secure.

Home as continuity describes a cluster of meanings which emphasize one's relationship to an environment over time. Ideas in this group range from home as a place you can return to (like a home town, or a family homestead) to other ideas about permanence, stability, and familiar surroundings.

Home as a personalized place articulates home as a concept which emerges from an active process of creating and controlling an environment. It

includes ideas such as ownership, investing time and money in a place, and changing a place or decorating a place to reflect your ideas and tastes.

Home as a base of activity acknowledges more of a functional and behavioral orientation to home: it involves work and leisure, it is where one's day "starts" and "ends," and it is often the locus of activities such as eating, sleeping, and recreation.

Home as childhood home refers to a kind of heritage, or "roots," which seems to be primarily related to where people grew up, and perhaps where their parents live.

Home as physical structure describes a rather impersonal view of a housing environment, yet this is the way that home is often referred to since it is tangible. It includes meanings such as a room, a building, an apartment, a house, a neighborhood, architectural design, being near the ground, and the amount of space in and around the dwelling (p.10).

Housing for Human Needs

To understand human needs in housing, it is essential to understand the motivations behind those needs. Abraham Maslow (1970) in his theory of "Human Motivations" acknowledged six basic powerful needs that influence people's behaviors. Those basic human needs are: 1) physiological needs, 2) safety needs, 3) belongingness and love needs, 4) esteem needs, 5) needs for self-actualization, and

6) aesthetic needs.

The six basic human needs identified by Maslow are found to influence the human needs for housing, as well as the human needs for other essentials. People have physiological needs to assure the proper protection of their lives and sustain healthy living. Everybody needs food, water, and air to maintain life. Human needs for housing differ slightly from needs for food, drink, and air; however, through proper housing design and management, indoor housing environments can significantly affect the health, comfort, and well being of household members (Coveney, 1987). For example, the basic physiological needs of household members can be improved by controlling indoor housing conditions. Those conditions are mainly related to indoor lighting, temperature, air quality, and sanitation.

When the physiological needs of people are satisfied, a new set of needs arises in a form of the need for safety. This category includes needs such as security, stability, dependency, and protection from human and non-human dangers. Also, it includes human needs for freedom from fear, anxiety, and chaos, as well as needs for structure, order, law, and limits (Maslow, 1970). Housing is often perceived as a shell that shelters its occupants and protects them from outside human and non-human dangers (Montgomery, 1967).

When both physiological and safety needs are satisfied, human needs for love, affection, and belonging rise and demand satisfaction. Home in its materialistic and nonmaterialistic forms represents a place of attachment and rootedness (Bachelard,

1969; Marc, 1977; Montgomery, 1967; Tognoli, 1987; Tuan, 1977). Eric Fromm (1963) believed that the human desire for rootedness is a fundamental psychic need. Hall and Lindsey (1957) suggested that man desires natural roots because he wants to feel that he belongs to this world and that he is an integral part of it, too. As was attributed to the famous poet Robert Frost, home remains the place where when one goes there, he/she is expected to be taken in.

People always have the need and desire for positive evaluation of themselves to have good self-esteem and self-respect. Self-esteem needs lead people to feelings of self-confidence, self-worth, strength, capability, and adequacy (Maslow, 1970). In most cultures, housing has a status-conferring function. Newmark and Thompson (1977) remarked that:

> Our concept of self is reinforced when our homes meet the expectations of our peer group. In our society, success confers status, and feelings of accomplishment and achievement are important components to self-esteem. Success allows a family to move up, and upward mobility includes improved standard of living represented by access to improved housing and improved services in a "better" neighborhood than the family enjoyed previously...Our homes enhance our feelings of personal worth, they contribute to self-esteem needs (p. 12).

The need for self-actualization comes at the fifth level of Maslow's hierarchy of human needs. This need is satisfied when people become true to their own nature

and when people can be all they can be (Maslow, 1970). Housing with respect to the self-actualization need represents more than a place in which to live. Newmark and Thompson (1977) recognized housing as:

> The place to be and the place to become what each person alone or part of a group is uniquely capable of being. This means that housing needs become distinctly individualized and personalized as we move up in Maslow's hierarchy ... Consequently, whether or not housing meets this need is a highly subjective evaluation concerning what factors in housing and in the home environment are likely to contribute to authentic self-development for each family member. In this context, the home may be a reflection, in fact a symbol, of self-expression and self-realization (p. 12).

Finally, the human aesthetic needs seek satisfaction when all previous needs are acknowledged and fulfilled. Although the aesthetic needs can be part of the self-actualization needs (Newmark & Thompson, 1977), the aesthetics needs also can be dealt with as distinct needs. In some cases people get physically sick if they are placed in "ugly" surroundings or get cured if they are placed in beautiful surroundings (Maslow, 1970). Accordingly, some people spend a lot of money on decorating the interiors and/or the exteriors of their dwellings to make those units aesthetically pleasing. Fulfillment of human aesthetic needs is essential to some people because that fulfillment improves indoor and outdoor housing comfort, as well as improves self-esteem and self-actualization. After all, housing is a symbol of its occupants

(Cooper, 1979).

Socio-psychological Values of Housing

The study of the social psychology of housing is simply concerned with how relationships among people are affected by their housing. People's tendencies to compare, evaluate, and modify their homes influence their social relations (Mead, 1934). Virginia Cutler (1947) was the first to study housing values in depth. In her classic study of "Personal and Family Values in the Choice of a Home," Cutler focused her investigation on how personal and family values of beauty, comfort, convenience, good location, health, personal interests, privacy, safety, friendship activities, and economy affect the choice of a home. Other researchers who studied different issues related to housing values include Al-Najadah and Parrott (1992) who investigated the negative effects of oil pollution on the social and psychological values of housing; Beyer, Mackesey, and Montgomery (1959) researched the different housing values that motivate home buyers to purchase their homes; Downer, Smith, and Lynch (1968) studied the influence of housing values on households' satisfaction; Fredland (1974) studied the housing values that relocating households look for when buying new housing; Goulart (1978) researched the effects of concordance between housing values and housing satisfaction; McCray (1975) compared housing values, aspirations, and satisfaction of low-income rural Florida residents and urban Tallahassee public housing tenants; McCray and Day (1977) studied housing values,

aspirations, and satisfaction as indicators of housing needs; Montgomery, Sutker, and Nygren (1959) investigated the processes, images, and housing values used by the residents of Garfield County in Oklahoma in selecting their rural housing; Stoeckeler and Hasegama (1974) developed a technique for identifying values as behavioral potentials in making consumer housing decisions; and Vars (1969) studied housing values as factors related to housing satisfaction.

Values are the "relative worth, merit, or importance of things" (Webster's Dictionary, 1989). Values are often perceived as internalized standards that materially affect the way people react when confronted with situations that permit more than one course of action (Montgomery et al. , 1959). Morris and Winter (1978) defined values as:

"... the general guidelines for evaluation of goals (norms). Values are not the norms themselves; they are much more general, and serve to organize norms which in turn govern specific behaviors and conditions." (p. 41)

Housing norms or standards are those "characteristics without which a structure would not be called a dwelling unit" (Morris & Winter, 1978). Housing norms are often influenced by formal or informal family norms, community norms, and/or cultural norms. Morris and Winter (1978) defined those norms as the following:

Formal Norms: Written or clearly defined rules, regulations, or codes to which members of the system are required to conform.

Informal Norms: Unwritten, generally accepted rules for behavior or conditions; to be contrasted with formal norms.

Family Norms: A set of rules or ideals for behavior or conditions arising from within the family itself; the family standards with respect to its own behavior and conditions; the way things "ought" to be as perceived by the family itself.

Community Norms: Rules prescribing proper conditions and behavior for the people living in a particular community.

Cultural Norms: Rules or standards, both formal and informal, for the conduct and life conditions of members of a particular society (pp. 16 & 40).

Housing values and housing conditions have significant effects on housing satisfaction (Goulart, 1978). The pressure of housing values and conditions on housing satisfaction is felt more when housing values affect basic housing needs rather than household's luxuries. Researchers such as Beyer et al. (1955); Fredland (1974); McCray (1975); McCray and Day (1977); Montgomery et al. (1959); Stoeckeler and Hasegama (1974); and Vars (1969) found significant relationships between some housing values and some housing behavior. For example, reduced or lack of housing satisfaction due to deficits in housing values such as health, safety, privacy, and/or personal interests can result in housing adjustment or housing mobility. Tremblay and Dillman (1983) suggested that housing values, attitudes, goals, preferences, and norms have similar effects on housing satisfaction.

The Cultural Meanings of Home

Culture is defined as the "system of rules, norms, standards, and values for behavior, integration, and living conditions; the way things 'ought' to be" (Morris & Winter, 1978, p. 40). With respect to this definition, the cultural meanings of home are very important in all societies; however, those meanings may differ from one society to another. Man's home is often referred to as his castle (Ryd, 1991). People go to their homes for refuge, security, love, and sense of belonging, and to replenish energy. The level of home importance becomes a natural product of the function of home and [a conclusion of how homeowners and occupants perceive that structure.]

Homes Are Places for Families

Both in fact and cultural commitment, the family remains the basic institution in America and many other countries around the globe (Douglas, 1966). The idea of family remains fundamental regardless of the undergoing changes that are influencing this idea. At the same time, home and family have a long association with cultural centrality (Fitchen, 1989). Family affairs such as marriage, having and raising children, protecting and feeding family members, and entertaining and communicating with other family members often take place within a home context. Home is perceived as the place for family life and marital relations (Altman & Gauvain, 1981; Cooper, 1979; Csikszentmihalyi & Rochberg-Halton, 1981; Douglas, 1991; Hareven, 1991; Helphand, 1978; Hester, 1979; Hollerorth, 1974; Horwitz & Tognoli, 1982;

Ladd, 1977; Lugassy, 1976; Pynoos et al., 1973; Relph, 1976).

Henry S. Canby (1939) in his book The Age of Confidence: Life in the Nineties, drew a beautiful picture for homes as the places for families:

> In our town...home was the most impressive experience in life. Our most sensitive and our most relaxed hours were spent in it. We left home or its immediate environment chiefly to work, and neither radio nor phonograph brought the outer world into its precincts. Time moved very slowly there, as it always does when there is a familiar routine with deep background of memory. Evening seemed spacious then, with hours upon hours in which innumerable intimate details of pictures, carpet, wall paper, or well-known pointing shadow were printed upon consciousness.
>
> Not size, nor luxury, nor cheerfulness, nor hospitality made a home. The ideal was subtler. It must be a house where the family wished to live even when they disliked each other, it must take on a kind of corporate life and become a suitable environment for its diverse inhabitants ... There was a rhythm in the pre-automobile home that is entirely broken now, and whose loss is perhaps the exactest index of the decline of confidence in our environment (pp. 51-54).

Homes Provide Protection and Represent Security

People in their early days sought shelter to protect themselves and their family

members, especially children, from the heat of the sun; the bitterness of cold wind, the dampness of rain, and danger from animals, insects, and evil spirits. Today people add protection from crime, noise, and pollution to their list of why to seek a home (Montgomery, 1967). Historically, people perceive their homes as places for security and protection from human and non-human dangers (Hayward, 1977; Ryd, 1991; Tognoli, 1987). Also, homes are seen as places that can provide opportunities for revitalization and regeneration (Altman & Gauvain, 1981).

Although homes are expected to provide protection and security from outdoor dangers, people often overlook protecting themselves from indoor dangers caused by chemical, physical, and microbial agents. Unsafe housing design and pollution are the biggest challenges that face most people at the present time.

Homes Are Affective Anchors with Sacred Connotations

The concept of home in the American culture has more than just affective sentiment because of its association with the "sacred institution" of the family (Lynd & Helen, 1937). Perin (1977) found evidence that a "sacred quality endows both the family and its home," sacred "in the sense of being a part of the mundane and having a distinctive aura." Fitchen (1989) observed that:

> Standard American phraseology amply demonstrates the affective and sacred aspects of home. Even after a person has left the home of his or her childhood, it remains the place "where the heart is." "The home place,"

"home farm" or "home office" have special meanings. Advertising often draws on such charged words and phrases as *hometown, back home, home-made, down-home, homey, home cooking, the comforts of home, and there is no place like home* (p. 317).

Homes Are Expressions of Their Owners' and Occupants' Identities

Homes and their furnishings are considered as important investments in the lives of many people (Hyatt, 1992). Studies have shown that families with different lifestyles and from different social classes often have their homes decorated in ways that reflect the characteristics of their particular classes (Duncan & Duncan, 1976; Hinshaw & Allott, 1973; McCracken, 1987; Sadalla & Sheets, 1993; Weisner & Weibel, 1981).

Clare Cooper (1979) in her classic analogy "The House as Symbol" recognized the materialistic part of the home or the house as an important symbol of its owners and occupants:

> The house has two very important and different components: its interiors and its facade ... The house reflects how man sees himself, with both an intimate interior, or self as viewed from within and revealed only by those intimates who are invited inside, and a public exterior or the self that we choose to display to others ... As we become accustomed to, and claim, this little niche in the world, we project something of ourselves onto its physical fabric. The

furniture we install, the way we arrange it, the pictures we hang, the plants we buy and tend to, all are expressions of our image of ourselves, all are messages about ourselves that we want to convey back to ourselves, and to the few intimates that we invite into this, our house (p. 171).

Homes Provide Privacy

Privacy in its broad sense means "selective control of access to the self or to one's group" (Altman, 1975). This concept is very important in many cultures, and the home may be one of the places where privacy is most desired and accomplished. Many cultural factors influence the perceptions of space and conservation of privacy. The famous anthropologist Edward Hall (1966) described, in his theory of proximics, the different ways that people perceive and use space to mark territory. Each one of us surrounds himself/herself with an invisible space bubble that marks his/her territory for privacy. Our space bubbles are extensions of our personal territories. The size of our space bubbles differ from one place to another and from one situation to another. For example, personal space bubbles in elevators and buses are much smaller than those experienced in playgrounds, shopping centers, and libraries. Also, distances between members of the same family, friends, and lovers are much less than the distances experienced between total strangers and enemies.

Home, with its surrounding fences and walls, provides its occupants a good sense of privacy and isolation from the outside world. At home, household members

can rest, cook, eat, sleep, watch television, talk to each other, and use bathrooms for their hygienic needs without intrusion from undesired people. Home is perceived as a big envelope that protects the privacy of its occupants from outsiders. However, each occupant or householder has his/her own space at home to enjoy total privacy. Privacy in bedrooms and bathrooms is expected to be respected by all family members at all times, especially by members of the opposite sex (Inman & Sinn, 1987; Nygren, 1979).

The Cultural Meanings of Homeownership

Homeownership is often compared to renting with regard to benefits. Homeownership carries values and meanings that are ingrained in the American society and culture. Homeownership represents a very special case of the institution of private property (Fitchen, 1989). As an institution, homeownership became an important part of the economic system and an advanced social institution serving social needs (Perin, 1977).

Despite the fact that over one-third of the American population does not own the dwellings they live in, the value of homeownership is widely shared and recognized (Fitchen, Heath, & Fessenden-Raden, 1987). It is also important to point out that the status of ownership is separate from the owned home. Thus, homeownership attributes pertain despite the home's monetary value. In other words, the type of home one owns is not as important as the fact that one owns a home

(Fitchen, 1989).

Homeownership Is a Significant Part of People's Dreams

People start thinking about their dream homes at an early age. One may see children at home, on the playground, or at the beach building imaginary homes for themselves. People always dream and fantasize about their future owned homes. Gwendolyn Wright (1991) described the ideal dream home as the following:

> The "model home" is, first, a physical prototype. It exists as an object: both an ideal place conjured up in our mind's eye and multiple architectural interpretations of the ideal seen in the landscape ... The ideal home, while universal, exists simultaneously as a deep-rooted individual concept -- at once fantasy, memory, and longing -- and as a cultural norm. One speaks quite easily of the "American dream home" or the "traditional" Dongon house in Mali. Embodied within the space of all homes are implicit roles for men and women, for individual and community, for majority and minority groups within any society (pp. 213-214).

The Housing Act of 1949 established a national housing goal of "a decent home and suitable living environment for every American family" (Hays, 1985; Nenno & Brophy, 1982). This goal became the American dream for every American family. However, this goal has never been achieved by many American families.

Homeownership Is Thought to Promote Independence and Confer Rights

The concept of homeownership is valued as a sign of independence and as a means of conferring rights (Goffman, 1971). Homeownership provides homeowners with the right to design the interior and the exterior of their homes the way they desire, unless there are some zoning restrictions or specific building codes to be followed. Also, homeowners may furnish, decorate, and finish their homes as they like. In addition, homeownership gives homeowners the right to invite or block whomever they desire from their homes. On the other hand, renters are limited in practicing full independence in their dwellings. For example, renters must follow all the terms of their leases or they may lose the privilege of living in their rented dwellings. Furthermore, landlords reserve the right to enter their rented units whenever there is a need. These types of limitations, for example, restrict renters and reduce the feelings of independence and privacy.

Homeownership Makes Homeowners Members of a Respected Category

Homeownership is an important value that is built deeply into culture (Dean, 1945). This value is often associated with people's socio-economic statuses (Beyer et al., 1959; Cooper, 1979; Cutler, 1947; Downer et al., 1968; Fredland, 1974; Goulart, 1978; Kohlmann & Smith, 1970; McCray, 1975; McCray & Day, 1977; Montgomery et al., 1959; Stoeckeler & Hasegama, 1974; Vars, 1969). Presidents Coolidge, Hoover, and Roosevelt felt that homeownership was the "backbone" of the

social and economic systems of the United States (Dean, 1945).

Ownership as a concept has always been looked at favorably. Early settlers of the United States came from Europe looking for better chances of ownership of land and home, as well as a better life in general (Jennings, 1938). In the United States tax benefits go to homeowners rather than to renters. Income tax laws permit homeowners to deduct mortgage interest payments and property tax payments from taxable income. Also, homeowners are not required to report the rental values of their homes as taxable incomes. Moreover, capital gains tax on the return from the sale of a home is deferred if another housing unit of equal or greater value is purchased within a specific period of time after the sale of the first unit (Morris & Winter, 1993). These laws encourage lenders, developers, the housing industry, and households to consider homeownership as a valuable form of investment. Renters on the other hand are denied all of those benefits. Renters do not get the tax breaks that homeowners do, nor are the tax laws in their favor. The tax law's distinction between homeowners and renters gives homeowners more social and financial prestige than renters. Accordingly, people are often judged by their addresses and the homes they live in (Levine, 1982). Also, people in society are identified or categorized as homeowners or renters (Fitchen, 1989).

From the discussion of the socio-psychological values of housing and the cultural meanings of home and homeownership, it can be concluded than both housing values and meanings are important and have significant influence on how households

see themselves and their dwellings. On the other hand, it can not be concluded that these values and meanings have the same weight for all people from all countries and all backgrounds. The next section will examine the socio-psychological values of housing and the cultural meanings of home and homeownership in one other country -- Kuwait.

Housing, Home, and Homeownership in Kuwait

The socio-psychological values of housing and the cultural meanings of home and homeownership that were discussed previously in this chapter are experienced by Kuwaiti households in manners similar to the ones experienced by American households. Al-Najadah and Parrott (1992) found that Kuwaiti households value health, safety, privacy, comfort, convenience, economy, human relations, beauty, and social prestige in housing. Health, safety, and privacy seemed to hold more weight in housing values than beauty and social prestige (Al-Najadah, 1994a).

The same cultural meanings of home and homeownership experienced by American households and explained by Fitchen (1989), Ryd (1991), and Tognoli (1987) seem to be experienced by Kuwaiti households (Al-Najadah, 1994b). Just as in American households, Kuwaiti households believe that homes are places for families, homes provide protection and represent security, homes are affective anchors with sacred connotations, homes are expressions of their owners' and occupants' identities, and homes provide privacy. In the same way, most Kuwaiti households

perceive homeownership as a significant part of their dreams, believe that homeownership promotes independence and confers rights, and agree with the idea that homeownership could promote homeowners as members of a respected category in the Kuwaiti society (Al-Najadah, 1994b).

Homeownership, not renting, continues to be the norm for Kuwaitis. Al-Najadah and Parrott (1992) found that 95% of the Kuwaitis live in self-owned or family-owned housing. Also, over two-thirds (68%) of the Kuwaitis were found to live in middle-income or low-income housing built by the Kuwaiti government.

Characteristics of Kuwaiti Citizens

Kuwait is a melting pot for people from over 130 countries. According to the last report of the Ministry of Planning (1994), the total population in Kuwait dropped from 2,014,135 in 1989 to 1,484,431 in 1993 due to the Iraqi invasion of Kuwait in August 1990. In 1993, citizens were 43.3% (642,596) of the total population of Kuwait. In 1995, Kuwaiti citizens are expected to reach 660,385 (Ministry of Planning, 1993).

In 1993, 18% of Kuwaitis were living in the district of the Capital; 26.7% in the district of Hwalli, 21.4% in the district of Ahmadi; 22.7% in the district of Frwania; and 13.2% in the district of Jahra (Ministry of Planning, 1994). Reports on the educational status of Kuwaiti citizens in 1988 recorded 16% as illiterate, 21% had finished elementary school, 30% had finished middle school, 13% had finished

high school, and 7% had completed college degrees. In the same year, 125,580 Kuwaiti males and females were singles over the age of 15 years. On the other hand, there were 171,990 married Kuwaiti males and females; 5,628 divorced; and 13,062 widowed (Ministry of Planning, 1993).

The median monthly income of Kuwaiti employees in 1988 was 508.500 KD (about US $1,678.00). Monthly expenditures of Kuwaiti households were 250 KD (about US $ 855.00) and up. Percentage distributions for monthly expenditures of Kuwaiti households on items of consumption recorded for the period between April of 1986 and March of 1987 were: 28% for food, beverages, and tobacco; 9% for clothing and footwear; 8% for rent of dwelling, fuel, and lighting; 15% for household equipment and services; 1% for medical expenses; 16% for transport and communication; 4% for education, recreation, and sports; 8% for transfer payments and loans; and 12% for other goods and services (Ministry of Planning, 1993).

Housing Characteristics of Kuwaiti Households

The urban area of Kuwait is concentrated mainly on the south side of Kuwait Bay and the eastern side below Kuwait City, the capital of Kuwait. Rural areas, on the other hand, are limited in size and scattered in different locations (Figure 1). Most Kuwaitis live within 40 kilometers (25 miles) of Kuwait City. Figure 2 shows the different proposed housing locations mentioned in the 1983 Master Plan of Kuwait. This figure reflects the distribution of houses built before 1983, existing

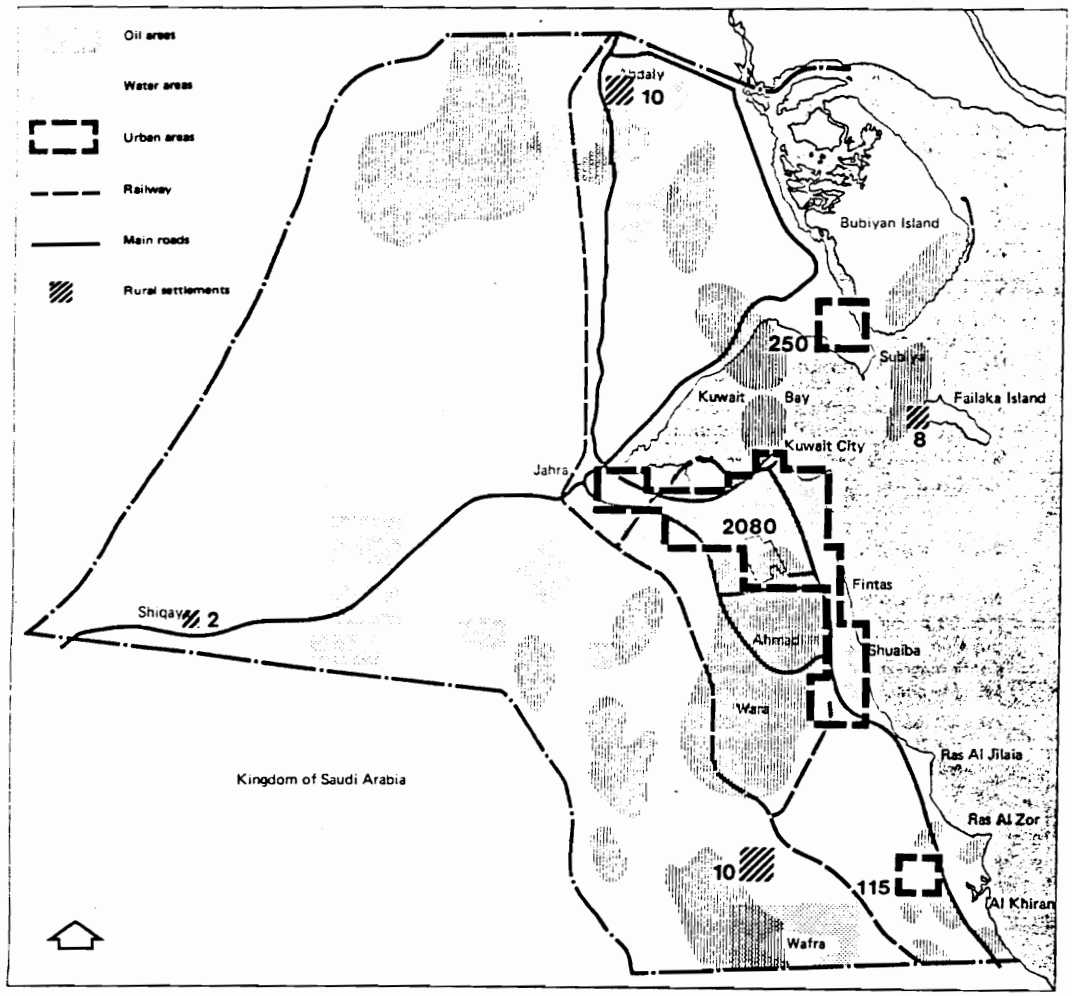


Figure 1. Locations of urban and rural areas in Kuwait (Colin Buchanan and Partners, Ove Arup and Partners International, & Kuwait Engineering Bureau, 1983. p. 5)

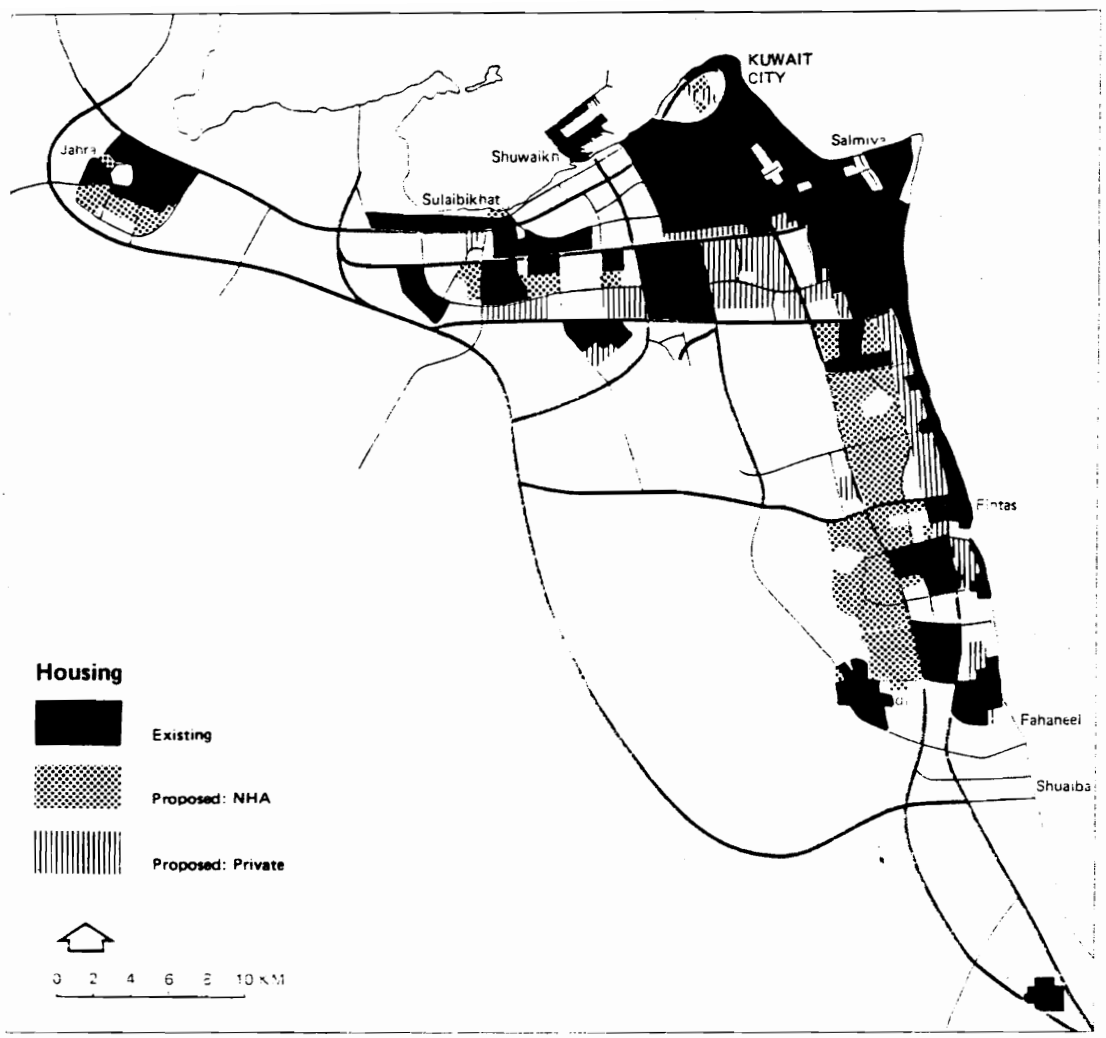


Figure 2. Distribution of housing stock in Kuwait according to the Master Plan of 1983. (Colin Buchanan and Partners, Ove Arup and Partners International, & Kuwait Engineering Bureau, 1983. p. 8)

government housing built by National Housing Authority (NHA), and existing private housing (Colin Buchanan and Partners, Ove Arup and Partners International, & Kuwait Engineering Bureau, 1983).

According to the 1985 Census, Kuwait had 110,252 apartments; 40,689 villas; 33,106 traditional houses; and 22,771 annexes (Ministry of Planning, 1993). Figure 3 exhibits the different housing locations where villas, apartments, or mixed housing types are dominant. Most Kuwaitis live in villas, traditional houses, or apartments; but fewer Kuwaitis live in annexes.

From the authors's observations, most of the apartment buildings have eight apartments or more. The majority of the apartments have two or three bedrooms, a living room, a family room, an unequipped and unfurnished kitchen, and a full bathroom. Some of the apartments have central cooling and heating systems; however, the majority of the apartments are cooled and heated with several air conditioning and heating units.

Villas are the second type of housing available to Kuwaiti families. Villas are often built in clusters or rows. Also, some villas are detached while others are attached. Villas are often designed for single families; however, sometimes those units are occupied by two families or more. Villas are usually occupied by their owners. Some times one or both parents of the owner and the family of one or more of the children may live in the same villa. This situation does not happen in every villa, but it is still a common practice, especially when the villa is large and has

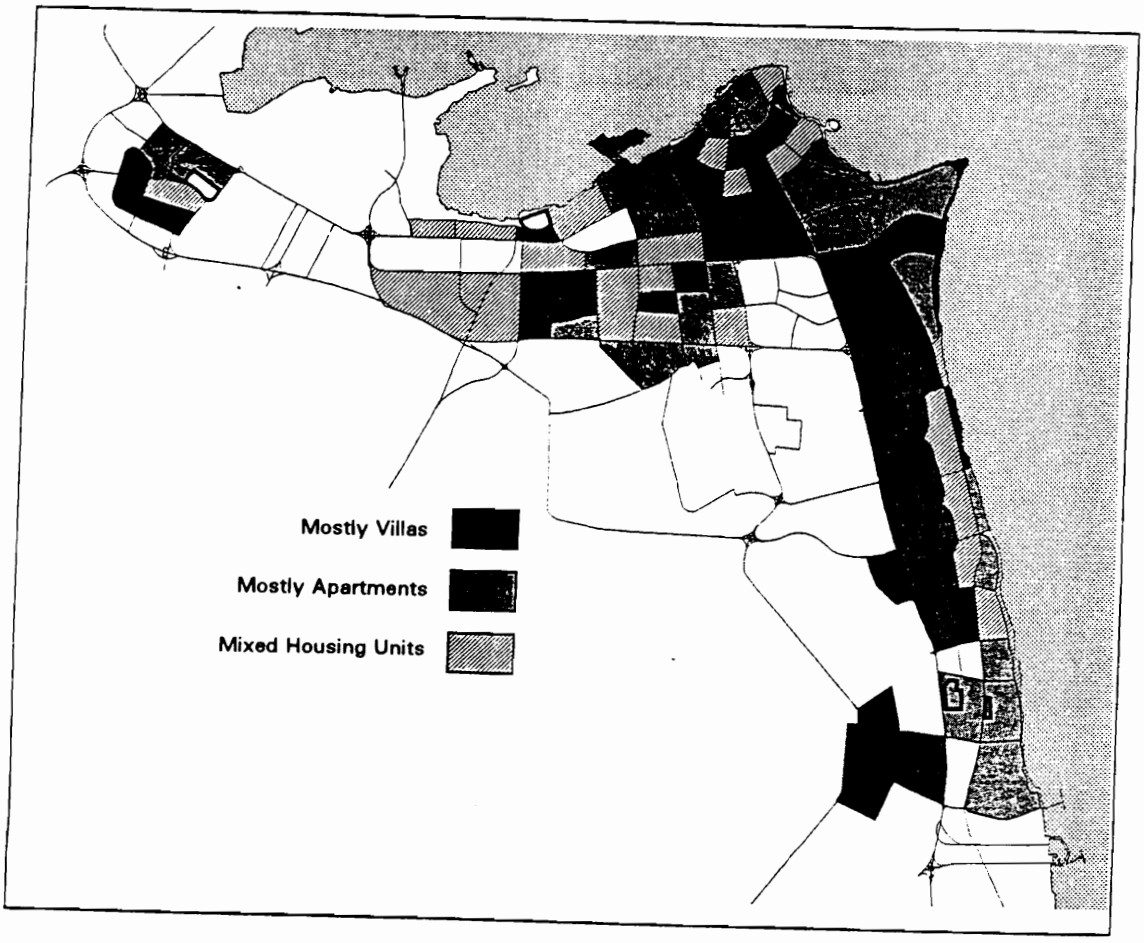


Figure 3. Distribution of housing stock by type in Kuwait. (Al-Murzooq, Abi Hanah, Itkenz & Shankland Cocas Limited, 1993. p. 2-3).

enough rooms.

Villas are surrounded by fenced yards. Over 65% of the villas in Kuwait were built by the government for low-income or middle-income Kuwaiti families (Al-Najadah & Parrott, 1992). Villas built by the government are cooled and heated either by central cooling and heating systems or by separate cooling and heating units. Most of the government villas were built on 300 to 600 square meters (3,229 to 6,458 square feet) of land. The actual size of each villa ranges between 200 to 400 square meters (2,153 to 4,306 square feet).

Most of the villas have five to seven rooms that can be used as bedrooms, multi-purpose rooms, dining rooms, and men's quarters or dewaniahs. Some of the villas have no living rooms, while others have living rooms and/or family rooms. Also, all the villas have two to four bathrooms and a kitchen. Some of the villas may include one or two bedrooms and a bathroom for housekeepers (Ibraheem, 1992). Villas built by the private sector often have features similar to those built by the government, but are often bigger and on larger lots. Also, villas built by the private sector often have more aesthetically pleasing finishing materials for the interiors and exteriors, as well as more expensive bathroom fixtures.

Traditional houses are the third most popular housing type used by Kuwaitis. Rooms in this type of housing are often built in an L-shape or a U-shape with a courtyard in the middle. Most of the traditional houses were built between the 1960s and 1980s. Most of these houses are spacious, but they are open to a lot of dust and

bad weather conditions.

Finally, annexes are the least common housing type used by Kuwaiti families. Annexes often consist of one or two rooms, a kitchen, and a full bathroom. Most annexes are built on the same lot as villas by homeowners for private use, but some are rented to improve or overcome some family financial matters. Annexes are often used by newly married couples or families with low incomes.

Villas, traditional houses, and annexes used by Kuwaiti families are often built in strictly residential areas. On the other hand, most of the apartments used by Kuwaitis are built in mixed residential/commercial areas, with a few exceptions.

Risk and Risk Perception of Pollution in Residential Environments

Risk is defined in the Webster's Encyclopedic Unabridged Dictionary of the English Language (1989) as "exposure to the chance of injury, or loss; a hazard or dangerous chance" (p. 1236). Risk levels often increase according to the length of time of exposure to pollution and the strength of the hazardous pollutants (Al-Yakoob, 1991). However, individuals' perceptions of risk are affected by individuals' uncertainty, vague understanding, and inaccurate calculations of the "pure risk" (Hertz & Thomas, 1983).

Measures of risk usually fall in two wide categories: 1) objective measures that depend on observing and calculating the actual risks of environmental pollution, and 2) subjective measures that rely upon the judgment of those assessing the risk

(Kasper, 1980). Accordingly, people's intense reactions regarding environmental pollution are often affected by the quick, clear, and valid assessments of officials and technical consultants regarding the occurring pollution.

Many researchers concerned with environmental pollution have concentrated on studying and controlling the effects of commercial and residential toxic products and waste on indoor air quality (IAQ) (Jaakkola, Reinikainen, Heinonen, Majanen, & Seppanen, 1991; Simpson, 1990; Spengler & Sexton, 1983; Raw & Fox, 1991; Nero, 1988; Woods, Morey, & Rask, 1989). Previous research indicates that people's perceptions of environmental pollution are affected by people's attitudes toward their polluted environments. Fitchen (1989) concluded her study on toxic chemicals polluting residential environments in the United States by saying: "When toxic chemicals invade residential environments, Americans perceive multiple threats. Besides health risks and financial losses, such pollution represents an attack on the important cultural institutions of home and homeownership" (p. 313).

Housing and home in both their physical forms and cultural meanings and values influence the human behavior of their occupants (Purcell, 1987; Dubos, 1979; Cooper, 1979; Coveney, 1987). As a result, any offensive action on housing and home is perceived as an offensive action on the owner and occupants of that dwelling (Fitchen, 1989). Evidence from the Love Canal disaster (Levine, 1982), the contamination of the Legler section of Jackson, New Jersey (Edelstein, 1988), and other similar incidents suggest that the trauma associated with such disasters affect the

families and the communities within the geographical boundaries of the polluted locations (Erikson, 1976; Janis, 1971).

Natural disasters are often perceived as "an act of God" and a matter of "lack of control;" however, man-made toxic disasters are looked at as results of "loss of control" caused by corporate greed, government corruption, and/or households' ignorance and lack of responsibility (Edelstein, 1988). Also, natural disasters often have a short duration; however, man-made toxic disasters often have chronic and long- lasting effects (Baum, Fleming, & Singer, 1983; Edelstein, 1982). Thus, people have less resentment of natural disasters and more objection to man-made disasters.

Households' perceptions of pollution in their residential environments are affected by households' attitudes toward those environments. Studies in many communities with polluted drinking water magnified specific meanings of home in the American culture and demonstrated the effects of pollution on the lives of the people who lived in those contaminated buildings (Fitchen, 1989; Edelstein, 1988). Indoor air pollution in residential environments has become more of a problem due to designing "tight housing" for energy conservation (Environmental Studies Division & Environmental Research Division, 1982; Spengler & Sexton, 1983). Around 30% of the buildings constructed in Sweden after the energy crisis caused unhealthy reactions to sensitive residents (Ryd, 1991).

Increases in chemical and biological agents inside tight housing are causing

what is called "problem buildings" (Lane, Woods, & Bosman, 1989). Problem buildings or housing can be diagnosed with either Sick Buildings Syndrome (SBS) or Building Related Illnesses (BRI) (Al-Najadah & Woods, 1992; Hansen, 1991; Woods, et al., 1989). SBS is identified when complaints and symptoms are clearly associated with building occupancy, but no causal agent can be positively identified. If 20% or more of any building's occupants exhibit unhealthy symptoms and complaints associated with acute discomfort (e.g. headaches, nausea, dizziness, sore throats, dry or itchy skin, sinus congestion, nose irritation, or excessive fatigue) for two weeks or more in an area of a building or in the entire building, then this building is diagnosed with SBS. Yet, if two occupants or more have signs of actual illness (e.g. nosocomial infection, humidifier fever, hypersensitivity pneumonitis, legionellosis, or toxicity) which are present and can be attributed to a condition in the building, then the building is classified with BRI. SBS is almost always the preliminary stage of BRI (Building Research Board, 1987; Hansen, 1991; Woods, et al., 1989).

Ryd (1991) believed that "sick" buildings "cause severe problems for their residents and for the society at large." Also, polluted residential environments were found to damage the cultural meanings of home and homeownership (Al-Najadah & Parrott, 1992; Fitchen, 1989; Ryd, 1991) and affect the social and psychological values of housing in a negative manner (Al-Najadah & Parrott, 1992).

Oil Pollution in Kuwait

A few days before the liberation of Kuwait from the Iraqi aggression, the Iraqi troops set more 700 oil wells on fire, damaged another 96 wells (Al-Besharah, 1992), and released more than 450 million gallons of crude oil in the Arabian Gulf (Schmitt, 1991, March 3). The oil fires produced daily loads of 50,000 to 100,000 tons of sooty smoke, 25,000 to 50,000 tons of sulfur dioxide, and many other hazardous gasses, volatile components and particulate emissions (United Nations, 1991; Wicker, 1991). The damaged oil wells gushed around 20 million barrels of crude oil to form more than 200 lakes of oil of different size, depths, and shapes (Al-Besharah, 1992). Finally, water and seafood supplies for the people of Kuwait were endangered by a huge oil spill that exceeded by 20 times the Exxon Valdez oil spill in Alaska (Congressional Research Service, 1992). As a result, the people of Kuwait have been exposed to numerous oil-related problems which might seriously affect them and their micro and macro environments.

Oil Pollution and Health Effects

The concentration of oil smoke during the oil fires of 1991 in Kuwait was high in most of the residential areas especially when the wind was calm (Environmental Protection Council, 1991). Many doctors advised patients with a respiratory problem such as asthma to leave the country to reduce health risks. Patients with respiratory problems who could not leave Kuwait were asked to wear masks 24 hours a day

(Wald, 1991, April 25).

Al-Owaish and Ismail (1994) surveyed 232 physicians who were working in Kuwait during the oil fires. Physicians were asked for their opinions on the relationship between oil smoke pollutants and acute illnesses. Results of that study showed that the most common symptoms in patients suffering from illnesses caused or aggravated by oil smoke pollutants were: allergic conditions to the eye (79%), asthma (77%), cough (71%), and skin allergy with pruritus and itching (68%). Al-Doweesan and Abdel-Rehim (1994) studied the impact of oil pollution on patients with allergy illnesses and found that the number of asthma attacks and wheezing in allergic patients increased with the oil burning and decreased when the oil fires were extinguished. Other researchers observed no significant differences in health complaints, clinical findings, or pulmonary function tests between people who were exposed to pollutants from the oil fires and those who were not exposed to that pollution (Al-Shatti et al. 1994).

The pediatric casualty register of Al-Jahra hospital in Kuwait showed an increase of 15.5%, mainly in respiratory problems among children due to exposure to pollutants from oil smoke (Al-Ghawaby, Gulam, Kandil, Al-Ghanim, & Usha, 1994). Lung or breathing problems, skin problems, and asthma were the most reported health problems that either developed or increased among children due to exposure to oil pollution (Al-Najadah & Parrott, 1992).

Findings on chronic health problems due to exposure to pollutants from oil

smoke, gases, or residues are still in the preliminary stage. Follow-up studies may assist researchers to better understand the health effects of oil pollution. Yet one more follow-up on previous investigations of the health effects of oil pollution may not be enough. Longitudinal observations, which are more expensive but more informative, are needed.

Residential Contamination with Oil-Related Pollution in Kuwait

Kuwait's major urbanized area is trapped between the oil fields of Ratga, Raudhatain, Sabriya, and Bahrat from the north and the oil fields of Burgan, Manaqish, Um-Gudair, and Wafrah from the south (Figure 1). Therefore, when the winds were calm in Kuwait, massive amounts of smoke from the 1991 oil fires were not dissipated and were quite dense over most of the country including the major urbanized areas (Environmental Protection Council, 1991).

Dr. Nasrallah, a professor from the College of Medical Studies in Kuwait, believed that Kuwait City, as well as other urban areas with similar features, may have received more oil pollution than areas with fewer buildings and streets. Dr. Nasrallah acknowledged the fact that the "concrete buildings and streets of Kuwait's urbanized areas hold heat better than sand." Therefore, Kuwait's urbanized areas were slightly warmer at sunset than surrounding areas. That situation created an updraft in the urbanized areas and sucked more of the oil- polluted air from surrounding areas (Wald, 1991, April 25). Figures 4 and 5 show pictures of early

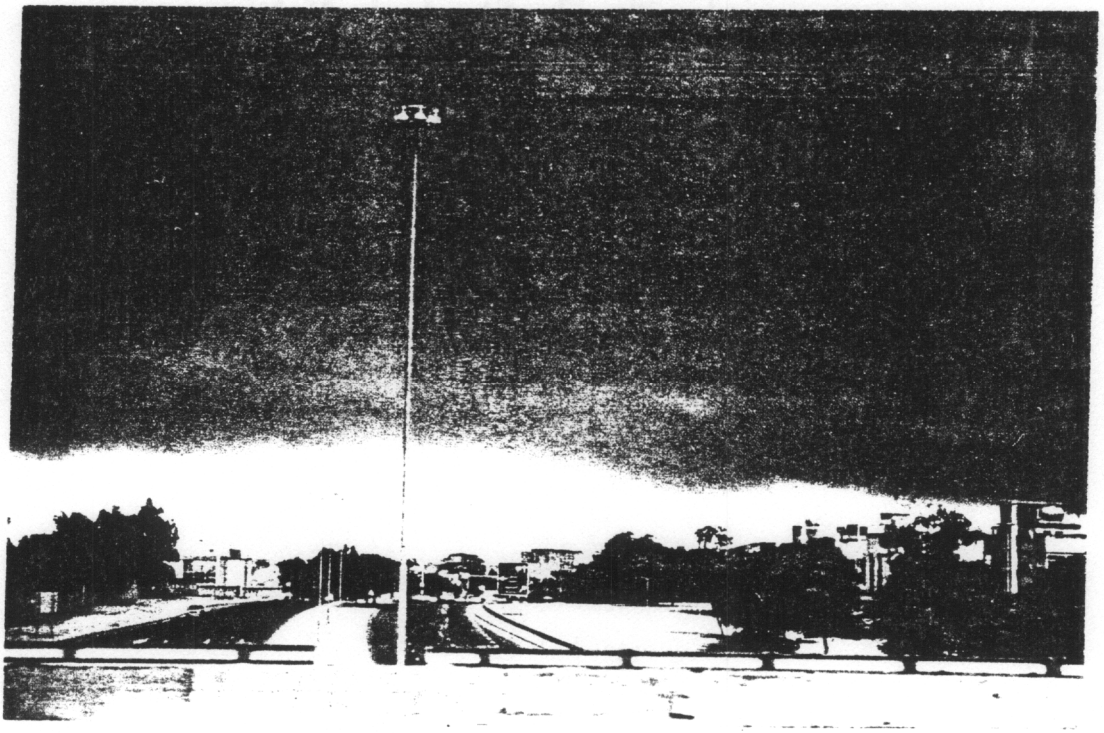


Figure 4. Dense oil smoke seen at an early morning hour over Kuwait City (Environmental Protection Council, 1991. p. 62).

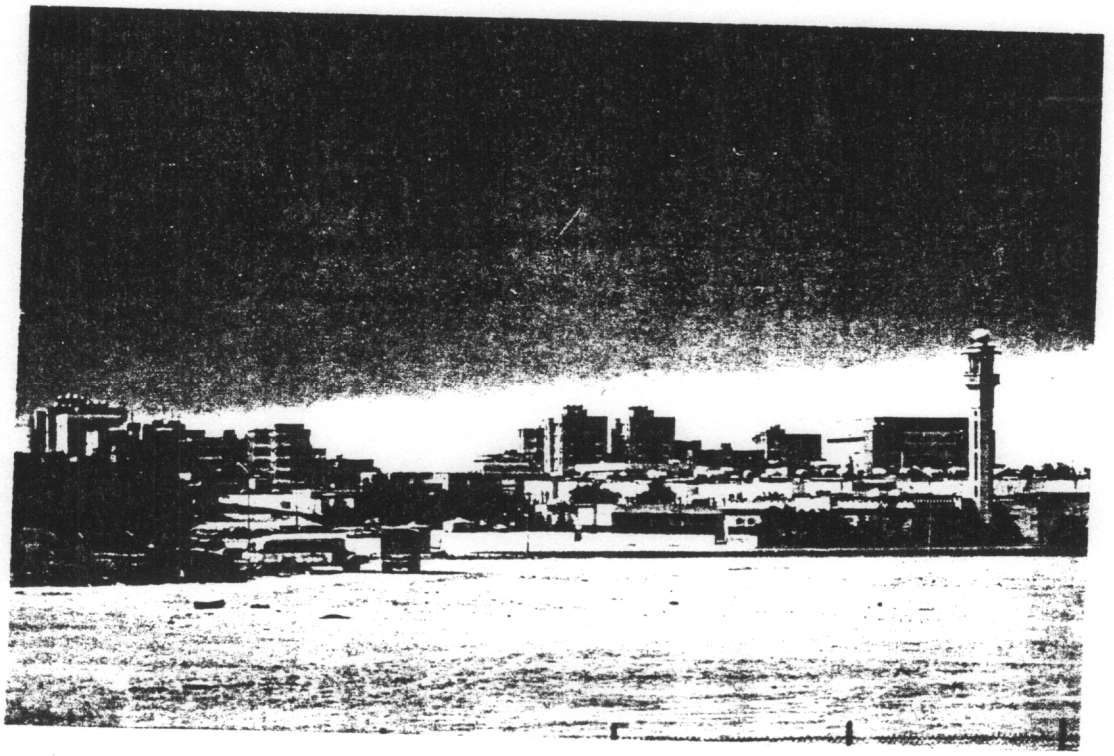


Figure 5. Dense oil smoke seen at an early morning hour over the town of Fahaheel (Environmental Protection Council, 1991. p. 63).

morning hours in Kuwait City and the town of Fahaheel respectively with dense oil smoke plumes.

Oil pollutants such as soot, oil-residues, sulfur dioxides, and carbon dioxides have affected, at different levels, the building facades and building materials of many residential units in Kuwait (Al-Daeej, 1992; Al-Mudhaf, 1994; Al-Mutairi, 1994). Al-Mudhaf (1994) found that 79% of building facades in Kuwait were affected to various degrees by the oil pollution. Staining, dark shading, and black traces caused by rain were the three patterns of oil pollution identified on building facades. Black traces caused by rain were the most occurring pattern (Figure 6). The most affected building materials used in facades were natural stone, sand-lime bricks, marble, and plaster, respectively. Al-Mudhaf (1994) concluded her research study on Weathering and Oil Pollution of Building Facades by saying:

> In general, all building facades were, to some extent, affected by oil pollution. Such effects can be identified as either macroscopic or microscopic. At the macroscopic level, building facades were affected by deposits of oil pollution that can be visually detected ... The microscopic level of oil pollution resulted from deposited pollutants that might react chemically with building facade materials or with building components when such contaminants penetrate deeply. With all building facade materials subjected to such contaminants, chemical reactions of variable extents could take place. The extent of such reactions accelerates the rates of deterioration, affecting the long-term

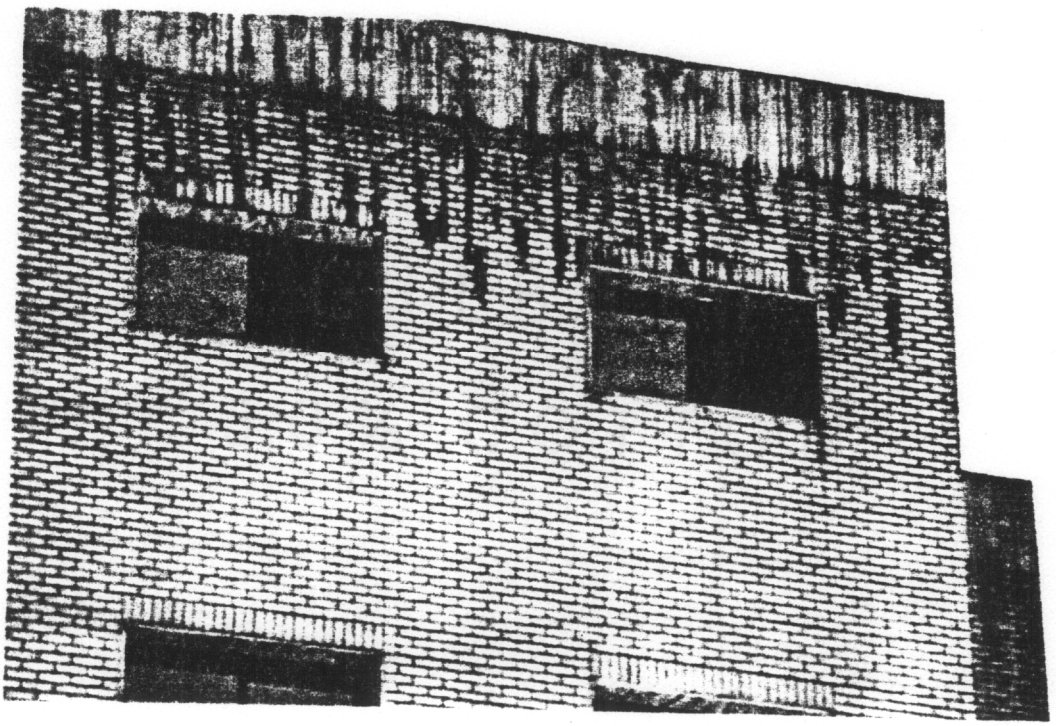


Figure 6. A residential unit with black traces of oil pollution caused by rain (Al-Daeej, 1992. p. 32).

performance of facades and reducing service life (p.7).

In a similar manner, Al-Mutairi (1994) concluded his study of the Effects of Oil Contamination on Building Materials in Kuwait by stating that:

> Hydrocarbon concentration in building materials is high on the surface and decreases with depth. The depth of penetration of hydrocarbons on the different building materials depends on the type of material, which is influenced by the absorption ability, the voids, and material density...The x-ray diffraction analysis showed that sulfuric oxides residue, resulting from the oil fires, reduces the integrity of the building material by changing the solid characteristic of the material to a powdery form that easily disintegrates into small particles and falls off (p. 8).

Al-Mudhaf (1994) estimated the minimum cost of 87.08 million Kuwaiti Dinar (KD) (about US $294 million) to recover and eliminate all existing traces of oil pollution on building facades and to reduce the possibility of long-term damaging effects. However, if only repairing visual contamination of building facades is needed, then the estimated cost would drop to a minimum of 68.96 million KD (about US $233 millions).

Kuwaiti Households' Perceptions of Their Polluted Housing

Pollution from the oil fires of 1991 in Kuwait left distinct negative effects of different levels on the socio-psychological values of housing, as well as the cultural

meanings of home and homeownership. Al-Najadah and Parrott (1992) found in their study of the "Socio-psychological Effects of Oil-related Pollution (ORP) on Kuwaiti Households" that over two-thirds of the Kuwaiti households were concerned about their exposure and the exposure of their family members and belongings to the negative effects of ORP. Moreover, due to the invasion of soot and other oil pollutants to many homes of Kuwaiti households, about one-half of this group lost faith in the adequacy of their homes to protect them from the negative effects of ORP. This feeling made homes no longer the classical safe place for protection from human and non-human dangers. This finding is very similar to those found by Cutter (1981), Fitchen (1989), and Ryd (1991).

Partial loss of faith in home as the place for self and family protection was not the only negative outcome related to the impact of ORP on Kuwaiti households and housing. ORP was perceived as the negative element that tampered with and aggravated many housing values such as beauty, privacy, convenience, comfort, economy, social prestige, and human relations. At the same time, ORP was perceived to negatively affect most of the cultural meanings of home and homeownership of Kuwaiti households at different levels. Homes for many Kuwaiti households were no longer effective and sacred places, the true expressions of their owners' or occupants' identities, places for privacy, or secure places to raise healthy families. Finally, ORP destroyed the dreams of many Kuwaiti households to own and operate safe and healthy homes and stripped many Kuwaiti households from feeling

independent and feeling part of the respected category of homeowners. Al-Najadah and Parrott's study (1992) is still the first and only direct effort that has been conducted to document the effects of ORP on the socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction of Kuwaiti households.

Pollution and Housing Satisfaction

Housing satisfaction is a function or a result of a household's perception and evaluation of the different characteristics of their dwellings and neighborhoods (Onibokun, 1974). Morris and Winter (1978) defined housing satisfaction as "a state of the level of contentment with current housing conditions." This contentment is dynamic and can be affected by the household's housing values and aspiration (McCray & Day, 1977; Onibokun, 1976; Parrott, 1985).

When pollutants of any type appear in any micro or macro residential environment, such pollutants may aggravate housing values, aspirations, and cultural meanings of both residential environments (Al-Najadah & Parrott, 1992; Fitchen, 1989; Ryd, 1991), and reduce housing satisfaction (Carroll, 1991). Pollutants that invade residential environments are perceived as undesirable external stressors that often jeopardize households' health, comfort, and well being (Lemkau, 1979). Depending on the type and level of pollution within the residential environment, households always want to be able to control indoor and outdoor pollution (Seligman,

1975). If total control of pollution is out of reach, households may decide to cope with the pollution or adapt to it (Lemkau, 1979). Also, households may decide to mobilize to a different unit or location to escape such stressors (Fitchen 1989). Such solutions are often exercised by households with polluted housing and/or neighborhoods in order to make-up for the reduction or loss of their housing satisfaction.

Controlling both micro and macro residential environments from pollution can be a massive task. The sense of control is essential to fulfill human needs for safety and self-esteem (Maslow, 1970). Lack of control over the polluted residential environment may result in continuous mistrust in that environment (Al-Najadah & Parrott, 1992; Carroll, 1991; Fitchen, 1989; Levine, 1982; Ryd, 1991; Tognoli, 1987). If households cannot have total control over the polluted housing environment, these households will either cope with the pollution or adapt to it.

Lazarus & Launier (1978) suggested that the coping process can generally be divided into problem-focused coping or emotional-focused coping. Problem-focused coping strategies concentrate on changes in the existing situations to reduce their undesirable impacts; however, emotional-focused coping strategies manipulate the individuals' responses to negative situations.

On the other hand, adapting to polluted housing or neighborhoods means accepting stressful environments by trying to mask the stressor(s) with desirable relaxer(s). For example, an undesirable noise or odor can most of the time be

masked with some desirable music or air freshener (Cohen, Evans, Krantz & Stokols, 1980).

Mobility from polluted housing or neighborhood is often the last resort made to adjust to uncontrollable pollution problems (Carroll, 1991; Fitchen, 1989; Levine, 1982). Residential mobility might occur by changing the housing unit or the neighborhood.

Housing satisfaction is an important factor in the family decision of mobility (Guthrie, 1980). Butler and Kaiser (1971) and Speare (1974) found a strong correlation between housing satisfaction and housing mobility. Morris, Crull, and Winter (1976) found that low housing satisfaction can be a good indicator of residential mobility.

Theoretical Framework: Housing Adjustment and Adaptation

The dynamic flow chart of housing adjustment and adaptation of Morris and Winter (1993, p. 72) provided a suitable theoretical base for this dissertation (Figure 7). This chart focuses on explaining the impact of deviation in housing conditions, cultural norms, and /or family norms on housing satisfaction and later on housing adjustment and adaptation. When deficits in housing conditions, cultural norms and/or family norms are absent or not to the level of discomfort, high housing satisfaction is expected to be experienced by some or all household members. On the other hand, if deficits in housing conditions, cultural norms, and/or family norms

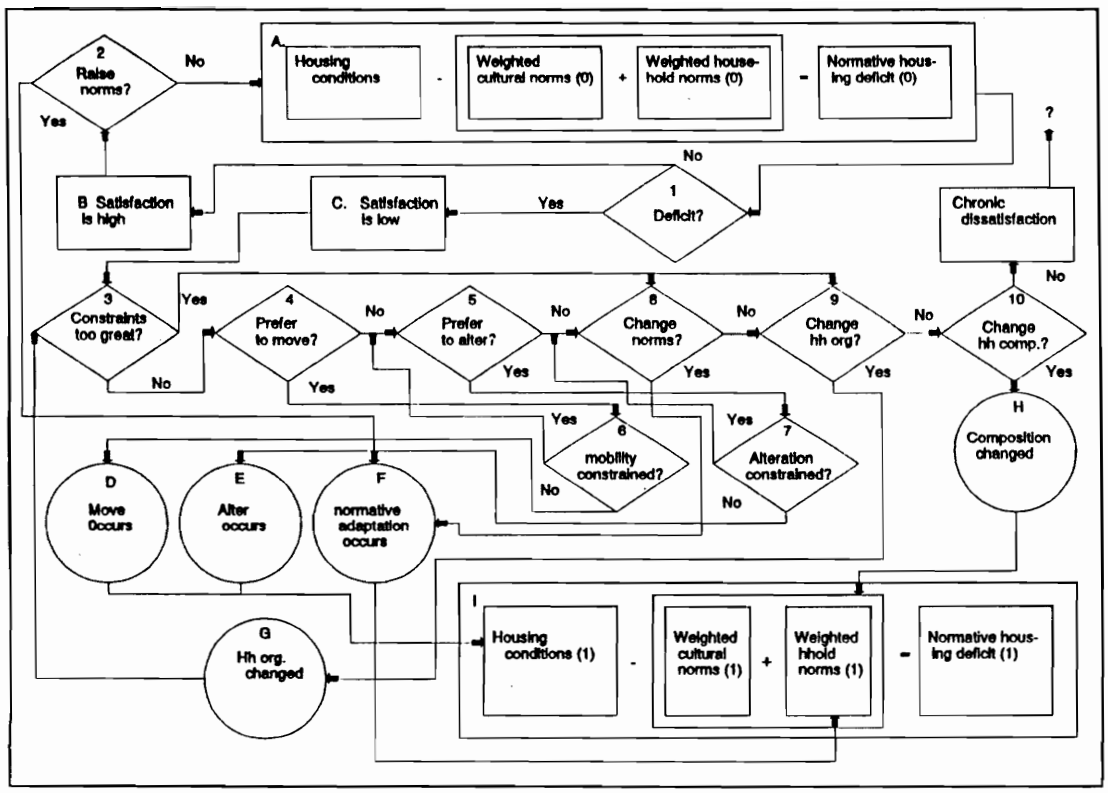


Figure 7. The dynamic flow chart of housing adjustment and adaptation (Morris & Winter, 1993, p. 72).

exist at the level of discomfort, low housing satisfaction is expected to be experienced by some or all household members. Low housing satisfaction is often expected to cause some inter-familial constraints. When inter-familial constraints are high, families under such constraints may choose to change their households' norms or organization. If no satisfaction can be accomplished through the change of household's norms, organization, or composition, then some or all of the household members are subject to chronic housing dissatisfaction.

If households' satisfaction is low and inter-familial constraints are low, households may choose to leave their housing and/or neighborhoods in order to adjust to changes in housing conditions, cultural norms, or households' norms. Alterations in housing conditions, cultural norms, or household norms are other avenues that households can take in order to adapt different housing solutions if housing mobility is out of reach. For example, when a shortage of space occurs because of a new-born baby or establishing a home office becomes a must, some families may change family norms by putting more than one child in the same room to overcome a shortage of space. Others may choose to send one child to live with his or her grandparents for some time until the problem is solved.

For the purpose of studying the satisfaction level of Kuwaiti households with their oil-polluted housing, the use of the housing adjustment and adaptation dynamic flow chart was limited to investigating the impact of normative housing deficit on housing satisfaction. An empirical model was adapted from the housing adjustment

and adaptation dynamic flow chart of Morris and Winter to conduct this study. The empirical model is displayed and discussed at the beginning of the next chapter.

Chapter III

METHODOLOGY

An effort to study the impact of ORP on Kuwaiti households and housing was initiated by Al-Najadah and Parrott in May of 1992. That initial study was completed in November of 1992. The purpose of that study was to investigate and understand the negative effects of ORP on nine socio-psychological values of housing, five cultural meanings of home, and three cultural meanings of homeownership to Kuwaiti households. This dissertation reports findings of a follow-up of the 1992 study and examines how time differences between the initial and follow-up studies, as well as treatments of residential interiors and exteriors against the visible effects of ORP, might have influenced Kuwaiti households' perceptions regarding the effects of ORP on their residential environments. Additionally, the research reported in this dissertation investigated the impact of ORP on the housing satisfaction of Kuwaiti households.

Empirical Framework

The empirical model for this dissertation is adapted from the theoretical dynamic flow chart of housing adjustment and adaptation (Morris and Winter, 1993). Oil-related pollution (ORP) is used as an external stressor that influenced the characteristics of both Kuwaiti households and housing (Figure 8). ORP refers to

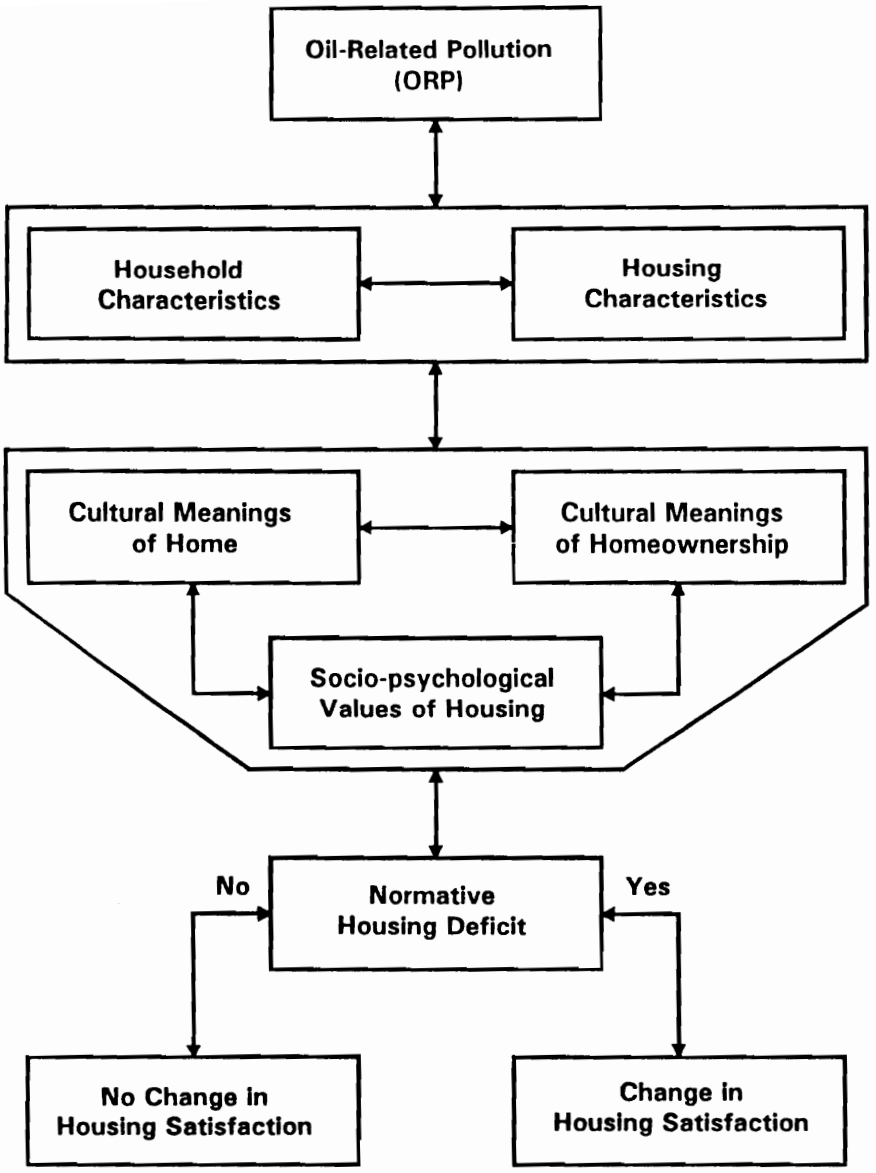


Figure 8. Empirical model for the impact of ORP on the housing satisfaction of Kuwaiti households.

pollution caused by pollutants from crude oil or pollutants resulting from the oil fires ignited by the retreating Iraqi troops. ORP includes pollutants such as crude oil, oil-related gasses or gasses from the oil fires, odor from oil pollutants or the oil fires, soot, solid and semi-solid oil-related particulate, and any other oil pollutants that are not mentioned here but that were experienced by Kuwaiti households.

Characteristics of Kuwaiti households are the distinguishing features or qualities such as gender, age, marital status, parenthood, health status, monthly family income, educational level, and length of residency in present residence. Housing characteristics of Kuwaiti households are such distinguishing features or qualities as size of dwelling, type of dwelling, location of dwelling, distance of dwelling from nearest original source of oil pollution, building materials of dwelling, age of dwelling, type of residential tenure, structure of dwelling, and existing heating, cooling, and ventilation systems in the dwelling. Both groups of households and housing characteristics are expected to interact in influencing Kuwaiti households' perceptions regarding the negative impact of ORP on themselves as well as on their residential environments.

The impact of ORP on Kuwaiti residential environments is examined in terms of its influences on the socio-psychological values of housing, the cultural meanings of home and homeownership, and housing satisfaction. The socio-psychological values of housing are addressed in nine basic values: 1) health, 2) safety, 3) beauty, 4) comfort, 5) convenience, 6) human relations, 7) privacy, 8) economy, and 9) social

prestige (Cutler, 1947; McCray & Day, 1977; Morris & Winter, 1978; Vars, 1969).

The cultural meanings of home are presented by the following five concepts: 1) homes are places for families, 2) homes provide protection and represent security, 3) homes are affective anchors with sacred connotations, 4) homes are expressions of their owners' and residents' identities, 5) homes provide privacy. The cultural meanings of homeownership are: 1) homeownership is a significant part of people's dreams, 2) homeownership is thought to promote independence and confer rights, and 3) homeownership makes homeowners members of a respected category (Fitchen, 1989). The nine socio-psychological values of housing, the five cultural meanings of home, and three cultural meanings of homeownership are expected to interact and influence each other at different levels and in different ways.

If ORP did not affect one or more of the characteristics of Kuwaiti households or housing, then ORP is not expected to have any significant influence on the socio-psychological values of housing or the cultural meanings of home and homeownership. On the other hand, if ORP affected one or more of the characteristics of Kuwaiti households or housing, then ORP is expected to have some influence on one or more of the socio-psychological values of housing or the cultural meanings of home and homeownership. This situation could be a cause for a housing deficit. If no housing deficit exists due to exposure to ORP or the deficit exists but it is not perceived, then the housing satisfaction of Kuwaiti households is expected to remain unchanged. Yet, if ORP created a deficit and the deficit is perceived, then the

housing satisfaction of Kuwaiti households is expected to be reduced. Housing satisfaction in this study refers to the level of contentment with current housing conditions -- satisfied or unsatisfied. This study focuses on examining any change in housing satisfaction of Kuwait households that might have happened due to exposure to ORP.

Operational Definitions

Most of the operational definitions used in this study were adapted from Cutler (1947), Fitchen (1989), McCray and Day (1977), Ministry of Information in Kuwait (1992), Morris and Winter (1978), Webster's Dictionary (1989), or Vars (1969).

Housing unit: A dwelling with either a separate kitchen or a separate entrance.

Residential interiors: All the interior spaces, building materials, furniture and accessories, and fixtures of any residential unit regardless whether the space is occupied or not, and furnished or not.

Residential exteriors: Exterior facades, surrounding courtyard, and fence or walls of any residential unit.

Kuwaiti household: A group of related or unrelated Kuwaiti citizens who share the same housing unit.

Kuwaiti householder: A male or a female member of a Kuwaiti household.

Kuwaiti citizens: All individuals who have or qualify for Kuwaiti citizenship documents.

Gulf War: The war between Kuwait and Iraq that began August 2, 1990, when Iraq invaded and occupied Kuwait. It ended April 3, 1991, when a cease-fire agreement achieved and enforced by the United Nations' Security Council was approved.

Operation Desert Storm: The military action that started on January 17, 1991, by the Allied forces to free Kuwait from occupation by the Iraqi troops.

Oil-related pollution (ORP): Pollution created by any oil pollutant or as a result of oil fires. Oil-related pollution may include pollutants such as crude oil, oil-related gasses or gasses that result from oil fires, odor from oil pollutants or the oil fires, soot, solid and semi-solid oil-related particulate, and any other oil pollutants that are not mentioned here but were experienced by Kuwaiti households.

Householder's characteristics: The distinguishing features or qualities of the members of Kuwaiti households. Such features include gender, age, marital status, parenthood, health status, monthly family income, educational level, and length of residency in present residence.

Housing characteristics: The distinguishing features or qualities of housing in Kuwait. Such features include type of dwelling unit, size of dwelling, location, distance from original source of oil pollution, type and quality of building materials, age of dwelling, type of residential tenure, type of residence, and existing heating, cooling, and ventilation systems.

Socio-psychological values of housing: General social and psychological guidelines used to measure Kuwaiti households' perceptions and relative importance of existing housing conditions. These values are:

1. **Health:** The general condition of the bodies and minds of Kuwaiti households.
2. **Safety:** The state of Kuwaiti households being safe and free from the occurrence of any risks or dangers inside and outside their homes.
3. **Beauty:** Aesthetic considerations that arise from sensory manifestation of intense pleasure or deep satisfaction to the minds of Kuwaiti households, and that are associated with housing design elements such as color, layout, finishing materials, furnishings, lighting, and type and quality of building materials.
4. **Comfort:** A state of ease and satisfaction of bodily wants of Kuwaiti households, associated with freedom from any pain or anxiety.
5. **Convenience:** A state of neatness, order, ease, and comfort experienced by Kuwaiti households when staying at home due to the freedom and lack of fear of using any desired room or space at home.
6. **Human Relations:** Any interaction and relationship between Kuwaiti householders with other family members, relatives, friends, neighbors, or other members of the community.
7. **Privacy:** The state of an individual Kuwaiti householder to enjoy being

private in his or her room or personal space without any interruption or interference.

8. **Economy:** Kuwaiti households' perceptions of home price or investment and home expenditure on maintenance.
9. **Social Prestige:** Attraction of others' attention and respect.

Cultural Meanings of Home: The sum total of meanings related to home that were created by older generations of households and passed to the new and existing ones. These meanings are:

1. **Homes are places for families:** Homes are places where households and family members spend most of their time and where the health, growth, and well-being of all family members are expected to be fostered.
2. **Homes provide protection and represent security:** While life outside the home may expose family members to different types of illnesses, crimes, pollution, and many other kinds of dangers, the general assumption is that people are safe in their homes.
3. **Homes are affective anchors with sacred connotations:** Homes are where emotional investments and positive sentimental memories are found. Homes are often associated with great childhood memories, comfort, safety, good meals, love, and acceptance.
4. **Homes are expressions of their owners' and residents' identities:**

Homes are perceived by their owners, occupants, and others as the personal extensions of the people who own those homes or reside in those units.

5. **Homes provide privacy:** Privacy is defined as selective control of access over something, which can be one's home. For example, entry into the home by people other than family members and invited guests is expected to be controlled.

Cultural Meanings of Homeownership: The sum total of meanings related to homeownership that were created by older generations of households and passed to the new and existing ones. These meanings are:

1. **Homeownership is a significant part of people's dreams:** Householders often have lofty dreams that may consist of getting good educations, earning high incomes, marrying beautiful spouses, having healthy children, owning the best cars, living in beautiful and spacious homes, etc. However, homeownership is often the cornerstone and one of the most essential parts of those dreams.
2. **Homeownership is thought to promote independence and confer rights:** Owning a home is a sign of independence and clear ability to succeed in life. Thus, people believe that they have the right to do anything they desire with and in their homes because they are the homeowners.
3. **Homeownership makes homeowners members of a respected category:**

Homeownership is a respected status because it represents culturally applauded progress in the life cycle and demonstrates one's strong commitment to success.

Housing satisfaction: A state of the level of contentment with current housing conditions. Housing satisfaction refers to the entire continuum of satisfaction from very satisfied to very dissatisfied. Therefore, the level of satisfaction is inferred in the definition in addition to the idea of a state of being satisfied.

1. **No change in housing satisfaction**: When deficits from current housing conditions and/or weighted cultural or household norms are not experienced or when they exist but are not perceived, then housing satisfaction is expected to remain unchanged.
2. **Changed housing satisfaction**: When deficits from current housing conditions and/or weighted cultural or household norms are experienced and perceived, then housing satisfaction is expected to be low.

Research Hypotheses

To answer the proposed questions in this study, the following research hypotheses were structured:

1. The negative effects of ORP on the socio-psychological values of housing of Kuwaiti households did not change significantly in the time between the initial and the follow-up studies.

2. The negative effect of ORP on the cultural meanings of home and homeownership of Kuwaiti households did not change significantly in the time between the initial and the follow-up studies.

3. Treatment of residential interiors and/or exteriors against the visible traces of ORP did not significantly change the Kuwaiti households' perceptions about the negative effects of ORP on their socio-psychological values of housing from the initial study to the follow-up study.

4. Treatment of residential interiors and/or exteriors against the visible traces of ORP did not significantly change the Kuwaiti households' perceptions about the negative effects of ORP on the cultural meanings of home and homeownership from the initial study to the follow-up study.

5. There was no significant effect of oil-related pollution on the housing satisfaction of Kuwaiti households.

Development of Instrument

The same survey questionnaire (Appendix B) used for the telephone interviews in 1992 was used for this dissertation, with 12 additional questions. Those questions (71-82) were added to investigate the impact of ORP on the housing satisfaction of Kuwaiti households. The survey questionnaire began with an instructional paragraph addressed to the interviewers. The instructions in that paragraph were followed carefully by the interviewers when introducing themselves to their prospects. Also,

other instructional statements were introduced in various places in the questionnaire to accommodate different specific needs. For example, the interviewers had to tell their prospects about the nature and purpose of the follow-up study, and to get permission to conduct the interview. Other instructional statements made to the interviewers included skipping questions 11 to 16 with all single participants and skipping questions 60 to 70 with all the participants who were not homeowners or did not live in family-owned dwellings. Moreover, some statements were used to remind the interviewers to read the different levels of the Likert Scale to the participants.

The survey questionnaire was divided into two major components. The first component of this questionnaire included questions 1 to 37, which focused on collecting demographic and awareness information related to the participants' exposure to ORP. Examples of demographic variables included age, gender, marital status, income, educational level, health status of participants and their children, location of current residence, type of dwelling structure, type of residential tenure, and distance of residence from nearest source of ORP. The awareness questions focused on testing the state of fear of each participant from the risks of self exposure or the exposure of family members and belongings to the different effects of ORP in Kuwait.

Questions 38 to 82 composed the second component of the questionnaire. The purpose of that section was to examine the participant's risk perceptions and the perceived threats of ORP on nine socio-psychological values of housing, five cultural

meanings of home, three cultural meanings of homeownership, and housing satisfaction. A four-point Likert Scale was used for questions 38 to 82 to fulfill that purpose. Those points of the scale include: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. A fifth option was added for the not-applicable questions. The four-point Likert Scale was used for better defined answers and to be less confusing to the participants. Finally, question 83 was addressed to each participant in an open-ended form to record comments, concerns, or any final thoughts regarding this study or any of its components.

The questionnaire was designed to interview Kuwaiti male and female householders by telephone. Each questionnaire was given two identification numbers. The first identification (ID) number was for the follow-up study, while the second ID number came from the Human Exposure Assessment Location (HEAL) project (Abdulraheem, 1992). The identification numbers of each participant in the follow-up consisted of five digits. The first digit on the left referred to the group of the participant: 1) same participant as in the initial study; 2) different from the original participant but from the same household of the original participant who could not participate in the follow-up for any reason; 3) different from the original participant but from the same randomly selected sample of the HEAL study; and 4) selected randomly from Kuwait's Public Telephone Directory. The second, third, and fourth digits referred to the participant's number. Finally, the fifth digit was used to identify any of the six interviewers who participated in collecting data for the follow-up study.

The identification numbers of the follow-up study and the HEAL study were used on optical scan forms to keep track of the collected data. The optical scan forms were later used to enter the data in a computer for both descriptive and inferential statistics.

In comparison with the questionnaire of the initial study, the questionnaire used for this dissertation had 12 additional questions (questions 71-82). Those questions were used to examine how time differences between initial and follow-up studies, as well as treatments of residential interiors and exteriors against the visible effects of ORP, had influenced housing satisfaction of Kuwaiti households. The new questions used the same four-point Likert Scale.

Unlike the initial study, all the participants in the follow-up study were asked to respond to all the items on the questionnaire even when they were not afraid of the risks associated with exposure to ORP (question 7). As in the initial study, only the participants who owned their dwellings or lived in family-owned dwellings were asked to complete questions 61 to 70. Those questions focused on the threats posed by ORP to the cultural meanings of homeownership.

Instrument Review and Pilot Study

The 1992 original copy of the survey questionnaire was written in English and later translated to Arabic. The Arabic version was reviewed for ambiguity, ease of reading, and clarity. Also, the instrument was pretested for validity. Few changes were made in the wording of the Arabic version of the questionnaire to eliminate any

possible ambiguity and improve its readability. For the follow-up study, only questions 71 to 82, which focused on investigating the impact of ORP on housing satisfaction for Kuwaiti households, were reviewed for ambiguity, ease of reading, and clarity and pretested for validity.

Selection of Sample

People sampled in the initial study were randomly selected for the HEAL project. The HEAL project was conducted by the Ministry of Health in Kuwait in conjunction with the Environment Protection Council (EPC) in Kuwait and the School of Health at Harvard University as part of an ambitious program of the World Health Organization (WHO). The purpose of that project was to assess the true exposure of the population around the world to certain pollutants (Abdulraheem, 1992).

The target population of the HEAL project consisted of non-smoking and non-institutionalized Kuwaiti citizens age 10 years and older. In general, around 55% of Kuwaiti men and 10% of Kuwaiti women are smokers; however, a very small percentage of children between 10 and 18 years are smokers (Abdulraheem, 1992). According to the 1988 Census, there were approximately 536,571 Kuwaiti citizens, of whom 72% were 10 years of age or older (Ministry of Planning, 1990-1991). Approximately 90% of the Kuwaiti citizens who left the country during the Iraq occupation of Kuwait were expected to return home by fall 1991, the time of the HEAL projects (Environmental Protection Council, 1991).

A nationwide stratified sample consisting of 400 non-smoking and non-institutionalized Kuwaiti males and females age 10 years and up was selected to participate in the HEAL project. Sample distribution was 100 (25%) men, 200 (50%) women, and 100 (25%) children. More women were selected in this project than men and children because women were expected to spend more time at home than men and children. As a result, women's exposure to indoor pollutants was expected to be higher than men's and children's exposure to the same pollutants. The sample came from 54 cities, suburbs, and villages located in the five governates of Kuwait.

For studying the impact of ORP on Kuwaiti households and housing, all participants of the HEAL project who were less than 18 years of age were randomly replaced with family members who were 18 years of age or older because this study was constructed to address only adult male and female Kuwaiti householders. The final number of interviewed participants in the initial study was 318 male and female Kuwaiti householders age 18 years and older. The same sample was expected to be used in data collection for this dissertation. Unfortunately, all the original questionnaires and personal data sheets from the initial study were lost in Kuwait.

The author had to go back to the original files of the HEAL study and make a tremendous effort to identify the original participants. The author was able to include only 89 of the 318 original participants. Arrangement for interviews with the other original participants were not possible due to one of the following reasons: 1) lost identification of original participants, 2) refusal of participation in the follow-up

study; 3) change in address and telephone number; 4) busy line signal (five trials); and 5) respondent outside the country during the time of data collection. Immediate replacement of declining original participants with other adults from the same household was then followed. As a result, the author was able to replace 146 original participants with adult members from the same households. The rationale behind that replacement was the assumption that the responses of the second participant could be very similar to the responses of the original participant since both individuals were from the same household and lived or were living in the same house under the same circumstances and could talk about the same concerns related to exposure to ORP.

To cover the shortage in sample size, the author randomly selected 50 new participants age 18 years or more from the original sample in the HEAL study. Only 29 members of this group agreed to participate in this study. Each new participant was from a different Kuwaiti household. Finally, the author selected randomly 89 Kuwaiti households from Kuwait's Public Telephone Directory. Members of this group had to be 18 years or older, non-smoking, non-institutionalized, and first-time participants in this study. The total number of participants from this group was 83. The final size of the selected sample was 374, but the total number of individuals who agreed to be interviewed was 347, (92.8%). The participants were located in 60 different cities, suburbs, and villages which were spread over the five districts of Kuwait. The District of Hawalli had the highest percentage of participants (29.2%, 101) followed by the District of the Ahmadi (26.6%, 92), the District of the Capital

(18.2%, 63), and the District of Al-Farwania (17.3%, 60). The District of Al-Jahra had the lowest number of participants (8.7%, 30). The paticipation percentages from the five districts is camparable with the dstribution of the general population in Kuwait on those five disrticts (Ministry of Planning, 1994).

Chi-square tests were conducted to compare responses regarding household characteristics from participants in the initial study to those from the follow-up study: age, gender, location in Kuwait, marital status, parenthood status, health condition, educational status, length of residency in present dwelling, presence in Kuwait during the oil fires, and monthly family income.

With alpha = 0.05, some of the null hypotheses for comparing sample groups were rejected in favor of the alternatives, while others were not. The samples in the initial and the follow-up studies were not significantly different (p value = 0.00) in age distribution; location in the five districts of Kuwait; marital status; adults with developed health problems due to exposure to ORP; length of residency in present housing; adults with increase health problems due to exposure to ORP (p value =0.02); and presence in Kuwait during the oil fires (p value = 0.01). However, the samples in the initial and the follow-up studies were significantly different in the distribution of gender (p value = 0.13); children with developed health problems due to exposure to ORP (p value = 0.10); children with increase of health problems due to exposure to ORP (p value = 0.47); educational status (p value = 0.06); and monthly family income (p values = 0.36). Since more men participated in the

follow-up study than women, it was expected that the general educational level and monthly family incomes will be different in the follow-up study than the initial study. These differences may have significant effects on the participants' fear from the negative effects of oil pollution on personal and family health and safety as well as the financial ability to treat residential interiors and exteriors against oil pollution.

Procedure for Data Collection

Telephone interviews were used to collect data for this dissertation. A set of six Arabic-speaking interviewers were trained on the full procedure of data collection. Each interviewer contacted his or her prospects, informed them about the nature and purpose of this study, and asked them for permission to conduct the interview at the time of the call or to schedule it for a later date and time. All the interviewers were restricted to reading the questions to the participants without giving any explanations that might be used by the participants as clues to some answers.

Scoring and Recording of Data

For demographic questions (questions 1 to 37), each participant had the option to select one answer, or more, depending on the question asked. Questions in this section were answered by: 1) Yes or No, 2) selection of one or more choices, or 3) ranking desired answers according to level of importance or intensity of use.

The attitudinal questions 38 to 82 were designed to allow only one choice of

answer. A four-point Likert Scale was used to evaluate the participants' attitudes toward the effects of ORP on the socio-psychological values of housing, the cultural meanings of home and homeownership, and housing satisfaction. The rating scale contained the following categories: 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree. Option number 5 was chosen when the question was not applicable. Finally, item #83 was an open-ended question, intended to gather any additional concerns from the participants regarding the contamination of their residences with ORP. The collected data were recorded on optical scan sheets for quick and easy entry in the computer and fast descriptive and inferential statistical analysis.

Measurement of the Independent Variables

The survey questionnaire addressed 24 independent variables in 37 questions. Measurement of the different independent variables and their corresponding questions are presented in Tables 1, 2, and 3. Table 1 explains the methods of measurement of all independent variables and the questions that were used to describe ORP and understand its effects on Kuwaiti households and housing. The independent variables and their corresponding questions used to describe the characteristics of Kuwaiti households are shown in Table 2 along with the method of measurement of those variables. Finally, Table 3 shows the measurement of the different independent

Table 1

Measurement of the independent variables used in the survey questionnaire to describe oil-related pollution (ORP) and understand its effects on Kuwaiti households and housing (Appendix B).

Variable	Question(s)	Method of Measurement
1. Awareness of the different types of ORP that resulted from the oil fires of Kuwait.	2	Yes / No
2. Fear from the different threats of ORP on self, family members, and belongings.	7	Yes / No
3. Familiarity with the different effects of ORP on humans and non-humans.	8	Yes / No
4. Source(s) of knowledge about the different effects of ORP on humans and non-humans	9	Select one or more of the seven sources of knowledge about ORP
5. Types of ORP outside the dwelling units that bothered participants the most.	23	Rank types from 1 to 6. 1 = bothered the most, 6 = bothered the least.
6. Types of ORP inside the dwelling units that bothered the participants the most.	24	Rank types from 1 to 6. 1 = bothered the most, 6 = bothered the least.
7. Treatment of dwelling on the outside against the visible effects of ORP.	25	Yes / No
8. Reason and method of treatment used to decontaminate the outside of dwelling from the visible effects of ORP.	26	Open ended.
9. Treatment of dwelling on the inside against the visible effects of ORP.	27	Yes / No
10. Reason and method of treatment used to decontaminate the outside of dwellings from the visible effects of ORP.	28	Open ended.

Table 2

Measurement of the independent variables used in the survey questionnaire to describe the characteristics of Kuwaiti households (Appendix B).

Variable	Question(s)	Method of Measurement
1. Age	1	18-39 years old / 40 years or older
2. Nationality	3	Kuwaiti/ Non-Kuwaiti
3. Gender	4	Male / Female
4. Marital Status	10	Select one of the five marital categories
5. Parenthood:		
5.1. Has children	11	Yes / No
5.2. Location and number of children	12	Inside/outside Kuwait
6. Health Status:		
6.1. Health problems developed by children due to exposure to ORP	13	Yes / No
6.2. Types of health problems developed by children due to exposure to ORP	14	Select one or more of the given six options
6.3. Health problems increased for children due to exposure to ORP	15	Yes / No
6.4. Types of health problems that increased for children due to exposure to ORP	16	Select one or more of the given six options
6.5. Health problems developed by participants due to exposure to ORP	17	Yes / No
6.6. Types of health problems developed by participants due to exposure to ORP	18	Select one or more of the given six options
6.7. Health problems increase for participants due to exposure to ORP	19	Yes / No
6.8. Types of health problems that increased for participants due to exposure to ORP	20	Select one or more of the given six options

Table 2, Continued

Measurement of the independent variables used in the survey questionnaire to describe the characteristics of Kuwaiti households (Appendix B).

Variable	Question(s)	Method of Measurement
7. Symptoms experienced by participants or family members when staying at home	21	Select one or more of the nine given options
8. Educational Status	30	Select one of the seven given options
9. Residency in present dwelling:		
9.1. Length of residency in present dwelling	33	Select one of the three given options
9.2. Length of residency in present dwelling (only if residency began before the invasion)	34	Select one of the four given options
9.3. Residency in present dwelling during the Iraqi invasion of Kuwait	35	Yes / No
9.4. Residency in present dwelling during the oil fires in Kuwait	36	Yes / No
10. Monthly family income	37	Select one of the five given options

Table 3

Measurement of the independent variables used in the survey questionnaire to describe housing characteristics in Kuwait (Appendix B).

Variable	Question(s)	Method of Measurement
1. Location		
1.1. Home address	5	Open ended.
1.2. Name of governorate or district	6	Select one of the five given options.
1.3. Distance between residence and nearest source of ORP	29	Select one of the five given options
2. Method of heating, cooling, and ventilating dwelling	22	Select one or more of the nine given options
3. Type of residential structure	31	Select one of the six given options
4. Residential tenure	32	Own / rent dwelling

variables used in the survey questionnaire to describe housing characteristics in Kuwait. The same independent variables shown in Tables 1, 2, and 3 were also used in the initial study of 1992.

Measurement of the Dependent Variables

This study had 22 dependent variables: nine socio-psychological values of housing, five cultural meanings of home, three cultural meanings of homeownership, and five variables on housing satisfaction. These dependent variables, their questions and methods of measurement are explained in Tables 4, 5, and 6.

The dependent variables of the nine socio-psychological values of housing and their corresponding questions are shown in Table 4. The number of questions corresponding to each dependent variable range from one for the value of human relations to 14 for the value of safety. The bold numerals in the table indicate questions used to best describe the effects of ORP on the nine socio-psychological values of housing. The same bold indicator was used for the five dependent variables for the cultural meanings of home (Table 5), the three dependent variables for the cultural meanings of homeownership (Table 6), and the six dependent variables of housing satisfaction (Table 7).

Statistical Analysis

Data from this study were analyzed using the Statistical Analysis System

Table 4

Measurement of the dependent variables used in the survey questionnaire to measure the effects of ORP on the nine socio-psychological values of housing of Kuwaiti households (Appendix B).*

Variable	Question(s)
1. Health: Fear of the effects of ORP on self and other family members.	**41**, 40, 43, 44, 61, 73, 74
2. Safety: Fear of the effects of ORP on self, family members, and belongings.	**41**, 40, 43, 44, 45, 46, 47, 48, 55, 57, 60, 63,73, 74
3. Beauty: Effect of visible ORP on the beauty of home.	**53**, 75, 76
4. Comfort: Disturbance of comfort at home caused by indoor or outdoor effects of ORP.	**42**, 44, 48, 59, 60, 67, 71, 72, 73, 74, 75, 76
5. Convenience: Restriction on behavior and use of certain rooms or spaces at home due to contamination with ORP.	**48**, 51, 55, 58, 59, 63, 65, 66, 67
6. Human Relations: Loss of in-home social gathering and visits with relatives and friends due to fear of home contamination with ORP.	**55**
7. Privacy: Loss of privacy and control at home because of the ORP invasion of home.	**58**, 48, 59, 65
8. Economy: Affected home price because of home and/or neighborhood contamination with ORP.	**56**, 57, 62, 66, 70
9. Social Prestige: Loss of social prestige because of home and/or neighborhood contamination with ORP.	**54**, 55, 57, 66, 68, 69, 70

* Results from the first question with **bold** numbers were used to describe one of the nine socio-psychological values of housing that were used to draw findings related to the effects of ORP on the nine socio-psychological values of housing for Kuwaiti households.

Table 5

Measurement of the dependent variables used in the survey questionnaire to describe the five cultural meanings of home in Kuwait (Appendix B).*

Variable	Question(s)
1. Homes are Places for Families:	
1.1. Seeing, smelling, and/or feeling ORP inside and outside the dwelling.	38, 39
1.2. Fear of ORP outside and inside the dwelling on the health of all family members.	40, **41**
1.3. Loss of comfort at home due to fear because of its contamination with ORP.	42
1.4. Spend most of the time outside home to reduce the threats of ORP on health.	43
1.5. Feel and act abnormal at home due to fear from the threats of ORP at home.	44
2. Homes Provide Protection and Represent Security:	
2.1. Home design can protect the family from different threats of ORP.	45
2.2. Safety of drinking, eating, and breathing at home.	**46**
2.3. Building materials of home can protect household from the threats of ORP.	47
2.4. Loss of freedom and security at home because home contaminated with ORP.	48
3. Homes are Affective Anchors with Sacred Connotations:	
3.1. Love and care for home.	49
3.2. The impact of ORP on home as a source of pride.	**50**
3.3. The effect of ORP on happiness at home.	51

* Results from the questions with **bold** numbers were used to draw findings related to the effects of ORP on the five cultural meanings of home for Kuwaiti households.

Table 5, Continued

Measurement of the dependent variables used in the survey questionnaire to describe the five cultural meanings of home in Kuwait (Appendix B).*

Variable	Question(s)
4. Homes are Expressions of the Owners' and Occupants' Identities:	
4.1. Homes are parts of their owners and occupants	52
4.2. The impact of ORP on home beauty.	53
4.3. The impact of ORP on the social prestige of homeowners and occupants.	**54**
4.4. The effect of home contamination with ORP on in-home visits and social gathering with relatives and friends.	55
4.5. The impact of home contamination with ORP on housing value.	56
4.6. The impact of home and neighborhood contamination on housing as a form of investment.	57
5. Homes Provide Privacy:	
5.1. The impact of home contamination with ORP on the feeling of control over home.	**58**, 60
5.2. The effect of home contamination with ORP on privacy at home.	59

* Results from the questions with **bold** numbers were used to draw findings related to the impact of ORP on five cultural meanings of home for Kuwaiti households.

Table 6

Measurement of the dependent variables used in the survey questionnaire to describe the three cultural meanings of homeownership in Kuwait (Appendix B).*

Variable	Question(s)
1. Homeownership is Part of People's Major Dreams:	
1.1. The impact of home contamination with ORP on homeowners' dreams of owning healthy homes.	**61**, 64
1.2. The impact of home contamination with ORP on housing as a form of investment.	62
1.3. The impact of home contamination with ORP on the concept of "My Home is My Castle."	63
1.4. The impact of home contamination with ORP on homeowners' independence.	65
2. Homeownership is Thought to Promote Independence and Confer Rights:	
2.1. The impact of home contamination with ORP on homeowners' financial independence.	66
2.2. The impact of home contamination with ORP on homeowners' sense of independence.	**67**
3. Homeownership Makes Homeowners Members of Respected Categories:	
3.1. The effect of home contamination with ORP on the social prestige of homeownership.	68, **69**
3.2. The impact of home contamination with ORP on the socio-economic status of homeowners.	70

* Results from the questions with **bold** numbers were used to draw findings related to the effects of ORP on the three cultural meanings of homeownership for Kuwaiti households.

Table 7

Measurement of the dependent variables used in the survey questionnaire to examine the impact of ORP on the housing satisfaction of Kuwaiti households (Appendix B).*

Variable	Question(s)
Housing Satisfaction and the Threats Posed by Contamination with ORP.	
1. Level of housing satisfaction before home contamination with ORP.	**72**
2. Reduction of housing satisfaction after home contamiantion with ORP.	**71**, 73, 74, 79, 80
3. Satisfaction with contaminated neighborhood.	**75**
4. Satisfaction with housing location from major sources of ORP.	**76**
5. The impact of housing contamination with ORP on household's desire for housing mobility.	**78**
6. The overall housing satisfaction.	**82**

* Results from the questions with **bold** numbers were used to draw findings related to the impact of ORP on housing satisfaction of Kuwaiti households.

(SAS) program version 6 (SAS Institute Inc., 1990). Descriptive statistics were employed to obtain frequencies, percentages, means, and standard deviations to describe the demographic, as well as the attitudinal, information related to the negative effects of ORP on the socio-psychological values of housing, the cultural meanings of home and homeownership, and the housing satisfaction of Kuwaiti households. The Multiple Analysis of Variance (MANOVA) (Hair, Jr., Anderson & Tatham, 1987) procedure with 0.05 level of significance (alpha) was used to test the five hypotheses. The means for the nine socio-psychological values of housing (Table 4), the five cultural meanings of home (Table 5), the three cultural meanings of homeownership (Table 6), and the six variables of housing satisfaction (Table 7) were used in MANOVA as the dependent variables for the four areas of concern.

Chapter IV

RESULTS AND DISCUSSION: DESCRIPTIVE ANALYSIS

This chapter reports the results of the data collected during the follow-up study for this dissertation. The demographic results are introduced first, followed by the attitudinal ones. The demographic results include characteristics of Kuwaiti households, as well as the characteristics of housing in Kuwait. The attitudinal results cover Kuwaiti households' perceptions of the effects of oil-related pollution (ORP) on their socio-psychological values of housing, their cultural meanings of home and homeownership, and the levels of their housing satisfaction.

Characteristics of Kuwaiti Households

The characteristics of Kuwaiti households determined in this study were age, gender, marital status, parenthood, educational levels completed by the participants, and monthly family incomes (Table 8). Sixty-seven percent (231) of the participants were between 18 and 39 years of age, while 33% (116) were age 40 or older. Male Kuwaiti household members comprised 56% (192) of the sample, while female household members accounted for 44% (153) of the sample. Seventy-three percent (251) of the sample were married, 26% (90) were single, and only 1% (4) were widowed, divorced, or separated. Ninety-two percent (229) of the married participants had one child or more. Also, none of the widowed,

Table 8

Characteristics of Kuwaiti households.

Characteristic	Frequency*	Percentage Adjusted
Age		
18-39 years old	231	66.6
40 years or older	116	33.4
	347	100.0
Gender		
Male	192	55.7
Female	153	44.3
	345	100.0
Marital Status		
Single	90	26.1
Married	251	72.7
Others (Widowed, Divorced, and Separated)	4	1.2
	345	100.0
Parenthood Among Married Participants**		
Children	229	91.6
Without Children	21	8.4
	250	100.0
Educational Level Completed		
Illiterate	35	11.0
Elementary School	25	7.3
Middle School	57	16.5
High School	101	29.3
Two Years College	43	12.4
Four Years College	73	21.0
Graduate Degree	8	2.3
	245	100.0
Monthly Family Income ***		
Less than 500 KD (less than US $ 1,685)	40	11.7
500 KD - 750 KD (US $ 1,685 - 2,527)	74	21.5
701 KD - 1000 KD (US $ 2,530 - 3,370)	77	22.5
1001 KD - 1250 KD (US $ 3,373 - 4,212)	52	15.1
Over 1251 KD (US $ 4,215)	100	29.2
	343	100.0

* Totals of frequencies may not add up to 347 due to some missing values.

** None of the widowed, divorced, or separated participants had children. Also, one of the married participants did not respond to the question of parenthood.

*** US $ 1.00 = 0.297 KD (Selected exchange rate for this study).

divorced, or separated participants had children.

The participants varied in their educational status. High school graduates comprised the largest group in the sample (29.3%, 101), followed by graduates from four-year colleges (21.2%, 73), middle school (16.5%, 57), two-year college (12.5%, 43), and elementary school (7.2%, 25); eleven percent (38) were illiterates. Only two percent (8) of the participants had graduate degrees.

Monthly family incomes for most of the participants ranged from middle to high, according to the Kuwaiti living standards. The majority of participants (66.8%, 226) had monthly family incomes equal to 701 K.D. or more (approximately US $2,530 or more). Only 11.5% (40) of the participants were making monthly family incomes less than 500 K.D. (US $1,685), while 28.8% (100) of the participants were making monthly family incomes more than 1,251 K.D. (approximately US $4,125).

Housing Characteristics in Kuwait

The housing characteristics of Kuwaiti household addressed in this study included type of residential structure, residential tenure, location of residence, distance of residence from the nearest source of oil pollution, and method of heating, cooling, and ventilating the dwelling (Table 9). Most of the housing stock addressed in this study was constructed by the Kuwaiti government for the use of Kuwaiti families. Over one-third of the housing stock (38.6%, 133) was

Table 9

Housing characteristics in Kuwait.

Characteristic	Frequency	Percentage Adjusted
Type of residential structure:		
Low-income government villa	133	38.6
Middle-income government villa	61	17.7
Apartment	21	6.1
Traditional house (Arabic style)	8	2.3
Home addition (Annex or Molhak)	2	0.6
Others (Privately built villa)	120	34.8
	235	100.0
Residential tenure:		
Own the dwelling unit	313	90.2
Rent the dwelling unit	34	9.8
	347	100.0
Location:		
- Name of governorate or district:		
Capital	63	18.2
Hawalli	101	29.2
Ahmadi	92	26.6
Al-Jahra	30	8.7
Al-Frwania	60	17.3
	346	100.0
- Distance between residence and nearest source of ORP in Kilometers (KM)*:		
<5 KM (<3.125 miles)	52	29.8
>5 KM and <10 KM (>3.125 miles and <6.25 miles)	14	8.0
>10 KM and < 20 KM (>6.25 miles and <12.5 miles)	53	30.5
>20 KM and < 40 KM (>12.5 miles and < 25 miles)	54	30.5
>40 KM (>25 miles)	1	0.2
Method of heating, cooling and ventilating dwelling:**		
Central cooling and heating	146	43.1
Air conditioned	173	50.9
Split heating and cooling units (separate unit for each room)	74	21.8
Electrical fans	126	37.0
Hand fans	5	1.5
Electrical heaters	59	17.3
Coal or gas heaters	59	17.3
Natural air coming through doors and windows	76	22.3
Others	10	2.9

* only 174 of the 347 participants responded to this question.

** Each housing unit may have one or more of the heating, cooling and ventilation methods.

built as villas for low-income families, while 17.7% (61) of the housing stock was built as villas for middle-income families. Villas built privately or with the help of government accounted for 34.8% (120) of the existing housing stock. The remaining housing units were apartments (6.1%, 21), traditional or Arabic style houses (2.3%, 8), and home additions or molhaks (annexes) (0.6%, 2). The majority of the housing units were owned by the participants or one of their family members (92.2%, 313); only a few of the participants (9.8%, 34) lived in rented dwellings.

The housing units of all the participants in this study were built with concrete foundations, skeletons, and roofs. Cement blocks were used to form the majority of the interior and exterior walls. The facades of most of the housing units in this study were covered with sand-lime bricks, natural stone, marble, or plaster.

Most of the housing units included in this study were located in the District of Hawalli (29.2%, 101) and the District of Ahmadi (26.6%, 92). The next larger clusters of housing units were located in the District of the Capital (18.2%, 63) and the District of Al-Frwania (17.3%, 60). The District of Al-Jahra had the lowest number of studied housing units (9.7%, 30). Most of the participants (98.8%, 173) who answered the question on the distance between their housing units and the nearest source of oil pollution indicated that their housing units were less than 40 kilometers (25 miles) away from the nearest source of oil pollution.

Small air conditioning units were found to be the most commonly used units (50.9%, 173) in cooling the participants' houses, followed by central heating and cooling systems (43.1%, 146), and electrical fans (37%, 126). Natural air coming through doors and windows (22.3%, 76), split heating and cooling units (21.8%, 74), and electrical, coal, or gas heaters (17.3%, 59) were the next most used systems to heat, cool, or ventilate the participants' houses.

Over 90% (309) of the participants had lived in their homes long before the Iraqi invasion of Kuwait. Only 9% (32) of the participants had moved into their homes since the liberation of Kuwait. Twenty-six percent (89) of the participants lived in their homes between five and ten years, 21% (74) more than 10 years and less than 15 years, and 32% (111) more than 15 years. Finally, over one-half of the participants (53%, 181) had been temporarily moved out of their homes during the Iraqi invasion of Kuwait.

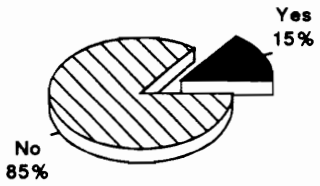
Health and Safety Concerns

Health and safety concerns from the hazardous effects of oil-related pollution (ORP) were major concerns for 68% (235) of participants. Just over 78% (254) of the participants were aware of one or more types of oil pollutant that had resulted from the oil fires. Also, 83% (284) of the participants were familiar with one or more of the different effects of ORP on humans and non-humans. The major sources of information about the hazardous effects of ORP on

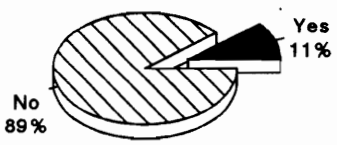
humans and non-humans were government sources (86%, 236), and non-government sources (52%, 143). Place of work (6%, 17), conferences and seminars (4%, 11), and the deawaniahs or men's gathering places (3%, 8) were seldom counted as active sources of information for the participants.

The majority of the participants and their families (70%, 239) lived in Kuwait during the oil fires. Fifteen percent (52) of the participants believed that they developed some health problems due to their exposure to ORP (Figure 9). Major illnesses developed among members of this group due to exposure to ORP included allergy or asthma (51.1%, 23) and respiratory problems such as lung or breathing problems (28.9%, 13). Also, 10.9% (37) of the adult household members experienced an increase in an existing health problem due to exposure to ORP. Allergy (51.4%, 19) and respiratory problems (35.1%, 13) were once again the health problems most aggravated by ORP.

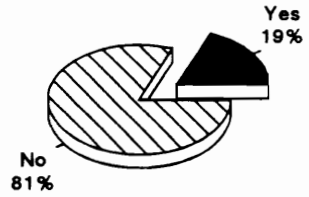
Children of the participants also experienced health problems caused by exposure to ORP. Nineteen percent (45) of the children had developed health problems due to exposure to ORP (Figure 9). The most frequently occurring health problems were allergy (60%, 24) and respiratory illnesses (20%, 8). In the same manner, existing illnesses of Kuwaiti children increased by 14.2% (33) due to exposure to ORP. Allergies (67.7%, 21) and respiratory illnesses (29%, 9) were, once again, the existing illnesses that had increased the most because of ORP.



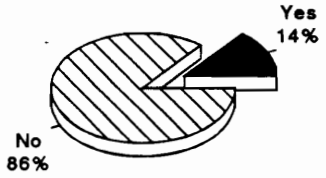
Adults with developed health problems



Adults with increased health problem



Children with developed health problems



Children with increased health problems

Figure 9: Health effects of ORP on Kuwaiti adults and children.

Some of the participants reported that they or some members of their families experienced unhealthy symptoms when staying at home. Some of those symptoms included headaches (18.2%, 63); sore throats (12.1%, 42); excessive fatigue (11.6%, 40); dizziness (11%, 38); dry and itchy skin (9%, 31); nose irritation (8.7%, 30); and sinus congestion (7.8%, 27). Very few participants (4.6%, 16) experienced nausea when staying at home. These symptoms could have resulted from exposure to non-oil pollutants or from other causes. However, the respondents attributed their symptoms to exposure to indoor oil pollutants.

Effects of ORP on the Socio-psychological Values of Housing

Oil-related pollutants (ORP) left some distinct marks on the houses of Kuwaiti and non-Kuwaiti households. This section focuses on describing the effects of ORP on nine socio-psychological values of housing of Kuwaiti households. Those values include: health, safety, beauty, comfort, convenience, human relations, privacy, economy, and social prestige (Table 10). Results from the first questions with bold numbers presented in Table 4 were used to describe findings related to the Kuwaiti households' perceptions about the negative effects of ORP on the nine socio-psychological values of housing. Results of the other questions presented in Table 4 were used to elaborate on the major findings.

Although the oil fires were extinguished by November 6, 1991, and people after that neither saw the thick smoke hanging over their heads nor talked about it

Table 10

Threats of oil-related pollution (ORP) on the nine socio-psychological values housing of Kuwaiti households.

Housing Values	SD (1) % F	DA (2) % F	A (3) % F	SA (4) % F	NA (5) % F	Mis. % F	M	S.Dev. *
1. Health: Fear for self and family members' health from the hazardous effects of ORP.	6.1 21	54.5 189	29.4 102	6.3 22	2.6 9	1.2	2.44	0.81
2. Safety: Fear of the hazardous effects of ORP on the self, family members, and belongings.	6.1 21	54.5 189	29.4 102	6.3 22	2.6 9	1.2	2.44	0.81
3. Beauty: The sooty fallouts from the oil fires affected the beauty of my home.	2.6 9	26.2 91	54.2 188	13.5 47	2.9 10	0.6 2	2.88	0.78
4. Comfort: I feel uncomfortable at home because of my fear of the ORP which affected my home.	10.4 36	59.9 208	22.8 79	2.9 10	3.2 11	0.9 3	2.28	0.81
5. Convenience: I am very upset because my home has been invaded by some ORP. I no longer feel free and secure to use the different spaces in my home.	10.1 35	63.1 219	19.6 68	2.3 8	3.7 13	1.2 4	2.26	0.81
6. Human Relations: My relatives and friends do not visit me at home as much as they used to because of their fear from the threats of ORP in my home.	23.9 83	65.1 226	3.2 11	7.8 27	0.0 0	0.0 0	2.03	0.99
7. Privacy: I feel as if I lost control of my home because I couldn't control its contamination with ORP.	5.2 18	57.9 201	30.5 106	0.6 2	5.8 20	0.0 0	2.44	0.84
8. Economy: I believe that my home price has dropped significantly because my home is contaminated with ORP.	9.2 32	50.1 174	31.4 109	1.7 6	7.6 26	0.0 0	2.48	0.96
9. Social Prestige: I feel as if I have lost my social prestige because of the contamination of my home with ORP.	9.3 33	69.2 240	13.8 48	0.6 2	6.3 22	0.6 2	2.25	0.88

* SD (1) = Strongly Disagree, DA (2) = Disagree, A (3) = Agree, SA (4) = Strongly Agree, NA (5) = Not Applicable, Mis. = Missing, M = Means, S.Dev.= Standard Deviations, F = Frequency, % =percentage

at the same level of intensity as before, over two-thirds (68.3%, 235) of the participants showed genuine concern about the unknown hazardous effects of ORP on themselves, their families, and their belonging.

The most obvious negative effect of ORP was on the housing value of beauty; noted by 67.7% (235) of the participants (Table 10). Fear for health and safety (35.7%, 124) seemed to be the second and third most negatively affected housing values for the participants. Also, these two values affected how the participants were reacting to ORP inside and outside their residences. Over 21% (74) of the participants indicated that they were seeing, smelling, or feeling the effects of ORP inside their homes. Such pollutants included one or more of the following: sooty fallouts, oil residues, or emission of gasses. However, around one-third of the participants (31%, 115) indicated that they saw, smelled, or felt oil pollutants outside their homes.

Just over 35% (124) of the participants indicated that they were afraid of the hazardous threats of ORP inside their homes on their health and the health of their family members. Moreover, 50.7% (176) of the participants felt unsafe to drink, eat, and breathe at home due to their fear of home contamination with ORP. Many other houses (56.4%, 195) still have black traces of soot and oil residues. On the other hand, more participants (56.4%, 195) treated the interiors of their homes against the same pollutants. Those who treated their homes against the black traces of ORP used plain water, hot pressurized water, or water with

some detergents to wash off such ugly and hazardous marks. Others used only paint to cover the black sooty mark of oil on the exteriors and interiors of their homes.

Personal and family fear of the hazardous effects of ORP caused many Kuwaiti individuals and families a lot of discomfort. Over one-fourth (25.7%, 89) of the participants felt uncomfortable at home due to their fear of home contamination with ORP. Another 21.9% (76) of the participants reported that they felt that their homes were no longer convenient for them or their family members. That is, those individuals and families considered their homes had suffered an undesirable invasion by the unwelcome oil pollutants. Those participants were very upset and no longer felt secure in their homes or free to use the different spaces within their homes due to personal fear of ORP at home.

Human relations between some of the participants and some of their relatives and friends experienced some strain due to home contamination with ORP. Ten percent of the participants (37) indicated that some of their relatives and friends did not visit with them at home as much as they used to because of fear from home contamination with ORP.

Privacy is another socio-psychological value of housing that was disturbed because of home contamination with ORP. Around 31% (108) of the participants experienced loss of control over their homes because they could not control ORP from invading those residential units. Another 10.1% (34) of the participants

indicated that they were angry because some strangers, who specialized in home decontamination from ORP, had to interfere with the household's privacy to help in removing the ORP effects. Moreover, 9.4% (29) of the participants agreed with the fact that their home contamination with ORP made them dependent on professional and official individuals or agencies to help decontaminate their homes. This process caused that group of participants to experience different degrees of the loss of privacy for the sake of home treatment against ORP.

Economy was another housing value investigated for possible negative effects due to housing and neighborhood exposure to ORP. Exactly one-third (33.1%, 115) of the participants believed that their home price dropped significantly due to home contamination with ORP. Also, 16.4% (57) of the participants felt that real estate agents and home buyers found the participants' homes and neighborhoods less desirable for living or investment due to home contamination with ORP. This situation caused 29.1% (90) of the participants to consider that owning a contaminated home was a big problem. Because of the high cost of home decontamination, another 12.5% (39) of the participants found themselves financially dependent on the government or one of the banks in Kuwait to borrow money for home decontamination. Finally, 8.4% (26) of the participants believed that they experienced a loss of their socio-economic status among their people because their home was contaminated by ORP.

Finally, ORP had a negative effect on social prestige -- the last-studied

socio-psychological value of housing in Kuwait. As many as 14.4% (50) of the participants believed they had lost their social prestige because ORP had contaminated their homes. Also, 12.6% (39) of the participants agreed with the fact that the contamination of their homes with ORP made them feel as if they were members of a less-respected category in the society. Furthermore, 8.4% (26) of the participants indicated that they felt they had lost their socio-economic status among their people because of the contamination of their homes with ORP.

In conclusion, ORP has affected all the nine socio-psychological values of housing of Kuwaiti households but at different levels (Figure 10). Health, safety, and beauty were the three housing values that were most affected. In their open-ended responses, many participants indicated that health and safety were the most important issues to them, and to the majority of people in Kuwait, because no one knew the real extent of the oil pollution or its short and long-term effects on humans and non-humans. Also, some facts and a lot of rumors were going around among the people, without much official or professional information. For example, some of the participants had heard stories about cases of miscarriage among pregnant women of different ages due to direct or indirect exposure to oil pollutants. Other participants had heard about incidents of abnormal development in infants due to the mothers' direct or indirect exposure to ORP. Most of all, the majority of the participants were afraid of future development of lung cancer due to inhalation of ORP.

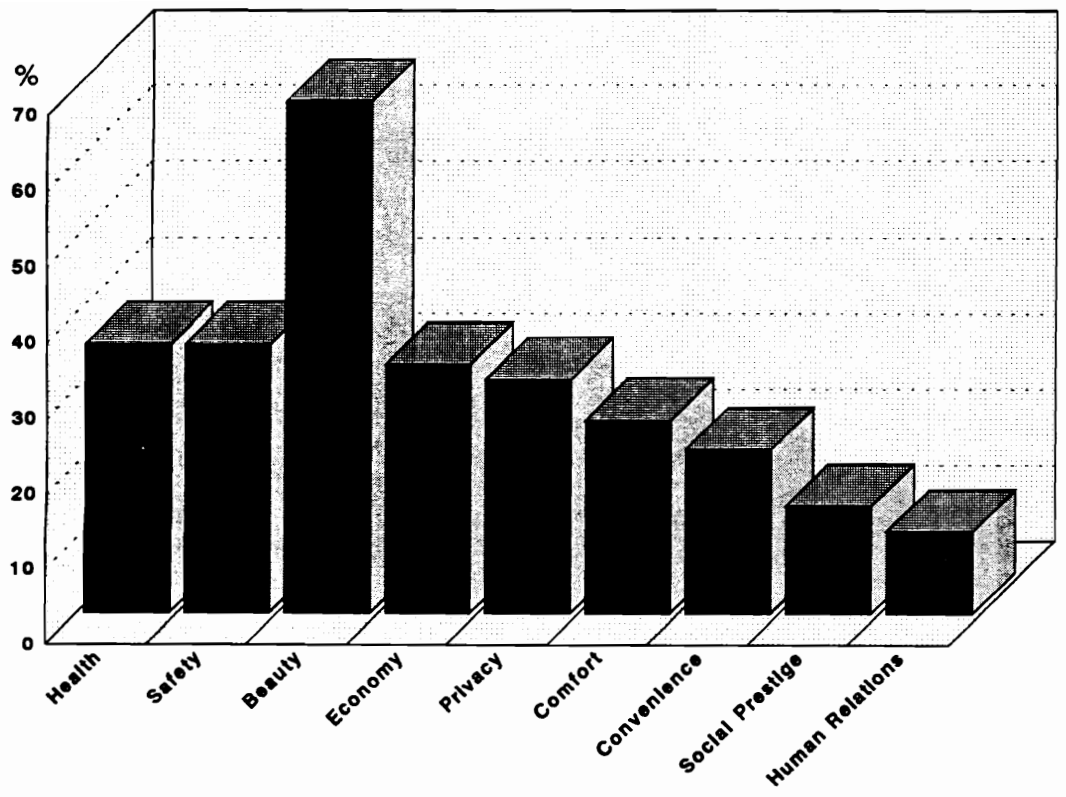


Figure 10. Threat of oil-related pollution (ORP) on the nine socio-psychological values of housing of Kuwaiti households.

Economy, privacy, comfort, and convenience were the next set of housing values that were affected, but more moderately. While almost all the housing stock in Kuwait was exposed to ORP, housing units were affected by the visible and non-visible oil pollutants at different levels. The housing units that were more affected by the visible oil pollutants were those units close to the burning oil wells and oil lakes or situated in the direction of the prevailing wind. As can be seen in Figure 10, between one-fifth and one-third of the participants showed concern about the effects of ORP on the market value of their homes, as well as their privacy, comfort, and convenience at home.

Finally, social prestige and human relations were the housing values least affected by ORP. One of the major reasons for such low influence was the fact that most of the Kuwaiti households and the housing stock in Kuwait were under the heavy clouds of oil smoke and oil pollutants. As a result, few of the participants experienced a significant drop in their social prestige or human relations because everyone had experienced the same conditions.

Effects of ORP on the Cultural Meanings of Home

To each Kuwaiti household member, home has personal as well as cultural meanings. In this section, an effort will be made to describe the negative effects of oil-related pollutants on the five cultural meanings of home that were studied with Kuwaiti households (Table 11). Results from the first questions with bold

Table 11

Threats of oil-related pollution (ORP) on the five cultural meanings of home of Kuwaiti households.

Cultural Meanings of Home	SD (1) % F	DA (2) % F	A (3) % F	SA (3) % F	NA (4) % F	Mis. % F	M	S.Dev. *
1. Homes are places for families: I am afraid of the posed threats of ORP inside my dwelling on my family's health and mine.	6.1 21	54.5 189	29.4 102	6.3 22	2.6 9	1.2 4	2.44	0.81
2. Homes provide protection and represent security: I feel very safe to drink, eat, and breathe at home.	6.1	54.5 20	29.4 156	6.3 139	2.6 10	0.3 21	2.58 1	0.88
3. Homes are affective anchors with sacred connotations: I lost my love and care for my home because it was affected by some ORP.	2.9 10	15.3 534	67.7 235	8.6 30	5.2 18	0.3 1	2.98	0.75
4. Homes are expressions of their owners' and occupants' identities: I feel as if I lost my social prestige because of the contamination of my home with ORP.	9.5 33	69.2 240	13.8 48	0.6 2	6.3 22	0.6 2	2.25	0.88
5. Homes provide privacy: I feel as if I lost my control of my home because I couldn't control its contamination with ORP.	5.2 18	57.9 201	30.5 106	0.6 2	5.8 20	0.0 0	2.44	0.84

* SD (1) = Strongly Disagree, DA (2) = Disagree, A (3) = Agree, SA (4) = Strongly Agree, NA (5) = Not Applicable, Mis. = Missing, M = Means, S.Dev.= Standard Deviations, F = Frequency, % = percentage.

numbers presented in Table 5 were used to describe findings related to the Kuwaiti households' perceptions about the negative effects of ORP on the five cultural meanings of home. Results of the other questions presented in Table 5 were used to elaborate on the major finding.

The first cultural meaning of home introduced in this study was that "homes are places for families." Over one-third of the participants (35.9%, 124) no longer trusted their homes to be a safe haven to raise a healthy family. As a matter of fact, many of the participants (35.7%, 124) expressed fear of the posed threats of ORP inside their homes on their health and the health of their family members. Also one-fourth of the participants (25.7%, 89) indicated that they felt uncomfortable at home due to their constant fear of hazardous exposure to ORP inside their homes. Moreover, 8% (28) of the participants took more drastic measures to protect themselves and their family members by reducing the time they stayed at home. Finally, 19.3% (67) of the participants reported that they would get very upset when staying at home and would act abnormal due to personal fear of ORP threats inside their homes.

Second, homes were no longer considered as places that "provide protection and represent security" by 43% (149) of the participants. Over one-fourth of the participants (25.9%, 89) did not believe that the existing designs of their homes were capable of protecting them or their family members from the threats of ORP. Another 18.8% (65) of the participants had many doubts that

their homes were constructed from good building material that could protect their occupants from the threats of ORP. Moreover, 21.9% (76) of the participants expressed their sadness over the contamination of their homes with ORP. Those participants believed that they no longer could trust their homes to be safe and secure places for them because those units had once been contaminated by oil pollutants.

The third cultural meaning of home on the list was "homes are affective anchors with sacred connotations." Over three-fourths of the participants (76.3%, 265) reported that they were no longer very proud of their homes due to contamination with ORP. Another one-fourth of the participants (26.3%, 91) indicated that they lost their love and care for their homes because those units were contaminated with ORP. In addition, over 50% (172) of the participants agreed with the fact that it was very hard for them to be happy in their contaminated home due to constant worry about the expected hazardous and unknown effects of ORP on themselves and their family members.

Fourth, ORP also negatively influenced the way some of the participants saw "homes as expression of the owners' and occupants' identities." The great majority of the participants (95.1%, 330) felt that their homes were part of them. However, due to home contamination with ORP, 14.4% (50) of the participants felt as if they had lost their social prestige. Also, a few participants (3.2%, 11) felt neglected and isolated by relatives and friends due to contamination of the

participants' homes with ORP.

The last cultural meaning of home that was influenced by ORP was "homes provide privacy." About one-third of the participants (31.1%, 108) felt that privacy at home was disturbed because they could not control and protect their homes from being contaminated by ORP. That situation caused 10.1% (35) of the participants to be angry because they were forced to lose home privacy or compromise it by using unrelated family members to help them in home decontamination. Moreover, 26.5% (92) of the participants indicated that their uncertainty about the ORP contamination level in and around their homes made them feel like insecure victims of an uncontrolled threat.

Oil pollutants have affected the five cultural meanings of home at different levels (Figure 11). The cultural meaning of homes as "affective anchors with sacred connotations" changed the most, followed by the cultural meaning of homes "as places that provide protection and represent security" and "homes are places for families." The only cultural meaning that was affected by oil contaminants at a low level was "homes are expressions of their owners' and occupants' identities."

Effects of ORP on the Cultural Meanings of Homeownership

Homeownership is a valuable and sensitive cultural concept. For many people, homeownership is an important part of their dream. Also,

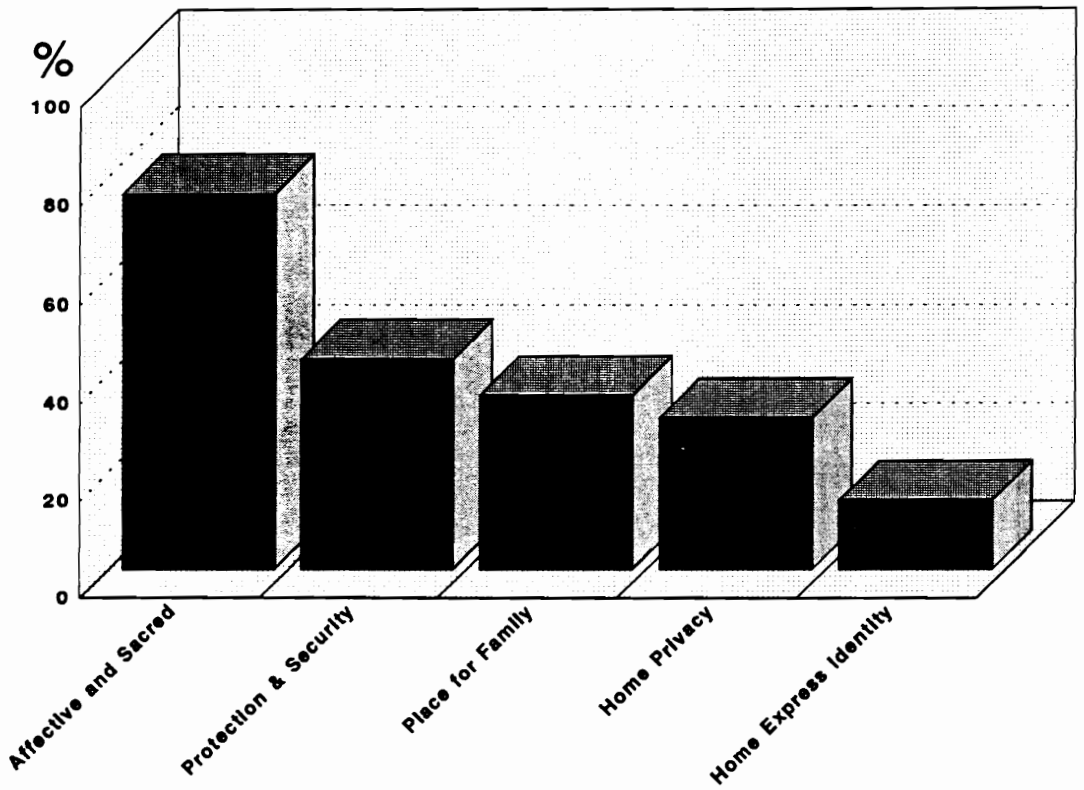


Figure 11: Threat of oil-related pollution (ORP) on the five cultural meanings of home of Kuwaiti households.

homeownership is thought of as a promotion for more independence and a confirmation of rights, as well as a sign of membership in the respected category of homeowners. Hence, home contamination with ORP has affected the cultural meanings of homeownership just as it affected the socio-psychological values of housing and the cultural meanings of home (Table 12). Results from the first questions with bold numbers presented in Table 6 were used to describe findings related to the Kuwaiti households' perceptions about the negative effects of ORP on the three cultural meanings of homeownership. Results of the other questions presented in Table 6 were used to elaborate on the major findings. Over one-third of the participants (36.3%, 113) indicated that the contamination of their home with oil pollutants destroyed their dreams of owning healthy homes. Another 28.2% (87) felt that they had worked hard for many years so their homeownership dream would come true, but home contamination with ORP had shattered those dreams. Also, 29.1% (90) of the participants had found that owning expensive contaminated homes made them owners of big problems. Finally, one-sixth of the participants (15.1%, 47) indicated that they no longer could see their contaminated homes as their "castles"; instead, those units have become more or less "prisons" for the occupants.

Gaining independence and confirmation of rights was another important cultural meaning for homeowners. Due to home contamination by oil pollutants, 13.4% (41) of the participants no longer felt free to do whatever they liked in

Table 12

Threats of oil-related pollution (ORP) on the three cultural meanings of homeownership of Kuwaiti households.

Cultural Meanings of Homeownership	SD (1) % F	DA (2) % F	A (3) % F	SA (4) % F	NA (5) % F	Mis. % F	M	S.Dev. *
1. Homeownership is part of people's major dreams: The contamination of my home with ORP destroyed my dream of owning a healthy home.	6.4 20	54.7 170	34.4 107	1.9 6	2.6 8	0.0 0	2.40	0.75
2. Homeownership is thought to promote independence and confer rights: I am no longer free to do what I want to do with my home because of its contamination with ORP.	10.1 31	71.2 218	12.7 39	0.7 2	5.2 16	0.0 0	2.20	0.83
3. Homeownership makes homeowners members of a respected category: The contamination of my home with ORP made me feel as if I am a member of a less-respected category.	11.0 34	70.6 219	12.6 39	0.0 0	5.8 18	0.0 0	2.19	0.85

* SD (1) = Strongly Disagree, DA (2) = Disagree, A (3) = Agree, SA (4) = Strongly Agree, NA (5)= Not Applicable, Mis. = Missing, M = Means, S.Dev.= Standard Deviations, F = Frequency, % = Percentage.

their homes. Oil pollutants had caused that group of people to lose the right to utilize all the parts of their home with no fear of risk from exposure to ORP. Another 9.4% (29) of the participants felt that they had lost their independence because they had become recipients of help and assistance from family members, officials, or professional individuals in cleaning and decontaminating their homes. Also, 12.5% (39) of the participants found themselves financially dependent on the government or one of the banks in Kuwait to finance home decontamination from ORP. As a result, ORP was found to hinder the promotion of homeownership as a sign of independence and confirmations of rights.

Finally, homeownership is often looked at in the society as the reward for long years of hard work and a positive sign of desirable accomplishment. As a result, homeowners are looked at more positively than renters. In this study, 70.7% (220) of the participants indicated that since they had become homeowners, they felt as if they had become members of a respected category in their society. However, home contamination with ORP made 12.6% (39) of the participants lose that sense of belonging to the respected category of homeowners. Moreover, home contamination with ORP made 8.4% (26) of the participants believe that they had lost their socio-economic status as homeowners.

Once again, oil pollutants were found to have many negative effects on the cultural meanings of homeownership (Figure 12). The cultural meaning of homeownership as part of people's major dreams was the most negatively affected

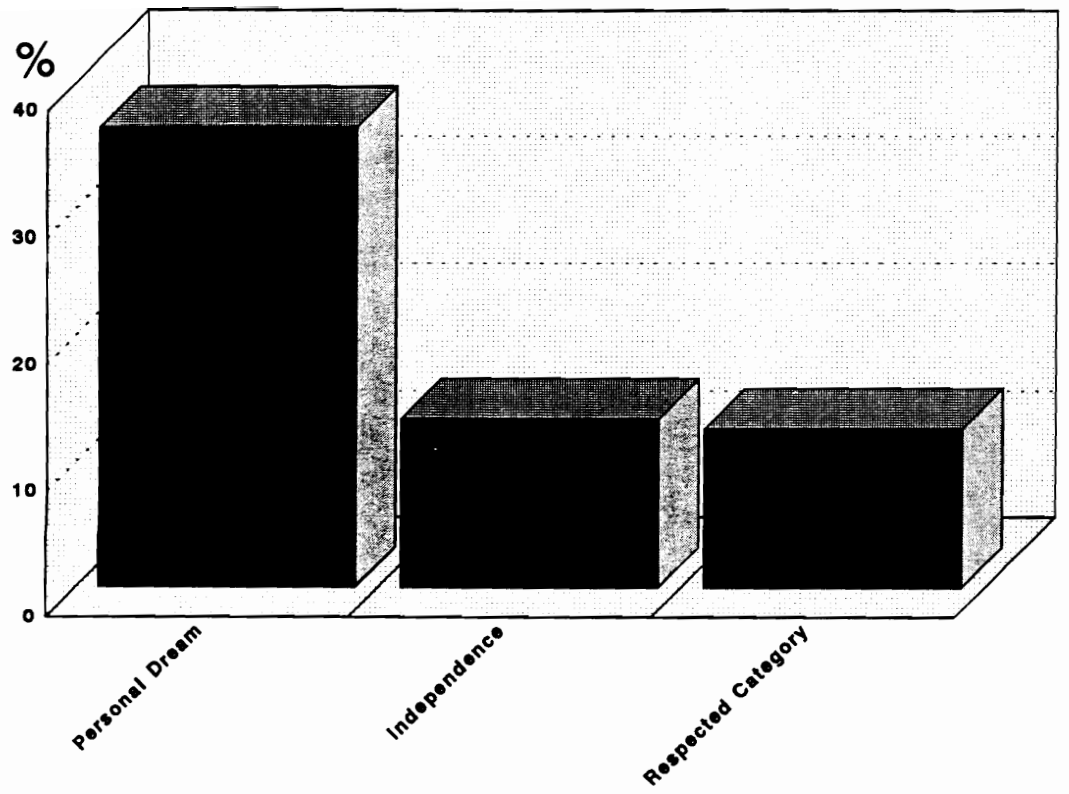


Figure 12: Threat of oil-related pollution (ORP) on the three cultural meanings of homeownership of Kuwaiti households.

meaning. The cultural meanings of homeownership as a promotion for independence and conformation of rights, and as a sign of membership in the respected category of homeowners, were both affected negatively, but at a lower level.

Effects of ORP on Housing Satisfaction

Based on the different effects of oil-related pollution on the socio-psychological values of housing, as well as the cultural meanings of home and homeownership found in the initial study of 1992, the researcher in the follow-up study was interested in investigating the impact of ORP on housing satisfaction of Kuwaiti households (Table 7). The results on housing satisfaction are presented in Table 13. Other statements were also used in the questionnaire to elaborate the research on the negative effects of ORP on the housing satisfaction of Kuwaiti households. It should be noted here that no previous measurement was conducted on housing satisfaction of Kuwaiti households. Also, all the results reported in this section represent the preceived housing satisfaction of Kuwaiti households before and after the contamination of their homes with oil pollution.

Almost half (49%, 167) of the participants reported that they were much better satisfied with their homes before those units were contaminated with ORP. As it was reported in the follow-up, exterior contamination of many residential units caused 34.8% (121) of the participants to be less satisfied with their homes.

Table 13

Threats of oil-related pollution (ORP) on the housing satisfaction of Kuwaiti households.

Variables of Housing Satisfaction	SD (1) % F	DA (2) % F	A (3) % F	SA (4) % F	NA (5) % F	Mis. % F	M	S.Dev. *
1. Level of housing satisfaction before home contamination with ORP: My satisfaction level with my home was much higher before it was contaminated with ORP than after it was contaminated with ORP.	3.2 11	38.0 132	45.5 156	3.2 11	3.5 12	6.6 23	2.63	0.74
2. Reducation of housing satisfaction after home contamination with ORP: My satisfaction with my home has been reduced mainly because of its contamination with some oil pollutants.	4.9 17	44.7 155	40.3 140	1.7 6	1.7 6	6.6 23	2.47	0.69
3. Housing satisfaction level with contaminated neighborhood: I am not satisfied with my home because my neighborhood is still contaminated with oil pollutants.	8.9 31	55.6 193	24.2 84	2.3 8	6.9 24	2.0 7	2.28	0.73
4. Satisfaction with housing location from major sources of ORP: I am not satisfied with my home because it is close to major sources of oil-related pollution.	10.1 35	51.6 179	23.6 82	4.0 14	4.0 14	6.6 23	2.36	0.86
5. The impact of housing contamination with ORP on household's desire for housing mobility. I will move out to another house in the same neighborhood that is less contaminated with ORP than mine.	12.1 42	67.4 234	9.8 34	0.6 2	3.2 11	6.9 24	2.09	0.72
6. The effect of ORP on overall housing satisfaction: Regardless of the remaining visible and invisible effects of ORP inside and outside my home, presently and over all, I am satisfied with my home.	2.3 8	12.7 44	69.5 241	13.8 48	1.7 6	0.0 0	3.00	0.65

* SD (1) = Strongly Disagree, DA (2) = Disagree, A (3) = Agree, SA (4) = Strongly Agree, NA = Not Applicable, Mis. = Missing, M =Means, S.Dev.= Standard Deviations, F = Frequency, % = Percentage.

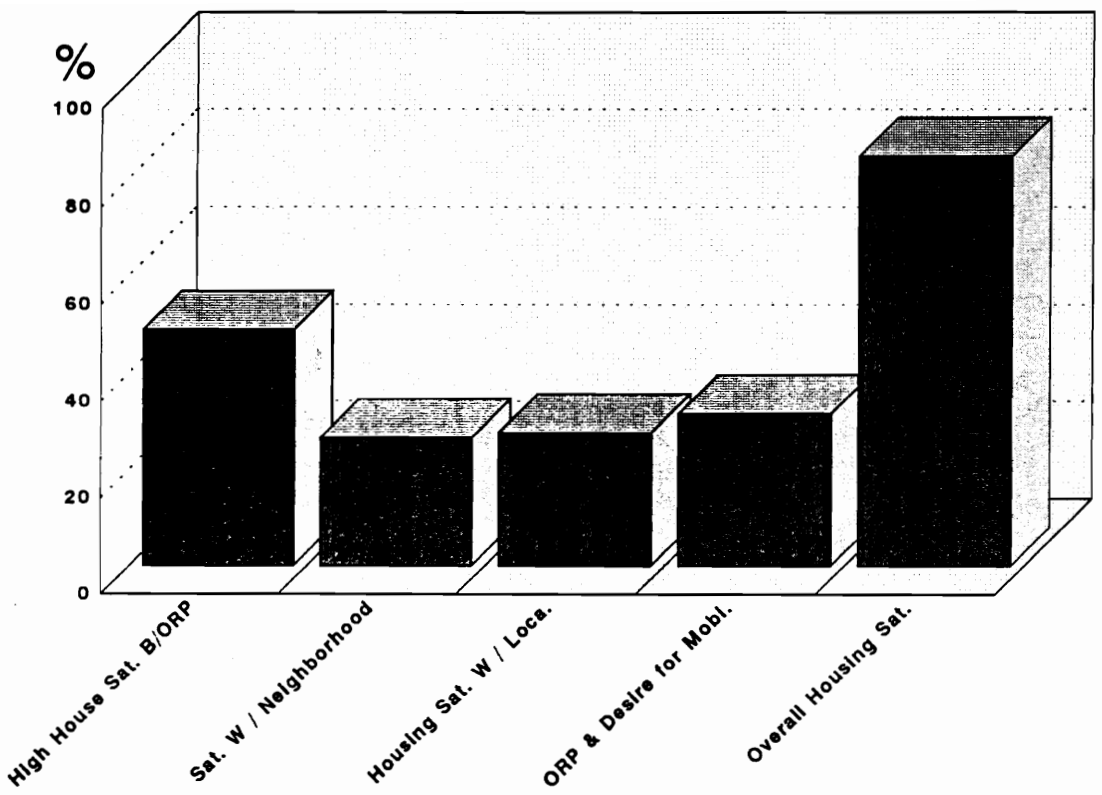
Also, the contamination of residential interiors reduced the housing satisfaction of 31.4% (109) of the participants.

Satisfaction with neighborhood was another issue investigated in this study. About one-fourth of the participants (26.5%, 92) indicated that their satisfaction levels with their homes had dropped due to the contamination of their neighborhood with different oil pollutants. About the same percentage (27.6%, 96) communicated a reduction in their home satisfaction because of the close distance between their homes and the nearest sources of oil pollution. Interestingly, 17.3% (60) of the participants liked their neighborhoods to the point that they expressed the desire to move to housing less-contaminated with ORP but wanted to stay in the same neighborhood. About one-third (31.5%, 109) of the participants did not seem to mind moving to less-contaminated housing units in other neighborhoods as long as they could stay away from the major sources of oil pollution.

Finally, 51.3% (178) of the participants agreed with the fact that the contamination of their homes with ORP had no effects on their levels of satisfaction with their housing conditions. Moreover, 61% (208) of the participants experienced no drop in housing satisfaction due to the contamination of their neighborhoods with ORP. In the end, 84.3% (289) of the participants indicated that regardless of the remaining visible and invisible effects of ORP inside and outside their homes, at the time of the study and over all, those

participants were satisfied with their homes.

In conclusion, although oil pollutants had influenced many housing units and residential neighborhoods in Kuwait, the overall housing satisfaction did not drop as expected (Figure 13). However, it may still be early to conclude that the housing satisfaction of Kuwaiti households with their housing units will continue to remain at its high level. Kuwaiti households are still unclear about the real effects of ORP on themselves, their family members, and their belongings. Day after day people hear new stories about sicknesses related to oil pollution. Moreover, from time to time new stories or rumors find their way to the public. Such incidents often increase peoples' fear of exposure to ORP and cause people to act differently. Since fear of cancer is one of the main concerns of Kuwaiti households, any facts or rumors that may reach the public in the future and relate any possibility of sickness with cancer to indoor pollution may cause Kuwaiti households to be dissatisfied with their homes.



% = Percentages of the participants who agreed or strongly agreed with the effects of ORP on housing satisfaction.

Figure 13. Threat of oil-related pollution (ORP) on housing satisfaction of Kuwaiti households.

Chapter V

FINDINGS AND DISCUSSION

This chapter focuses on a comparison and discussion of findings from both the initial and the follow-up studies. The comparison and discussion address Kuwaiti sources of information related to ORP, treatments of residential interiors and exteriors against the visible traces of ORP, adults' and children's health problems caused by exposure to ORP, and major health symptoms reported by the participants when staying at home. Another portion of this chapter discusses the negative effects of ORP on the socio-psychological values of housing, the cultural meanings of home and homeownership, and the housing satisfaction of Kuwaiti households. Finally, this chapter concludes by testing the five research hypotheses and examining the findings in the light of existing literature.

Kuwaiti Sources of Information on ORP

All the Kuwaiti sources of information on ORP that were reported in 1992 were still available in 1994, but at different levels (Figure 14). The participants in the follow-up study reported that the Kuwaiti government reduced its ORP-related information by 3.8%, while information disseminated by non-government sources decreased by 14.6%. Also, information on ORP obtained through deawaniahs (men's gathering places) decreased by 21.8%, at places of work by 23.3%, and at places of

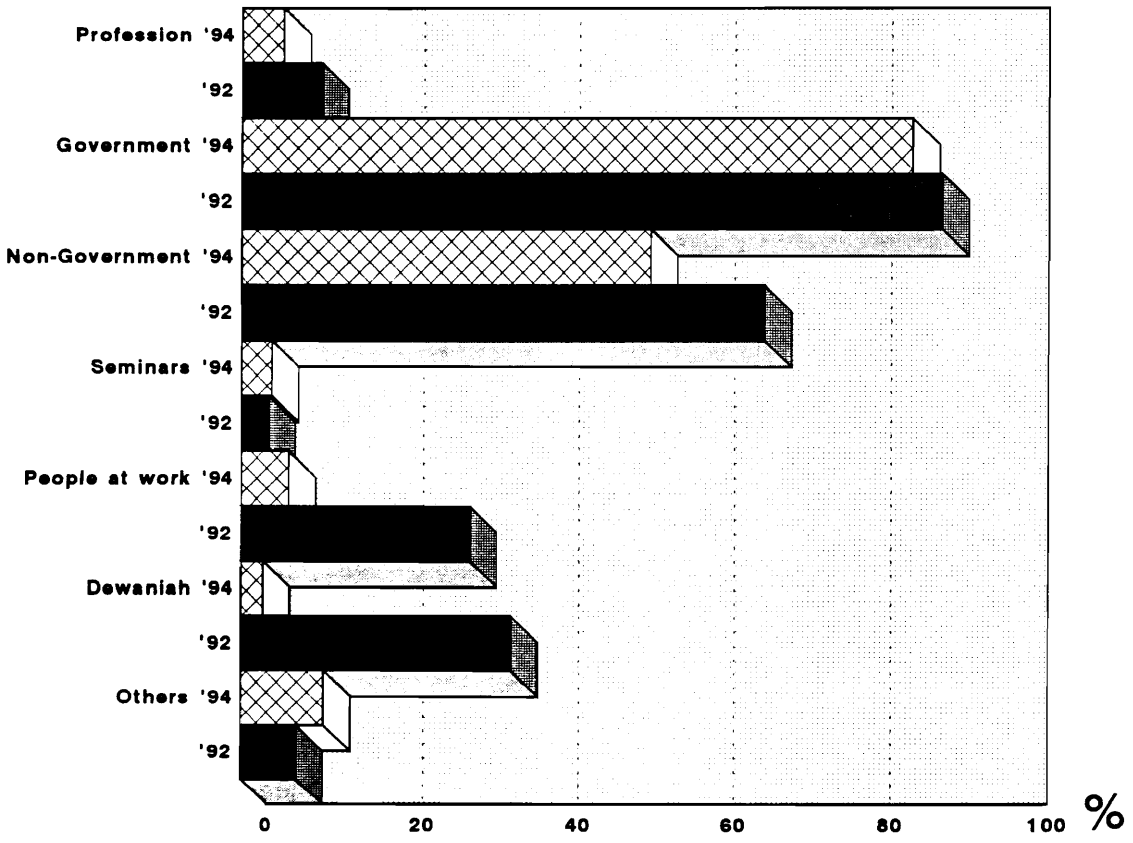


Figure 14. Percentages of ORP-related information disseminated to the public by Kuwaiti sources (1994/1992).

work related to oil pollution by 4.9%. The only source of information that experienced a slight increase in the follow-up study was seminars (0.4%). This increase could be the result of the boost in research studies conducted and shared with the public between 1992 and 1994.

Several scenarios explain the 1994 reduction in ORP information disseminated to the public. An examination of the amount of ORP information shared with the public by government versus non-government sources, indicated that there was some kind of competition or serious activity to influence public opinion. From personal observation, it seems that government sources escalated their activities occasionally to inform the public about the hazardous effects of oil pollutants on people and the environment, although some information was used to deter any exaggerated public fear about the hazardous effects of ORP or to escalate its national and international support against the Iraqi regime. Kuwait television and radio stations were the most-used agencies for that purpose. Other information on oil pollution that had research or academic appeal came from the Kuwait Institution for Scientific Research (KISR), Kuwait University, the Ministry of Public Health, and the Environmental Protection Council (EPC). The Kuwait Foundation for the Advancement of Science (KFAS) did not conduct any research on the effects of oil pollution on the people and the environment of Kuwait, but it had an extensive five-year program to fund short-term studies related to the aftermath of the Iraqi aggression on Kuwait, including the oil fires and oil pollution.

From the survey interviews, the differing reductions in ORP information transferred between people in their places of work, areas of profession, and deawaniahs were due to the fact that people had become tired of talking about oil pollution. Some of the participants indicated that since the oil fires had been extinguished a long time ago and people no longer could see the heavy and sooty smoke of the burning oil wells, the ORP problems did not seem as intense an issue as before. So, people were less interested in talking about ORP and its possible effects. Moreover, some of the participants shifted their concern from ORP to concerns about the economic, social, and political impacts resulting from the Iraqi aggression and its aftermath.

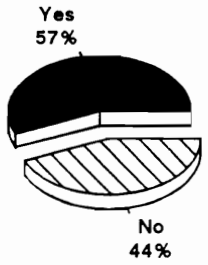
From personal observation, it seems that addressing oil pollution and its negative effects on the people and the environment of Kuwait was more of an issue to the environmentally conscious Kuwaiti than to the average Kuwaiti. In 1992, the majority of people in Kuwait were talking about ORP because everyone saw and experienced ORP or could see the immediate results of the oil fires. By 1994 many of the visible effects of ORP had been removed and the short-term effects of ORP on the people and the environment of Kuwait were no longer apparent. So, why should the average Kuwaiti person be concerned about long-term effects of ORP when even many environmentally educated Kuwaitis knew little about those possible effects?

Treatments of ORP on Residential Interiors and Exteriors

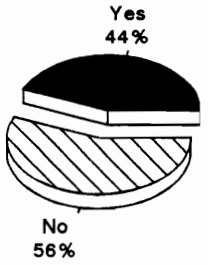
Most, if not all, of the Kuwaiti households were bothered to see oil residues and soot covering the interiors and exteriors of their homes. As a result, a large majority (80%, 250) of the participants in the initial study had treated their residential interiors, and 36% (112) had treated their residential exteriors (Figure 15). In the follow-up study, over half (57%, 195) of the participants reported treating their residential interiors, and 44% (151) had treated their residential exteriors.

From the figures on treatment of residential interiors, it can be seen that fewer participants in the follow-up study reported having treated their residential interiors. This finding was inconsistent with the expected findings. The strongest suggested explanation for this unexpected finding is that the participants in the follow-up study misunderstood this question. Other possible explanations include: 1) the difference in samples between the initial and the follow-up study, 2) the increased number of renters in the sample of the follow-up study, 3) the high number of participants who reported in the initial study the treatment of their residential interiors, and/or 4) the reduction of fear from indoor ORP especially when no significant visible oil pollutants could be seen on the residential interiors. Treatments of residential exteriors against the visible traces of ORP continued to rise.

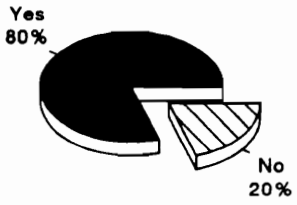
Both in the initial and follow-up studies, methods of treatment of the accumulating ORP on residential interiors included washing off the visible traces with water and detergent or covering them with paint. Furniture, floor coverings,



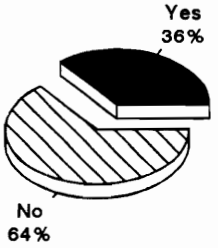
Treated residential interiors
against ORP /1994



Treated residential exteriors
against ORP /1994



Treated residential interiors
against ORP /1992



Treated residential exteriors
against ORP /1992

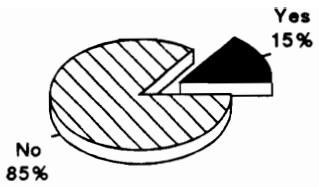
Figure 15. Treatments of residential interiors and exteriors against the visible traces of ORP (1994/1992).

accessories, and heating and cooling systems were washed with water and detergent. Some of the participants changed their furniture and floor coverings because they found those items beyond cleaning and repair. Treatment for removal of oil residues, soot, and black traces of rain from residential exteriors included the use of pressurized steam, pressurized fine sand, or water and detergent. Some of the participants replaced the heavily contaminated finishing materials that covered the exterior of their housing units with new materials.

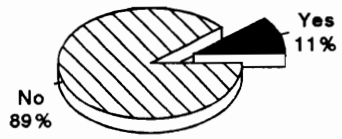
Effects of ORP on the Health of Kuwaiti Adults and Children

Adult participants with developed health problems caused by exposure to ORP decreased from 24% (76, n = 314) in 1992 to 15% (52, n = 346) in 1994 (Figure 16). In the same manner, adult participants with increased health problems due to exposure to ORP decreased from 18% (53, n = 301) in 1992 to 11% (37, n = 339) in 1994. Also, 19% (45, n = 234) of the participants' children developed health problems in 1994 due to exposure to ORP, while 22% (36, n = 172) of the children suffered from the same problems in 1992 (Figure 17). Finally, 14% (33, n = 233) of the children suffered in 1994 from an increase in their existing health problems, while 15% (22, n = 152) of the children had the same problems in 1992.

The reduction in percentages of adults or children with developed or increased health problems due to exposure to ORP was expected in 1994, due to the significant reduction of indoor and outdoor oil pollutants. Respiratory problems and allergies



Adults with developed health problems / 1994



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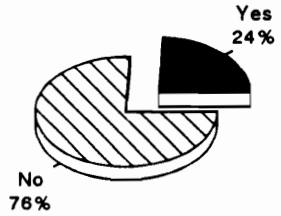

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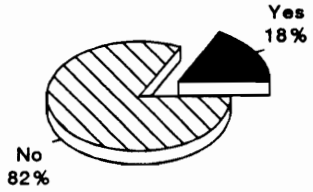
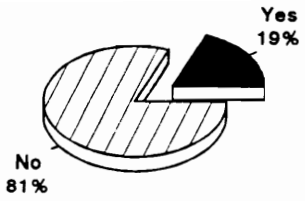


Adults with increased health problems / 1992

Figure 16. The negative effects of ORP on the health of the participants (1994/1992).



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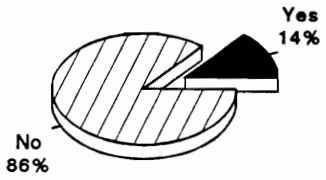

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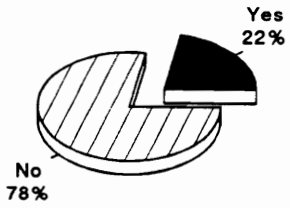

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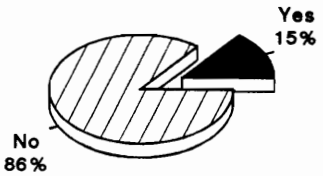


Children with increased health problems / 1992

Figure 17. The negative effects of ORP on the health of the participants' children (1994/1992).

were the largest reported health problems for both the ill participants and their ill children in both the initial and the follow-up studies.

Health Symptoms from Exposure to ORP

One of the purposes of this research study was to detect any significant health symptoms connected to oil pollutants that Kuwaiti households suffered from at home. Findings from the initial study indicated that the participants or some of their family members who lived in the same houses suffered mostly from headaches (34.9%, 111); excessive fatigue (22.2%, 70); nose irritation (21.8%, 69); dry or itchy skin (20.8%, 66); sore throats (20.1%, 64); and dizziness (18.2%, 58) (Figure 18). Nausea and sinus congestion were experienced, but at low levels.

Findings in the follow-up study revealed that all the symptoms that had been diagnosed in 1992 have declined between 0.7% and 16.7%. The greatest declines were experienced in headaches (16.7%), followed by nose irritation (13.1%), dry or itchy skin (11.8%), and excessive fatigue (10.6%). Moderate reductions were experienced in the symptoms of sore throats (8%) and dizziness (7.2%). Very few participants during the follow-up study continued to experience sinus congestion (1.0%) and nausea (0.7%) at home. The researcher expected to find a reduction in health symptoms in the follow-up study because of the increase in number of residential units treated for removal of oil pollutants.

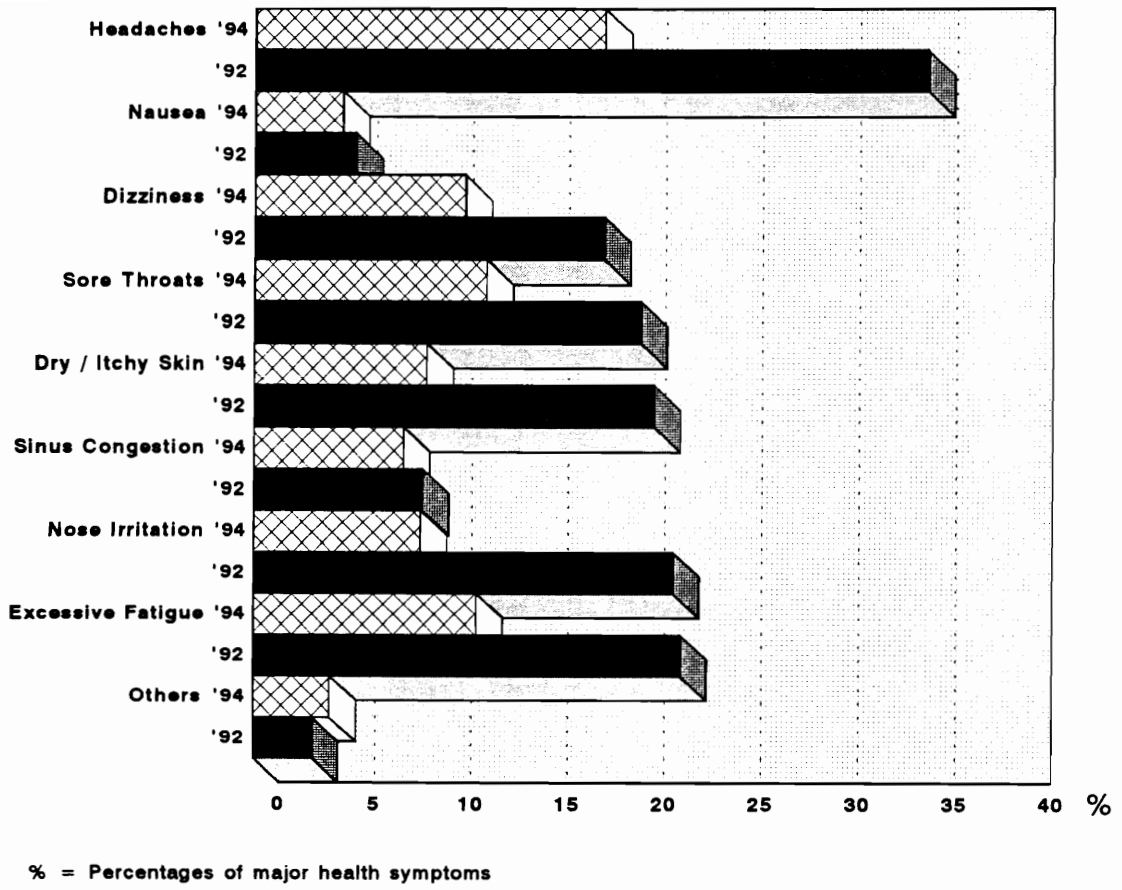


Figure 18. Major health symptoms related to ORP reported by the participants when staying at home (1994/1992).

ORP and the Socio-psychological Values of Housing

Investigating the short-term and long-term negative effects of ORP on the socio-psychological values of housing has been important to the author since the oil fires were extinguished in November 1991. A special effort was made to investigate those effects on the following nine values: 1) health, 2) safety, 3) beauty, 4) comfort, 5) convenience, 6) human relations, 7) privacy, 8) economy, and 9) social prestige. In general, the findings presented in Figure 19 indicate that ORP had fewer negative effects on most of the socio-psychological values of housing in 1994 than in 1992.

From the initial study, the major negative effect of ORP was on the housing value of beauty. In 1992, 78% of the participants were concerned about the beauty of their houses due to the accumulation of the ugly black rain traces, soot, and oil residue and fallout on their housing. However, fewer participants (67.7%) in 1994 felt that ORP had damaged the beauty of their homes. Such decrease was expected due to the serious efforts of the participants and many other Kuwaiti households to remove and decontaminate the interiors and exteriors of their homes from the visible traces of oil pollution. Also, treatments of residential interiors and exteriors improved the looks and acceptance levels of those residential units.

The next group which was negatively but moderately affected by ORP included the housing values of convenience, privacy, health, safety, and comfort. Findings from the initial study indicated that 38.7% of the participants did not enjoy the convenience of using all the different spaces in their residences due to their home's

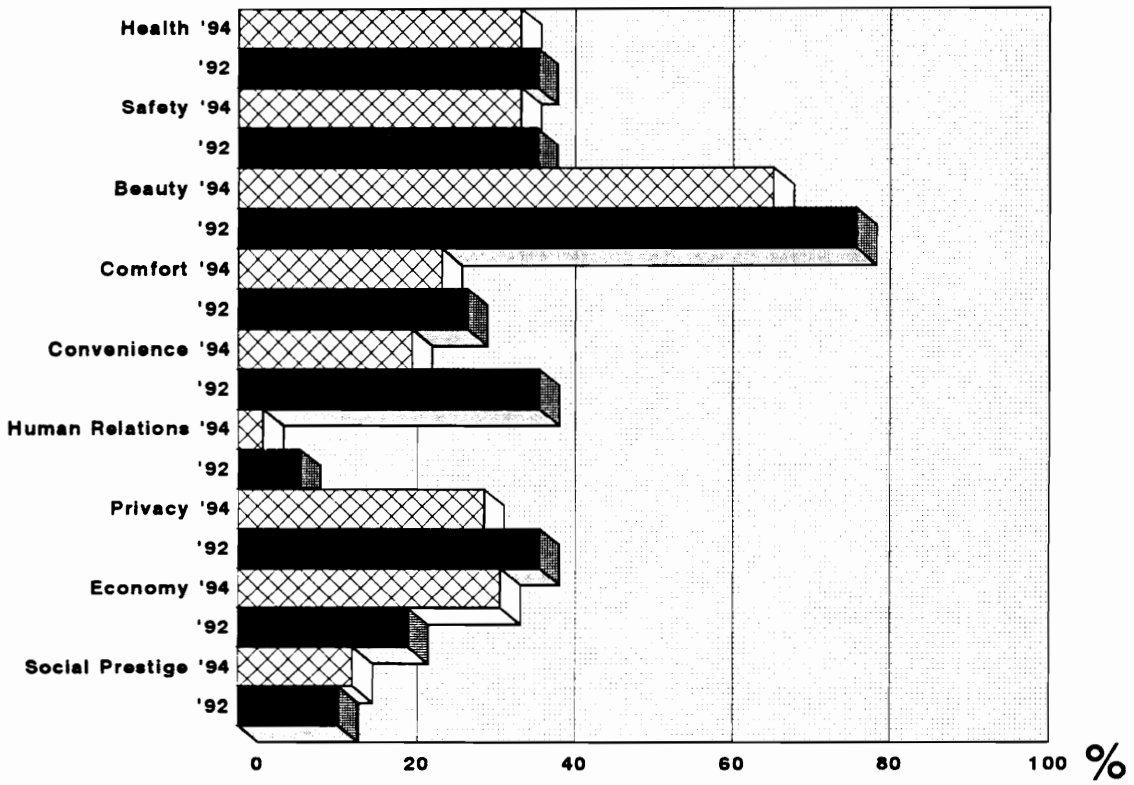


Figure 19. The negative effects of ORP on the socio-psychological values of housing of Kuwaiti households (1994/1992).

contamination by ORP. Likewise, another 38.7% of the participants did not enjoy privacy in their residences because their contaminated homes had to be cleaned and decontaminated by unrelated individuals. This condition made it hard for many household members to be private and enjoy privacy in their own homes. Also, 37.8% of the participants in the initial study reported that they were concerned about the effects of ORP on their health and safety, as well as the health and safety of their family members. Finally, 29% of the participants were not comfortable about living in their contaminated homes.

In the follow-up study, fewer participants suffered from the disturbance in convenience at home (21.9%), privacy (31.1%), fear for personal and family health (35.7%), safety (35.7%), or comfort at home (25.7%). Some of the participants commented on the decrease by saying that the treatments of their residential interiors and exteriors (walls, furniture, and heating and cooling systems) had reduced the intervention of unrelated individuals who had been needed to treat the homes and make them less threatening to the health and safety of their occupants.

The next housing value that had been negatively influenced in the initial study by ORP at a very low level was human relations (7.9%). Some of the participants indicated that fewer home visits were paid to them by relatives and friends due to fears caused by their home contamination with ORP. In the follow-up study, the negative effects of ORP on the housing value of human relations decreased to 3.2% and more relatives and friends were visiting each other. Once again, treatments of

residential interiors and exteriors were reported to have reduced the undesirable effects of ORP on the housing value of human relations.

ORP negatively affected only two housing values at higher levels in 1994 than in 1992. Findings in 1992 showed that 21% of the participants were concerned about the negative effects of ORP on their perceived housing sales prices and 12.4% were concerned about their social prestige. In 1994, those concerns increased to 33.1% for the perceived housing sales prices and to 14.4% for the value of social prestige. The increase in the negative effects of ORP on these two values could have resulted from the negative effects of the remaining visible oil pollutants on the beauty of housing and the ability to sell such polluted houses at acceptable prices. Also, the untreated houses, the houses with less demand due to their location in contaminated neighborhoods, and the houses close to the major sources of ORP made the homeowners feel that their homes were less acceptable to the home buyers. That feeling was expected to contribute to the reduction in homeowners' perceptions of their social prestige.

Although the negative effects of ORP on most of the socio-psychological values of housing decreased at different levels, over two-thirds of the participants continued to experience the loss of home beauty due to the contamination of their homes with the black traces of rain, soot, and oil-fire fallouts which accumulated on the facades of their housing units. Also, more than one-third of the sample continued to feel threatened in their own homes by ORP. Moreover, between one-fifth and

one-third of the participants continued to suffer from the negative effects of ORP on the convenience of using all the different spaces of their contaminated homes, comfort and privacy at home, and the perceived reduction in home sale prices. The general concern of the negative effects of ORP on the socio-psychological values of housing continued to exist even two years after the initial investigation.

ORP and the Cultural Meanings of Home

As part of the initial study, a special effort was made to investigate the impact of ORP on five cultural meanings of homes: 1) homes are places for families, 2) homes provide protection and represent security, 3) homes are affective anchors with sacred connotations, 4) homes are expressions of their owners' and occupants' identities, and 5) homes provide privacy. The highest negative effects of ORP were found on the cultural meanings of homes as affective anchors with sacred connotations (72.9%) followed by homes as places for protection and security (62.2%) (Figure 20). Some of the participants explained that situation by the fact that they often thought of their homes as the safest places that they can go to for protection, as well as the most respected and sacred personal places. Thus, when oil pollutants covered the participants' houses, fears caused by the hazardous effects of ORP reversed some of the participants' perceptions about their homes as places for protection and security or places with sacred connotations.

ORP also has negatively affected Kuwaiti households' perceptions of their

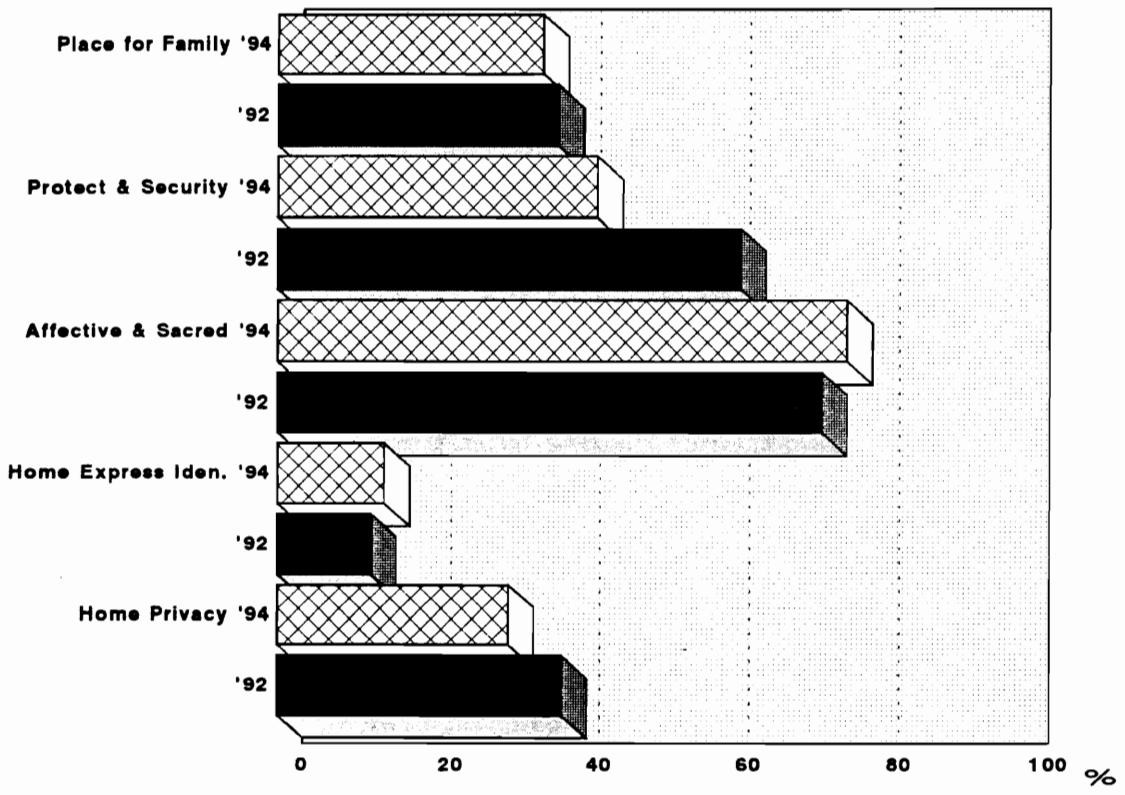


Figure 20. The negative effects of ORP on the cultural meanings of home of Kuwaiti households (1994/1992).

homes as places for privacy (38.3%), places to raise healthy families (35.7%), and places that express their owner's and occupants' identities (12.6%). Those effects were moderate to low because most of the participants continued to think positively of their homes as the place for family and for true privacy. Also, they never thought of home contamination as serious offensive threats to their identities because everyone else in the country also lived in contaminated housing.

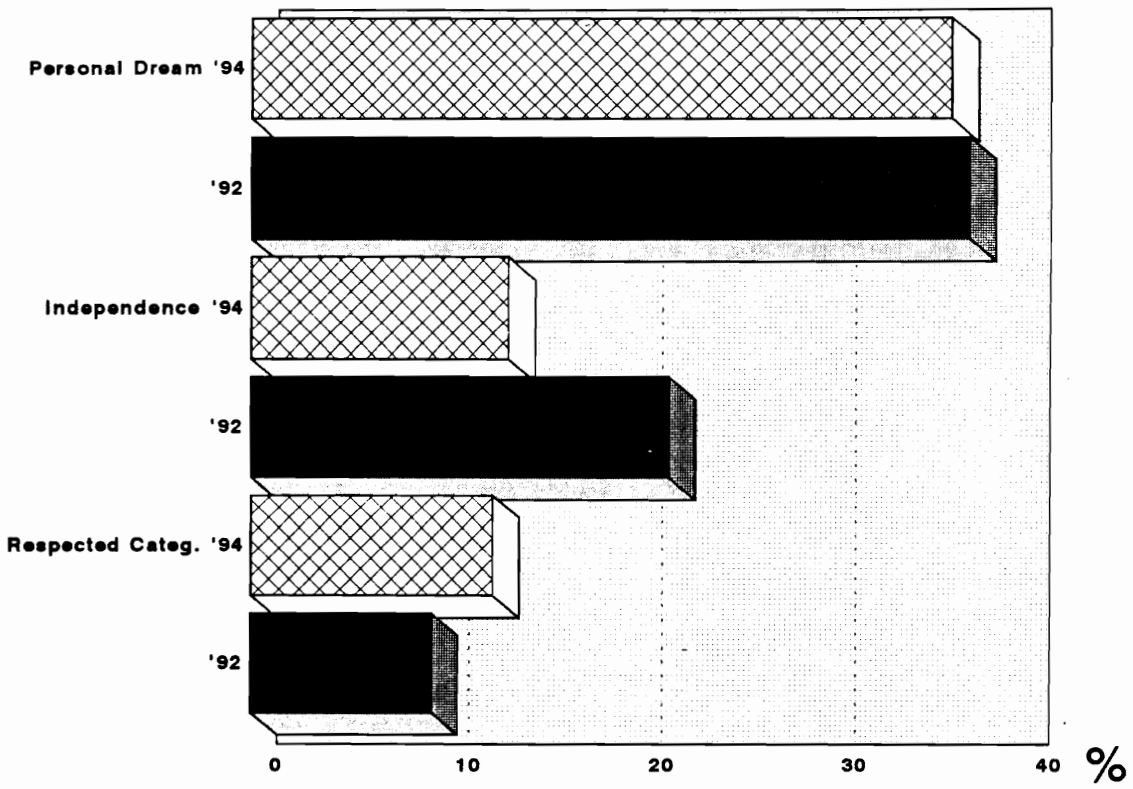
In the follow-up study, a reduction had occurred in the negative effects of ORP on the cultural meanings of homes as places for protection and security (19.2%), places for privacy (7.2%), and places for the family (2.1%, Figure 20). However, the participants in this study experienced an increase in the negative effects of ORP on their perceptions of their homes as the affective anchors with sacred connotations (3.9%) and the places that reflect and express their true identities (1.8%).

Although the decreases, as well as the increases, in the negative effects of ORP on the cultural meanings of home were generally small in percentages, these changes remain meaningful and require careful observation and reevaluation. Even after the decrease, 43% of the participants in the follow-up study indicated that they were still feeling insecure and unsafe in their homes due to the remaining oil pollutants in their homes. Also, 35.7% of the participants could not see their contaminated homes as the safest place to raise happy and healthy families. Moreover, 31.1% of the participants could not enjoy privacy in their homes due to

the repeated need to invite unrelated individuals or group of professionals to help in decontaminating the residential interiors from ORP. Those participants continued to need to allow unrelated persons to work on cleaning and decontaminating their homes. Finally, although it was true that the increases in the negative effects of ORP on the cultural meanings of homes as affective and sacred places and places that express their owners' and occupants identities were slight, these increases represented preliminary indications of an increasing loss of faith in homes and what they represent in that regard. In the future, these increases could lead the participants to experience more housing deficits and become less satisfied with their homes.

ORP and the Cultural Meanings of Homeownership

Beside the negative effects of ORP on the cultural meanings of home, ORP extended its undesired influence on the cultural meanings of homeownership. In 1992, more than one-third (37.2%) of the participants reported losing their dreams of owning healthy homes, around one-fifth (21.7%) of the participants had lost their view of homeownership as a sign of independence and as a means of conferring rights, and 9.4% of the participants had lost their social prestige (Figure 21). In 1994, fewer participants (36.3%) reported experiencing the loss of their dreams in owning healthy homes and fewer participants (13.4%) reported the feeling of losing their homeownership as a sign of independence and as a means of conferring rights. On the other hand, more participants (12.6%) found themselves experiencing the loss



% = Percentages of the participants who agreed or strongly agreed with the statements on the negative effects of oil-related pollution on the three cultural meanings of homeownership.

Figure 21. The negative effects of ORP on the cultural meanings of homeownership of Kuwaiti households (1994/1992).

of social prestige as respected homeowners.

One explanation for the reduction in the negative effects of ORP on the participants' dreams of owning healthy homes and feeling independent could be related to the increase in residential treatment of the visible traces of ORP. Some of the participants indicated that they felt good about their homes after they had cleaned them from the visible effects of ORP. Those participants felt as if they had regained their lost feelings of control over their treated and decontaminated homes. Other participants related their improved feelings to the increased safety of their treated homes. In conclusion, the negative effects of ORP continued to threaten the dreams of 36.3% of the participants and prohibited them from feeling the joy of owning healthy homes to raise happy families.

ORP and Housing Satisfaction

Findings from the initial study revealed that ORP had left distinctive negative effects on several housing values, as well as on several cultural meanings of home and homeownership. Therefore, it was important in the follow-up study to examine how ORP might have influenced housing satisfaction of Kuwaiti households. The follow-up study addressed six variables related to housing satisfaction: 1) level of housing satisfaction before the home was contaminated with ORP, 2) level of housing satisfaction after housing contamination with ORP, 3) satisfaction level with the contaminated neighborhood, 4) satisfaction level with housing location in relationship

to its distance from the major sources of ORP, 5) the impact of housing contamination by ORP on the Kuwaiti households' desires for housing mobility, and 6) the effect of ORP on the overall housing satisfaction of Kuwaiti households.

Nearly one-half (48.7%,169) of the participants in the follow-up study reported that they had higher satisfaction levels with their homes before those homes were contaminated with ORP (Figure 13). In fact, 42% (146) of the participants related the reduction in their housing satisfaction levels mainly to the contamination of their homes with ORP. Also, more than one-third (34.8%, 121) of the participants related the reduction in their housing satisfaction to the accumulation of ORP on the exteriors of their homes, and 31.4% (109) related the reduction in housing satisfaction to the contamination of their residential interiors with ORP. Another 26.5% (92) of the participants agreed with the fact that their housing satisfaction levels decreased because their neighborhoods continued to be contaminated with ORP (Figure 13).

Living close to the major sources of ORP raised the concerns of many participants in the follow-up study. Less than one-third (27.6%, 96) of the participants reported that they were dissatisfied with their housing because these dwelling units were close to the major sources of ORP (Figure 13). Moreover, almost one-third (31.5%, 109) expressed a desire to move from their present houses to other dwellings that would be far from the major sources of ORP. However, 17.3% (60), expressing their desire to move out of their present houses to less contaminated ones, wanted to remain in the same neighborhoods.

Over one-half (51.3%, 178) of the participants in the follow-up study reported that the contamination of their homes with ORP had no effect on their satisfaction level with their present housing conditions. Furthermore, 61% (208) of the participants indicated that the contamination levels of ORP in their neighborhoods had had no significant effects on their satisfaction levels with their current housing conditions. In general, 84.3% (289) of the participants indicated that, regardless of the remaining visible and invisible oil pollutants inside and outside their housing units, presently and overall they were satisfied with their housing (Figure 13).

In conclusion, although ORP had affected the housing and neighborhood satisfaction levels of one-fourth to one-half of the participants in the follow-up study, these negative effects, in general, dissatisfied only 15% (52) of the participants. This phenomenon was very interesting. Talks with some of the participants indicated that the overall high satisfaction with present housing conditions had several causes. The two major ones were fairly obvious. First, since most of the houses in Kuwait had been contaminated with ORP at one level or another, it was less meaningful to most of the participants to relocate to new housing units, which also could well have been contaminated. Also, many participants were less willing to relocate to less-contaminated housing, because it was not economical or possible for them to sell their contaminated homes at low prices and buy less contaminated homes at higher prices. After all, no one yet knows the average residential contamination level with ORP in the different housing locations in Kuwait. So most of the participants found it

irrational and uneconomical to relocate and change housing.

Testing of Research Hypotheses

The follow-up study was constructed to test five hypotheses. The first four hypotheses addressed the impact of time between the initial and the follow-up studies and the treatments of residential interiors and exteriors against the visible traces of ORP on the Kuwaiti households' perceptions about the negative effects of ORP on their nine socio-psychological values of housing, five cultural meanings of home, and three cultural meanings of homeownership. The last hypothesis examined the impact of interior and exterior residential treatments against ORP on six variables related to housing satisfaction. Multiple Analysis of Variance (MANOVA) procedures with a 0.05 level of significance (alpha) were used to test the five hypotheses.

The means for the nine socio-psychological values of housing, the five cultural meanings of home, the three cultural meanings of homeownership, and the six variables of housing satisfaction were used in the MANOVA as the dependent variables for the four areas of concern. The results of the hypothesis testing and the interpretations of these results are presented next.

Hypothesis One

The negative effects of ORP on the socio-psychological values of housing of Kuwaiti households did not change significantly over the time between the initial and

the follow-up studies. The nine socio-psychological values studied in this hypothesis were: 1) health, 2) safety, 3) beauty, 4) comfort, 5) convenience, 6) human relations, 7) privacy, 8) economy, 9) and social prestige. The mean for these nine housing values was 2.51 and the R-Square was 0.09 (Table 14).

The probability that the passage of time would change Kuwaiti households' perceptions about the negative effects of ORP on their socio-psychological values of housing was found significant ($Pr > F = 0.00$). As a result, it can be concluded that the first hypothesis is rejected in favor of the alternative hypothesis. That is, the negative effects of ORP on the nine socio-psychological values of housing of Kuwaiti households changed significantly over the time between the initial and the follow-up studies. These findings are best illustrated in Figure 19.

Over time, the negative effects of ORP decreased in the seven socio-psychological values of health, safety, beauty, comfort, convenience, human relations, and privacy. However, the negative effects increased on the two housing values of economy and social prestige. The highest reduction was experienced in the value of convenience (16.7%) and the lowest reductions were in the values of health and safety (1.7%). Also, the highest increase in the negative effects of ORP on the socio-psychological values of housing was in the value of economy (11.7%) and the lowest increase was for the value of social prestige (1.8%).

Table 14

The impact of time and treatments of residential interiors and exteriors against the visible traces of ORP on the Kuwaiti households' perceptions of the negative effects of ORP on the nine socio-psychological values of housing (Houseval). +

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F*
Model	7	14.47	2.07	7.95	0.00
Error	577	150.04	0.26		
Corrected Total	584	164.51			

R-Square	Critical Value	Root MSE	Houseval Mean
0.09	20.28	0.51	2.51

Source	DF	Type I SS	Mean Square	F Value	Pr > F**
Treat Int.	1	5.94	5.50	21.13	0.00
Treat Ext.	1	0.41	0.41	1.56	0.21
Treat Int. X Treat Ext.	1	0.55	0.55	2.13	0.15
Time	1	7.41	7.41	28.51	0.00
Treat Int. X Time	1	0.20	0.20	0.76	0.38
Treat Ext. X Time	1	0.04	0.04	0.15	0.69
Treat Int. X Treat Ext. X Time	1	0.36	0.36	1.40	0.24

+ This table is used with the first and third hypotheses.
Alpha = 0.05
DF = Degrees of Freedom
Pr > F* = Overall Significance Level
Pr > F** = Specific Significance Level
Type I SS = Type I Sum Squares
Treat Int. = Treatment of residential interiors against the visible traces of ORP
Treat Ext. = Treatment of residential exteriors against the visible traces of ORP

Hypothesis Two

The negative effects of ORP on the cultural meanings of home and homeownership to Kuwaiti households did not change significantly over the time between the initial and the follow-up studies. This hypothesis addressed testing two related but different concepts: the cultural meanings of home and the cultural meanings of homeownership. The cultural meanings of home included five variables: 1) homes are places for families, 2) homes provide protection and represent security, 3) homes are affective anchors with sacred connotations, 4) homes are expressions of their owners' and occupants' identities, and 5) homes provide privacy. The cultural meanings of homeownership included the following three variables: 1) homeownership is part of people's major dreams, 2) homeownership is thought to promote independence and confer rights, and 3) homeownership makes homeowners members of a respected category.

The mean for the five cultural meanings of home was 2.6518 and the R-Square was 0.10 (Table 15), and the mean for the three cultural meanings of homeownership was 2.39 and the R-Square was 0.04 (Table 16). The probability that the passage of time would change the Kuwaiti households' perceptions related to the negative effects of ORP on their cultural meanings of home ($Pr > F = 0.00$) and homeownership ($Pr > F = 0.00$) were found significant. Therefore, the second hypothesis is rejected in favor of the alternative hypothesis. That is, the negative effects of ORP on the cultural meanings of home and homeownership of Kuwaiti households changed

Table 15

The effects of time and treatments of residential interiors and exteriors against the visible traces of ORP on Kuwaiti households' perceptions of the negative effects of ORP on the five cultural meanings of homes (Homemean). +

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F*
Model	7	14.69	2.10	9.57	0.00
Error	577	126.54	0.22		
Corrected Total	584	141.23			

R-Square	Critical Value	Root MSE	Homemean Mean
0.10	17.66	0.47	2.65

Source	DF	Type I SS	Mean Square	F Value	Pr > F**
Treat Int.	1	3.72	3.72	16.97	0.00
Treat Ext.	1	0.00	0.00	0.01	0.93
Treat Int. X Treat Ext.	1	0.28	0.28	1.28	0.26
Time	1	10.17	10.17	46.37	0.00
Treat Int. X Time	1	0.24	0.24	1.11	0.29
Treat Ext. X Time	1	0.14	0.14	0.62	0.43
Treat Int. X Treat Ext. X Time	1	0.13	0.13	0.61	0.44

+ This table is used with the second and fourth hypotheses.
Alpha = 0.05
DF = Degrees of Freedom
Pr > F* = Overall Significance Level
Pr > F** = Specific Significance Level
Type I SS = Type I Sum Squares
Treat Int. = Treatment of residential interiors against visible traces of ORP
Treat Ext. = Treatment of residential exteriors against visible traces of ORP

Table 16

The effects of time and treatments of residential interiors and exteriors against the visible traces of ORP on Kuwaiti households' perceptions of the negative effects of ORP on the three cultural meanings of homeownership (Homeown). +

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F*
Model	7	13.98	2.00	3.82	0.00
Error	577	302.00	0.52		
Corrected Total	584	315.98			

R-Square	Critical Value	Root MSE	Homeown Mean
0.04	30.29	0.72	2.39

Source	DF	Type I SS	Mean Square	F Value	Pr > F**
Treat int.	1	0.78	0.78	1.49	0.22
Treat Ext.	1	0.00	0.00	0.00	1.00
Treat Int. X Treat Ext.	1	0.01	0.01	0.01	0.90
Time	1	10.18	10.18	19.46	0.00
Treat Int. X Time	1	2.33	2.33	4.46	0.04
Treat Ext. X Time	1	0.20	0.20	0.39	0.54
Treat Int. X Treat Ext. X Time	1	0.47	0.41	0.90	0.34

+ This table is used with the second and fourth hypotheses.
Alpha = 0.05
DF = Degrees of Freedom
Pr > F* = Overall Significance Level
Pr > F** = Specific Significance Level
Type I SS = Type I Sum Squares
Treat Ext. = Treatment of residential exteriors against visible traces of ORP
Treat Int. = Treatment of residential interiors against visible traces of ORP

significantly over the time between the initial and the follow-up studies. These findings are best illustrated in Figures 23 and 24.

The negative effects of ORP decreased over the time between the initial and the follow-up studies in the three cultural meanings of homes (the places for families, the places for protection and security, and the places for privacy). However, the negative effects of ORP increased over the time for the cultural meanings of homes as affective anchors with sacred connotations and as expressions of their owners' and occupants' identities (Figure 20). The greatest decrease (19.2%) in the negative effects of ORP over time was found in the cultural meaning of homes as places that provide protection and represent security, but the lowest reduction (2.1%) was found in the cultural meaning of homes as places for families. Moreover, the highest increase (3.4%) related to the negative effects of ORP on the cultural meaning of home was experienced with the meaning of homes as affective anchors with sacred connotations, but the lowest increase (1.8%) of negative effects was found in the cultural meaning of homes as expressions of their owners' and occupants' identities.

Similar reductions in the negative effects of ORP on the cultural meanings of homeownership over the time between the initial and the follow-up study were also experienced in the cultural meanings of homeownership as part of peoples' major dreams, and as a means of promoting independence and conferring rights. The highest decrease (8.3%) was detected in the negative effects of ORP on the cultural meaning of homeownership as a means for promoting independence and conferring

follow-up, exterior rights, while the lowest decrease (0.9%) was detected in the cultural meaning of homeownership as part of people's major dreams.

Hypothesis Three

Treatments of residential interiors and/or exteriors against the visible traces of ORP did not significantly change the Kuwaiti households' perceptions about the negative effects of ORP on the socio-psychological values of housing from the initial study to the follow-up study. The mean for the nine socio-psychological values of housing was 2.51 and the R-Square was 0.09 (Table 14).

Treatments of residential interiors and/or exteriors over the passage of time between the initial and the follow-up studies was found significant ($Pr > F = 0.00$) in influencing the Kuwaiti households' perceptions about the negative effects of ORP on their socio-psychological values of housing. However, when we examined the specific significance level for the effects of treatments of residential exteriors and/or interiors on the Kuwaiti households' perceptions of the effects of ORP on their socio-psychological values of housing, we found that only treatment of residential interiors was a significant variable ($Pr > F = 0.00$). Treatment of residential exteriors ($Pr > F = 0.21$) and the joint impact of treatment of residential interiors and exteriors ($Pr > F = 0.26$) was not significant. Therefore, in general we can reject the null hypothesis in favor of the alternative one. That is, treatment of residential interiors and/or exteriors over the time differences between the initial and the follow-up studies

against the visible traces of ORP have significantly contributed to the decrease in Kuwaiti households' perceptions regarding the negative effects of ORP on their socio-psychological values of housing. However, it should be noted that the major effect came from treatment of residential interiors rather than of exteriors.

Hypothesis Four

Treatment of residential interiors and/or exteriors against the visible effects of ORP did not significantly change the Kuwaiti households perceptions about the negative effects of ORP on the cultural meanings of home and homeownership from the initial to the follow-up studies. This general hypothesis was divided into four specific hypotheses:

1) Treatment of residential interiors **and** exteriors against the visible effects of ORP did not significantly change the Kuwaiti households perceptions about the negative effects of ORP on the cultural meanings of home from the initial to the follow-up studies;

2) Treatment of residential interiors **or** exteriors against the visible effects of ORP did not significantly change the Kuwaiti households perceptions about the negative effects of ORP on the cultural meanings of home from the initial to the follow-up studies;

3) Treatment of residential interiors **and** exteriors against the visible effects of ORP did not significantly change the Kuwaiti households perceptions about the

negative effects of ORP on the cultural meanings of homeownership from the initial to the follow-up studies; and

4) Treatment of residential interiors **or** exteriors against the visible effects of ORP did not significantly change the Kuwaiti households perceptions about the negative effects of ORP on the cultural meanings of homeownership from the initial to the follow-up studies.

Over time, it was found that treatments of residential interiors **and/or** exteriors against the visible traces of ORP have significantly changed Kuwaiti households' perceptions about the negative effects of ORP on the cultural meanings of home ($Pr > F = 0.00$, Figure 12) and homeownership ($Pr > F = 0.00$, Table 16). More specifically, treatment of residential interiors alone had a significant change ($Pr > F = 0.00$, Figure 12) on Kuwaiti households' perception of the negative effects of ORP on the cultural meanings of home. However, treatment of residential exteriors ($Pr > F = 0.93$), as well as the joint effects of treatment of residential interiors and exteriors ($Pr > F = 0.26$), had no significant change on Kuwaiti households' perceptions of the negative effects of ORP on the cultural meanings of home (Table 15). Also, it was found (Figure 13) that treatment of residential interiors ($Pr > F = 0.22$), treatment of residential exteriors ($Pr > F = 1.00$), and the joint effects of both treatments ($Pr > F = 0.90$) were not significant and did not contribute to the change in Kuwaiti households' perception of the effects of ORP on the cultural meanings of homeownership.

In conclusion, treatment of residential interiors alone had significant effects on decreasing the perceptions of Kuwaiti households about the negative effects of oil pollution on the cultural meanings of home but not homeownership. However, treatment of residential exteriors had no significant effects on decreasing the perceptions of Kuwaiti households about the negative effects of oil pollution on the cultural meanings of home and homeownership.

Hypothesis Five

There was no significant effect of ORP on housing satisfaction of Kuwaiti households. The six variables of housing satisfaction addressed in this study were: 1) level of housing satisfaction with home before contamination with ORP, 2) level of housing satisfaction with home after contamination with ORP, 3) satisfaction with contaminated neighborhood, 4) satisfaction with housing location related to the major sources of ORP, 5) the impact of housing contamination with ORP on the household's desire for housing mobility, and 6) overall housing satisfaction. The mean of these six variables was 2.5348 and the R-Square was 0.02 (Table 17).

The general level of significance ($Pr > F$) for this hypothesis was 0.08 (Table 17). This value was higher than alpha = 0.05. Therefore, the null hypothesis was not rejected in favor of the alternative hypothesis. This finding was supported by the overall housing satisfaction of the Kuwaiti households with their housing conditions even after their homes' contamination with ORP (Figure 13). However, it was found

Table 17

The effects of exterior and interior residential treatments against the visible traces of ORP on the housing satisfaction of Kuwaiti households (Housesat). +

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F*
Model	3	0.91	0.30	2.23	0.08
Error	341	46.49	0.14		
Corrected Total	344	41.40			

R-Square	Critical Value	Root MSE	Housesat Mean
0.0193	14.57	0.37	2.53

Source	DF	Type I SS	Mean Square	F Value	Pr > F**
Treat Int.	1	0.72	0.72	5.30	0.02
Treat Ext.	1	0.06	0.06	0.44	0.51
Treat Int. X Treat Ext.	1	0.13	0.13	0.96	0.33

+ This table is used with the fifth hypothesis
Alpha = 0.05
DF = Degrees of Freedom
Pr > F* = Overall Significance Level
Pr > F** = Specific Significance Level
Type I SS = Type I Sum Squares
Treat Int. = Treatment of residential interiors against visible traces of ORP
Treat Ext. = Treatment of residential exteriors against visible traces of ORP

that only treatment of residential interiors against the visible traces of ORP was significant (0.02) in increasing housing satisfaction of Kuwaiti households. Thus, it would not be a surprise if this finding could be associated with the reduction in housing and neighborhood dissatisfaction caused by the negative effects of ORP on the cultural meanings of homeownership of Kuwaiti households. This finding can be very important in the rehabilitation process for increasing housing satisfaction of Kuwaiti households who suffered from that deficit due to home contamination with ORP.

Answering the Research Questions

The follow-up study of 1994 began with three major research questions. The focus of those questions was to examine how the negative effects of oil pollution have affected the socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction over time and/or with treatments of oil contaminants on residential interiors and exteriors. Each of the three questions is presented and discussed below.

Research Question One

How did time differences between the initial and the follow-up studies influence Kuwaiti households' perceptions regarding the negative effects of oil-related pollution (ORP) on the socio-psychological values of housing, as well as the cultural

meanings of home and home and homeownership? Time was found to be an important variable in reducing the perceived negative effects of ORP on Kuwaiti households' socio-psychological values of housing ($Pr > F = 0.00$, Table 14); the cultural meanings of home ($Pr > F = 0.00$, Table 15); and the cultural meanings of homeownership ($Pr > F = 0.00$, Table 16).

Research Question Two

How did treatments of residential interiors and/or exteriors against the visible effects of ORP influence the perceptions of Kuwaiti households regarding the negative effects of ORP on their socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction? First, the study revealed that only treatment of residential interiors against the visible traces of ORP have reduced Kuwaiti households' perceptions about the influence of the visible effects of ORP on their socio-psychological values of housing ($Pr > F = .00$, Table 14); cultural meanings of home ($Pr > F = 0.00$, Table 15); and housing satisfaction ($Pr > F = 0.02$, Table 17). However, this type of treatment had no effect on the cultural meanings of homeownership ($Pr > F = 0.22$, Table 16). Those positive effects (reduction in effects) can be traced in Figures 22, 23, and 16.

Treatment of residential exteriors, on the other hand, was not found to contribute to the reduction of the negative perceptions of Kuwaiti households regarding the influence of ORP on their socio-psychological values of housing ($Pr > F$

= 0.21); the cultural meanings of home (Pr>F = 0.93); the cultural meanings of homeownership (Pr>F = 1.00); or housing satisfaction (Pr>F = 0.51).

Research Question Three

What can be done to reduce or eliminate the negative effects of ORP which might have influenced each of the socio-psychological values of housing, each of the cultural meaning of home and homeownership, and housing satisfaction? From the participants' answers to the first two questions, time and treatment of residential interiors against the visible traces of ORP are the most effective methods that can be used to eliminate or reduce the negative effects of ORP on the socio-psychological values of housing, the cultural meaning of home and homeownership, and the housing satisfaction of Kuwaiti households.

Treatment of residential interiors from the visible effects of ORP was found to be an important element in the reduction of fear from the hazardous impact of ORP on the participants and their family members. As many of the participants said, the fear from the unknown effects of ORP often caused them aggravation, unrest, and discomfort. These effects had direct effects on the socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction.

Research Findings in Light of the Existing Literature

This study was initially conducted in 1992 to investigate the negative effects of

oil-related pollution (ORP) on the socio-psychological values of housing, as well as the cultural meanings of home and homeownership. The follow-up study, conducted in 1994, examined the impact of ORP on the housing satisfaction of Kuwaiti households. This step was designed to examine how the time between the initial and the follow-up studies and how the treatments of residential interiors and exteriors may have influenced Kuwaiti households' perceptions about the negative effects of ORP on the socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction. The examined housing values, cultural meanings of home and homeownership, and housing satisfaction variables were selected from western literature (Beyer, Mackesey & Montgomery, 1959; Cooper, 1979; Downer, Smith & Lynch 1968; Cutler, 1949; Fitchen, 1989; Fredland, 1974; Goulart, 1978; Kohlmann & Smith, 1970; McCray, 1975; McCray & Day, 1977; Montgomery, Sutker & Nygren, 1959; Morris & Winter, 1993; Pynoos, Schafer & Hartman, 1973; Stoeckeler & Hasegama, 1974; Ryd, 1991; Vars, 1969) but not studied in depth with Kuwaiti households (Al-Najadah, 1994a; Al-Najadah & Parrott, 1992). Also, the theory of Housing Adjustment and Adaptation (Morris & Winter, 1993) formed the basis for the follow-up study (Figure 7).

Oil-related pollution (ORP) was used in this study as a stressor on the Kuwaiti households' socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction. From both the initial and the follow-up studies, it was found that ORP has disturbed most of the housing values, cultural

meanings of home and homeownership, and housing satisfaction variables.

Pollution and the Socio-Psychological Values of Housing

In both the initial and the follow-up studies, the housing values of beauty, health, safety, convenience, privacy, and comfort of the household members were the five housing values influenced most negatively by ORP (Figure 19). Home beauty was ranked high due to the fact that oil residues, soot, fallout, and black traces of rain made most of the houses in Kuwait look "ugly," as many of the participants have commented. In other literature (McCray & Day, 1977) housing beauty is given a value lower than many of the other housing values. However, this value is one of the most affected housing values in this study because the remaining visible traces of ORP on the facades of most of the buildings in Kuwait keep reminding the people of Kuwait about the hateful Iraqi aggression and its painful aftermath.

The concern about the impact of the negative effect of ORP on the health and safety of Kuwaiti households was consistent with the level of concern about these two housing values that was found associated with other types of hazardous stressors or pollutants such as toxic chemicals, hazardous waste, or contaminated underground water, which have been addressed in other literature (Carroll, 1991; Fitchen, 1989; Kasper, 1980). One of the interesting and common observation made in most of those study was that people were more sensitive to the issues of health and safety if they were pregnant women, parents with young children, or older adults.

Convenience, privacy, comfort, and economy were the housing values that were moderately influenced by the negative effects of ORP. In some literature comfort is perceived as a high indicator of housing satisfaction (McCray & Day, 1977); however, convenience, economy, and privacy are regarded as moderate indicators (McCray & Day, 1977; Kohlmann & Smith, 1970; Vars, 1969).

Fitchen (1989) found that when toxic chemicals pollute the underground water in residential areas, households living in that contaminated location face constant fear of being poisoned, losing comfort at home, and experiencing a decrease in the sales value of their homes. Also, it became inconvenient in the contaminated residential environments to obtain and store drinking water, as well as to cook and bathe with clean water (Carroll, 1991). The findings of the follow-up study came to similar conclusions, although the pollutants in follow-up study was oil-related substances rather than toxic chemicals and contaminated underground water.

Finally, human relations and social prestige were the housing values least affected in this study and are the issue of least concern in the literature (McCray & Day, 1977). Some of the participants in both the initial and the follow-up studies commented that these two housing values were not of a high concern to them because every house and household in Kuwait suffered from the same or similar negative effects of ORP. Therefore, visits from relatives and friends continued to occur at almost the same level of intensity as before the oil fires. Also, the social prestige of the homeowners was not affected greatly for the majority of the participants because

most of the houses in Kuwait were affected with ORP at similar levels, except for the housing units which were very close to the oil fire and the ones which were in the direction of the prevailing wind. Similar and different reactions have been found with both housing values with other studies (Carroll, 1991; Cutter, 1981; Fitchen, 1989). Household members who lived in the same contaminated areas looked at the effects of pollution on both their social prestige and relationships with relatives, neighbors, and friends living with them in the same location in a less restricted way. However, households from outside the contaminated residential communities had the opposite perspectives on those values (Carroll, 1991; Fitchen, 1989).

Pollution and the Cultural Meanings of Home

In this study, oil-related pollution was found to mostly affect the cultural meanings of homes as affective anchors with sacred connotations, places for protection and security, places to raise happy and heathy families, places for privacy (Figure 20), but not as expressions of identities. The only other available study which focused on the impact of pollution on the cultural meanings of home was conducted by Fitchen in 1989. She wrote: "When toxic chemicals invade residential environments, Americans perceive multiple threats. Besides possible health risks and financial losses, such pollution represents an attack on the important institutions of home and homeownership" (p. 313). Thus, the findings of this study are consistent with the findings of Fitchen's study, except the finding related to the cultural meaning

of homes as expressions of identities. The possible explanation for this difference may be related to the fact that because oil pollution in this study had affected every home in Kuwait, Kuwaiti households did not perceive that pollution as a threat to their identities. However, toxic chemicals were less threatening to the American households' identities because the threats affected limited numbers of homes and households.

The effects of pollution on the concepts behind the different cultural meanings of home have also been addressed by researchers such as Carroll (1991), Cooper (1979), Cutter (1981), Ryd (1991), and Edelstein (1988). The concepts of home as safe place to raise a healthy family and as the major form of investment were the two concepts most affected by pollution in residential areas. The follow-up study proved that health and safety at home continue to be of major concern. Home as a major form of investment was not affected highly in the initial study, but it was affected more in the follow-up study and became an issue of increasing concern.

Pollution and the Cultural Meanings of Homeownership

It was found in this study that oil pollution in residential environments was most disturbing to homeowners' dreams of owning healthy homes (Figure 21). This finding was consistent with Fitchen's (1989). In both studies, oil pollution, as well as underground contaminated water, posed the same threat to the cultural meaning of homeownership as a major part of the homeowners' dreams of owning healthy homes.

The homeowners of contaminated homes became owners of problem homes.

The negative effects of ORP on the cultural meaning of homeownership as a sign of independence and confirmation of rights decreased in the follow-up study while the same negative effects on the cultural meaning of homeownership as a means of belonging to the respected category of homeowners increased. Similarly, Fitchen (1989) found that when toxic chemicals and contaminated underground water hit residential environments, the cultural meaning of homeownership as a sign of independence and as a sign of membership in the respected category of homeowners are seriously affected. Carroll (1991) has agreed with both findings and has suggested that homeowners and occupants who live in contaminated homes and neighborhoods become "disadvantaged people" who have the right to be angry and the right to fight for a clean environment.

Pollution and Housing Satisfaction

The research findings of this study showed a reduction in housing satisfaction. That reduction was caused by housing and/or neighborhood contamination with ORP (Figure 22). Some of the Kuwaiti households reported an interest in moving out to different housing units that are far from the major sources of ORP. Other participants wanted to move to cleaner housing but remain in the same neighborhood. These findings are consistent with findings from similar studies conducted in residential environments with underground water contamination or toxic waste (Carroll, 1991;

Cutter, 1981; Fitchen, 1989; Ryd, 1991). The one interesting finding in the follow-up study is that overall satisfaction with housing conditions, even after home contamination with ORP, is very high. The high level of housing satisfaction could be a result of the low level of perceived risk (Kasper, 1980) experienced by the participants associated with exposure to residential contamination by ORP.

Chapter VI

SUMMARY, CONCLUSION, IMPLICATIONS, AND RECOMMENDATIONS

The final chapter of this dissertation includes four main sections: summary, conclusion, implications, and recommendations. The first section will summarize the five previous chapters. The second section will report the significant findings of this study. The third section presents the implications and who in Kuwait might benefit from the findings of this study. The final section suggests future research related to the subject of this dissertation.

Summary

In 1991, the Iraqi troops retreating from Kuwait set more than 700 oil wells on fire and damaged another 96 oil wells. The oil fires produced daily loads of 50,000 to 100,00 tons of sooty smoke, 25,000 to 50,000 tons of sulfur dioxide, and many hazardous gases, volatile components, and particulate emissions. Also, millions of gallons of oil were spilled on Kuwaiti land. Air pollution in many residential areas in Kuwait exceeded by many times the most polluted residential areas in the world. Therefore, an effort was made in 1992 to investigate the socio-psychological effects of oil-related pollution on Kuwaiti households. Two years later, the study reported here was conducted to accomplish the following three objectives:

1) Examine the impact of the time between the initial and the follow-up studies on the perceptions of Kuwaiti households regarding the negative effects of oil-related pollution (ORP) on the socio-psychological values of housing and cultural meanings of home and homeownership;

2) Examine the impact of home treatment against the visible traces of ORP on the perceptions of Kuwaiti households regarding the negative effects of ORP on the socio-psychological values of housing and the cultural meanings of home and homeownership; and

3) Investigate the impact of ORP on the housing satisfaction of Kuwaiti households.

Previous research related to pollution indicates that when polluting substances approach residential environments, households perceive the pollution as a threat to themselves as well as to their important institutions of home and homeownership (Fitchen, 1989). Such a threat is often perceived with high or low risks on the socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction based on the amount of knowledge available to the households regarding the true nature and actual risks of the pollutants (Kasper, 1980).

Three-hundred and forty-seven non-smoking and non-institutionalized Kuwaiti household members participated in the follow-up study. Of those 347 participants, 89 had also participated in the initial study. All the participants were 18 years or older and were randomly selected from 60 different cities and suburbs in Kuwait. Six

trained interviewers collected the data via telephone using survey questionnaires constructed specifically for that purpose.

Two-thirds of the participants in this study were between the ages of 18 and 39; only one-third were 40 years of age or older. Male participants counted for more than one-half of the sample, and married participants formed the majority. Most of the married participants had at least one child. Also, most of the participants had high school diplomas or higher degrees. Finally, the majority of the participants were from middle or high income families.

Over one-half the participants lived in houses built by the Kuwaiti government and the great majority of them owned their homes. Over two-thirds of the sample lived 20 kilometers (12.5 miles) or less from the nearest source of oil pollution. Central heating and cooling, air conditioners, electrical fans, split heating and cooling units, and electrical, gas, or coal heaters were found to be the most common methods of heating and cooling used by the participants in their houses.

Over two-thirds of the participants feared the hazardous effects of oil-related pollution (ORP) on their health and the health of their family members. In fact, over one-tenth of the participants perceived that they had either developed health problems from being exposed to ORP or their existing health problems had increased for the same reason. A higher number of children suffered from the same symptoms and for the same reason.

Oil pollution was found to continue its negative effect on all of the socio-

psychological values of housing of Kuwaiti households. Beauty was the housing value most negatively affected by ORP. Next, ORP had a moderate negative impact on the housing values of economy, privacy, health, safety, comfort, and convenience. The values of social prestige and human relations were affected very little.

ORP had strong negative effects on the cultural meanings of homes as affective anchors with sacred connotations. The moderate negative effects of ORP were imposed on the cultural meanings of homes as places for protection and security, places to raise happy and healthy families, and places to enjoy privacy. ORP had little impact on homes as expressions of their owners' and occupants' identities. Also, ORP had a moderate negative effect on the cultural meanings of homeownership as the tangible accomplishment of the dreams of most of the participants and as the means to promote independence and confer rights. The cultural meaning of homeownership as a respected category was impacted only slightly by ORP.

Finally, regardless of the remaining visible and invisible effects of ORP on residential interiors and exteriors, presently and overall the majority of the participants were satisfied with their homes. However, about two-fifths of the participants reported a reduction in housing satisfaction with their homes due to their home's contamination by ORP. Also, over one-fourth of the participants reported low satisfaction with their contaminated neighborhoods. Over one-fourth of the participants expressed their desire to relocate to less contaminated houses, while one-tenth of the participants confirmed their desire to relocate to less contaminated houses

and to live as far as possible from the major sources of oil pollution. According to the theory of housing adjustment and adaptation (Morris & Winter, 1993), it can be concluded that ORP has created some housing deficit, but that deficit was not significant enough to reduce the overall housing satisfaction of Kuwaiti households.

A comparison of the findings from both the initial and the follow-up studies, found that over two-thirds of the participants were very concerned about the unknown hazardous effects of ORP on their health and safety and the health and safety of their family members. Adults' and children's oil-related health problems were less in the follow-up study than in the initial one. Also, all the health symptoms that the participants reported in the initial study decreased in the follow-up study. However, headaches, excessive fatigue, and sore throats continued to be the health symptoms most experienced at home and reported by the participants in the follow-up study.

There was a decrease in the negative effects of ORP in the follow-up study on the socio-psychological values of health, safety, beauty, comfort, convenience, human relations, and privacy. In the follow-up study there was an increase in the negative effects of ORP only for the housing values of economy and social prestige.

The follow-up study revealed a decrease in the negative effects of ORP on the cultural meanings of homes as places to raise families, places for protection and security, and places for privacy, as well as the cultural meanings of homeownership as major parts of the dreams of most of the people and as signs of independence and confirmation of rights. In the follow-up study, the negative effects of ORP increased

for the cultural meanings of homes as affective anchors with sacred connotations and as expressions of their owners' and occupants' identities, as well as for the cultural meaning of homeownership as a symbol of belonging to a respected category of homeowners.

Five research hypotheses were investigated in the follow-up study. All the research hypotheses were established to identify the impact of time between the initial and the follow-up studies and treatments of residential interiors and/or exteriors from the visible traces of ORP on the socio-psychological values of housing, cultural meanings of home and homeownership and housing satisfaction. Only time and treatment of residential interiors had significant influence on Kuwaiti households' perceptions about the negative effects of ORP on their housing values, cultural meanings of home and homeownership, and housing satisfaction.

Conclusion

Results from this study can be summarized in the following four major findings:

1) Time between the initial and the follow-up studies has significantly reduced the Kuwaiti households' perceptions about the negative effects of ORP on the socio-psychological values of housing and the cultural meanings of home and homeownership;

2) Treatments of residential interiors and/or exteriors to remove the visible traces

of ORP were significantly effective in reducing Kuwaiti households' perceptions about the negative effects of ORP on the socio-psychological values of housing and the cultural meanings of home and homeownership;

3) Only treatment of residential interiors was significantly effective in reducing Kuwaiti households' perceptions about the negative effects of ORP on their housing satisfaction; and

4) Findings from the follow-up study indicate a significant reduction in Kuwaiti households' perceptions regarding the impact of the negative effects of ORP on their socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction; however, a sizable number of the participants reported continuous suffering from the negative effects of ORP on themselves, their family members and their houses.

Implications

A reexamination of Kuwaiti households' perceptions about the impact of the negative effects of ORP on the socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction found that only time and the treatment of residential interiors have helped to reduce such negative impact. Thus, it is assumed that faster and better treatment of residential interiors will shorten the time needed to eliminate or drastically reduce the negative effects of ORP on the negatively affected socio-psychological values of housing, and the cultural meanings

of home and homeownership, and improve the housing satisfaction of Kuwaiti households. The findings of this study can be beneficial in the following ways:

1) Kuwaiti households with low housing satisfaction, due to the negative effects of ORP on all or some of their housing values and cultural meanings of home and homeownership, should speed up the process of decontaminating the interiors of their homes. If those participants have already done that and they still suffer from the negative effects of ORP in their home, then perhaps the first treatment effort was not sufficient and should be repeated or conducted in a more professional way. Such efforts will have positive physical and psychological impact on the Kuwaiti households with housing problems resulting from ORP. The expected positive impact of such treatment will reduce the perceived health symptoms caused by ORP at home and improve the feeling of safety at home. Also, treatment of the residential interiors could cure all or most of the negative effects of ORP on the socio-psychological values of housing and the cultural meanings of home and homeownership, which were harmed by ORP and which caused the low housing satisfaction of Kuwaiti households. In the end, this effort is expected to have a positive impact on the health, comfort, and well being of Kuwaiti households.

2) The Kuwaiti government can use the findings of this study to document the impact of the Iraqi aggression on the people and environment of Kuwait. Not only have the Iraqis damaged the Kuwaiti environment, but they have also

caused serious damage to the institutions of home and homeownership in Kuwait. Thus, the Kuwaiti government can use these findings to document to the United Nations the physical and psychological damages inflicted on the people of Kuwait, as well as physical damages done to housing in Kuwait. This documentation could result in financial compensation for Kuwait.

3) The National Housing Authority (NHA) in Kuwait may use the findings of this study as a basis to establish an ORP consultation office. This office could be devoted to providing Kuwaiti households with the proper and necessary technical and physical support to eliminate or reduce ORP home contamination.

4) The Supreme Housing Council (SHC) can use the findings of this study to justify the need to establish a national relief funding program to help Kuwaiti households pay for the treatment of their residential interiors and exteriors. Such programs can be funded and managed through Kuwait's Savings and Loans Bank. The loans should have zero interest rates or even be subsidized, and payments should be spread over a long period of time (five to ten years).

5) The Kuwait Institute for Scientific Research (KISR) may use the findings of this study as a preliminary investigation for a longitudinal study to investigate the negative effects of ORP on the integrity of the contaminated building materials of residential establishments.

6) The Kuwait Foundation for the Advancement of Science (KFAS) could use the

findings of this study to establish a funding program to support any research project that will help in finding more effective and economical methods to decontaminate residential environments from the negative effects of ORP. Also, this program could be designed to fund medical research studies that address treatment of Kuwaiti households who suffer from symptoms or illnesses caused by exposure to indoor or outdoor oil pollutants.

7) The Ministry of Public Health in Kuwait may benefit from the findings of this study, especially those related to the negative effects of ORP on the health and safety of Kuwaiti households, by developing a health and safety program to educate the public about the health symptoms associated with exposure to ORP in residential environments. Also, the Ministry of Public Health could look at some of the significant concerns of Kuwaiti households and incorporate some of those concerns into the longitudinal study, already under way, of the long-term impacts of oil pollution on the health of the people of Kuwait.

8) Kuwait University and the Public Authority of Applied Education and Training can use this study as a preliminary case to investigate the social, psychological, economic, family, political, health, behavioral, and environmental applications of oil pollution. The suggested investigative effort can be part of course work or as independent studies for both graduate and undergraduate students in Kuwait. This approach will not only develop an academic approach to the different reactions caused by oil pollution in

residential environments, but it will also educate the youth of Kuwait about how to be better prepared to face some of the consequences which have resulted or will result from oil pollution in Kuwait.

9) Housing lenders in Kuwait may use the findings related to the significant effects of the treatment of residential oil contamination on reducing the Kuwaiti households' negative perceptions related to the impact of ORP on their socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction. By allocating more money for low-interest loans, housing lenders can help many Kuwaiti households to decontaminate their houses and thus feel better and safer in their residential environments.

10) Housing landlords in Kuwait may see the findings of this study useful to their housing business. Knowing that ORP negatively affects renters' perceptions, landlords will be prompted to treat the residential interiors and exteriors of their properties, hereby, in turn, improving the looks and safety of their residential buildings. The results could mean more renters and a better housing business for the landlords.

11) Housing developers in Kuwait may wish to use some of the findings of this study to better define the characteristics of the desirable residential locations in Kuwait for new housing developments. One of the considerations that housing developers may wish to take into account is the distance from the nearest

major source of existing or possible oil pollution.

12) Housing contractors in Kuwait may benefit from this study by providing more effective, economical, and convenient solutions to Kuwaiti households for better home decontamination from the visible and non-visible oil pollutants found in residential environments. This approach will help to reduce the negative effects of ORP on the socio-psychological values of housing, cultural meanings of home and homeownership, and the housing satisfaction of Kuwaiti households. Also, it will become a profit-generating business for many housing contractors who are working in home renovation, remodeling, and decontamination.

13) Interior designers and architects working in Kuwait may find this study beneficial to their businesses. By understanding the nature of the Kuwaiti households' concerns and perceptions related to the hazardous effects of ORP, interiors designers and architects can develop or apply more effective and economical design and building methods and strategies for faster, more efficient, and less expensive remedies for contaminated residences. This application will serve the current needs of many Kuwaiti households and will most likely generate business for many interior designers and architects.

Recommendations

Although it was found in this study that time and treatment of residential

interiors have significantly reduced the Kuwaiti households' perceptions regarding the negative effects of ORP on some of their socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction, that reduction was not enough. Dissatisfaction with many of the housing values, cultural meanings of home and homeownership, and variables of housing satisfaction remain at high levels. Therefore, the following suggestions are recommended for further research:

1) Continue to monitor Kuwaiti households' perceptions regarding the negative effects of ORP on the socio-psychological values of housing, cultural meanings of home and homeownership, and housing satisfaction. Although some of the dependent and independent variables which were used in the initial and follow-up studies have shown low correlation to each other, all of these variables should be used in further follow-up studies to monitor any possible changes in the status of any of these variables. This study should be conducted with the sample used in the follow-up study and should use the same survey questionnaire that was applied in this study. The second of these follow-up studies should be conducted during the last three months of the year 1996 to keep the time intervals between studies consistent.

2) Investigate the impact of oil pollution on the current Kuwaiti housing stock, sale prices, demand, distribution, policy, design, and building materials. While the initial and the follow-up studies focused on the impact of oil

pollutants on Kuwaiti households' perceptions, an examination of the impact of ORP on the housing industry in Kuwait is needed also. Such studies could set the stage for changes, improvements, and new materials that could lessen future negative impacts.

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APPENDIX - A

KUWAIT: GENERAL BACKGROUND

Introduction

Kuwait is a small Arab country located on the northwest corner of the Arabian Gulf between the Republic of Iraq and the Kingdom of Saudi Arabia. The official language in Kuwait is Arabic and the official religion is Islam. Kuwait became an independent sovereign State on June 19, 1961, after terminating the January 23, 1899, Agreement with Great Britain (Kuwait News Agency, 1985). On July 20, 1961, Kuwait became a member of the Arab league, and of the United Nations on May 14, 1963 (Ministry of Information, 1989).

Kuwait is a hereditary Emirate and succession is to be in the descendants of the late Mubarak Al-Sabah. However, the system of the government in Kuwait is democratic, under which sovereignty resides in the Kuwaiti people through their elected National Assembly (The State of Kuwait, 1993).

Name and History

The State of Kuwait was referred to by the name Qurain or Grane in the early 17th century. The names Qurain and Kuwait are diminutive of the Arabic words Qarn and Kout, which respectively mean "high hill" and "a house built in a form of fortress adjacent to the water." The plural of Kout is Akwat, which is used by the Arabian Peninsula's historians when referring to a number of castles in towns with

forts and walls (Abu-Hakima, 1983; Al-Hatim, 1980). Historians believe that Grane was built by Sheikh Barrak ibn Ghurair Al-Hamid, who ruled the Bani Khalid tribe from 1669 to 1682 AD. In 1765, Kuwait was depicted as Grane on the map and in the narrative of the Danish traveller C. Neibuhr. However, it is believed that Kuwait had been established as Grane as early as 1713 (Al-Hatim, 1980). By the end of the eighteenth century, Grane was mostly referred to by the name Kuwait (Abu-Hakima, 1983).

Population

Kuwait was originally inhabited by the Bani Khalid. The Bani Khalid ruled eastern Arabia for a long time. In 1668, Sheikh Barrak ibn Ghurair, Prince of Al-Hasa (the Eastern Province of the Kingdom of Saudi Arabia) finished building the fortress that his brother Sheikh Aqeel ibn Ghurair had started in 1650. Later in 1713, the Utub, the ancestors of the Al-Sabah and other large families, came to live in Kuwait. The Utub are part of the great "Anaza" Adnani tribe (Figure 22) (Abu-Hakima, 1983).

Until 1957, little was known about the population of Kuwait. Some travellers gave inaccurate estimations regarding the population in Kuwait, but the Central Statistics Office estimates the 1910 population in Kuwait at about 35,000. By 1935, the population had risen to 75,000 due to promising results from oil exploration in Kuwait. In the early 1950s the estimated population in Kuwait was about 100,000

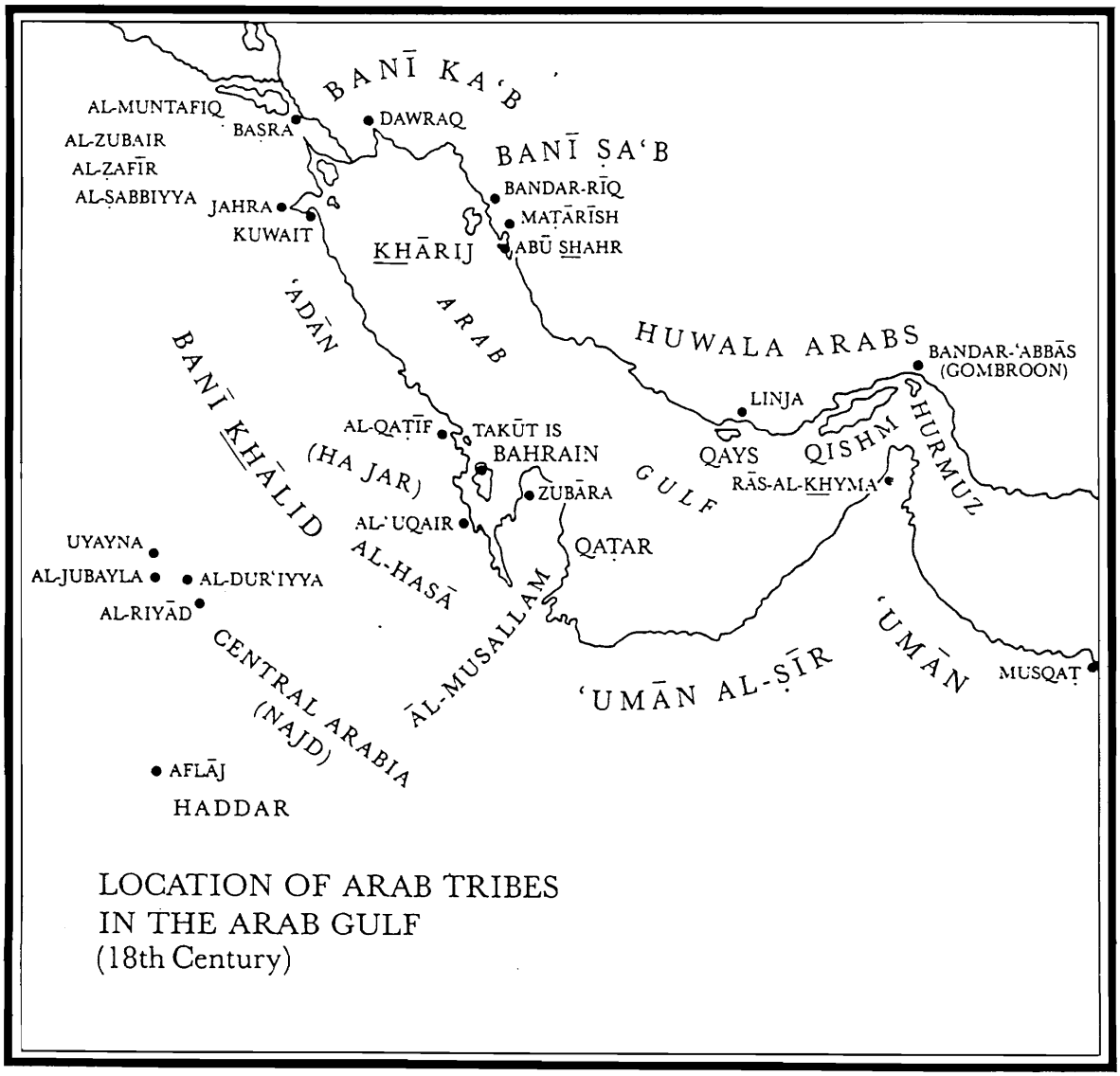

Figure 22. Location of Arab Tribes around the Arabian Gulf during the 18th century. (Adapted from Abu-Hakima, 1983).

and in the first census of 1957, the population in Kuwait had doubled to 206,000 (Ministry of Information, 1992).

Since 1957, a population census has been conducted every five years in Kuwait. In the 1985 census, Kuwait's population was more than 1.7 million; it had risen to 2.1 million by the year 1990. By the year 2000, Kuwait's population is expected to be around three million. Since 1975, about 70% of Kuwait's population has been composed of immigrant workers (Ministry of Planning, 1990-1991).

Geographical Location

Kuwait is located at the upper northwest corner of the Arabian Gulf (Figure 23). It has the shape of a semi-triangle, and it borders the Republic of Iraq from the north, the Kingdom of Saudi Arabia from the west and the south, and the Arabian Gulf from the east. This strategic location links Kuwait closely with its neighboring countries as well as the outside world. Also, this location has generously contributed to Kuwait's economy by providing free access for navigation and rich oil resources.

Area and Topography

The total area of Kuwait is 17,818 square kilometers (6,969 square miles). Kuwait is mainly a flat sandy desert with a few low hills such as Jal Al-Zour, Al-Liyah, Karaa Al-Maru, Afrie, and Shagat Al-Jleeb. Those hills slope gradually from the west to the east, and are separated by a few valleys along the Iraqi and Saudi

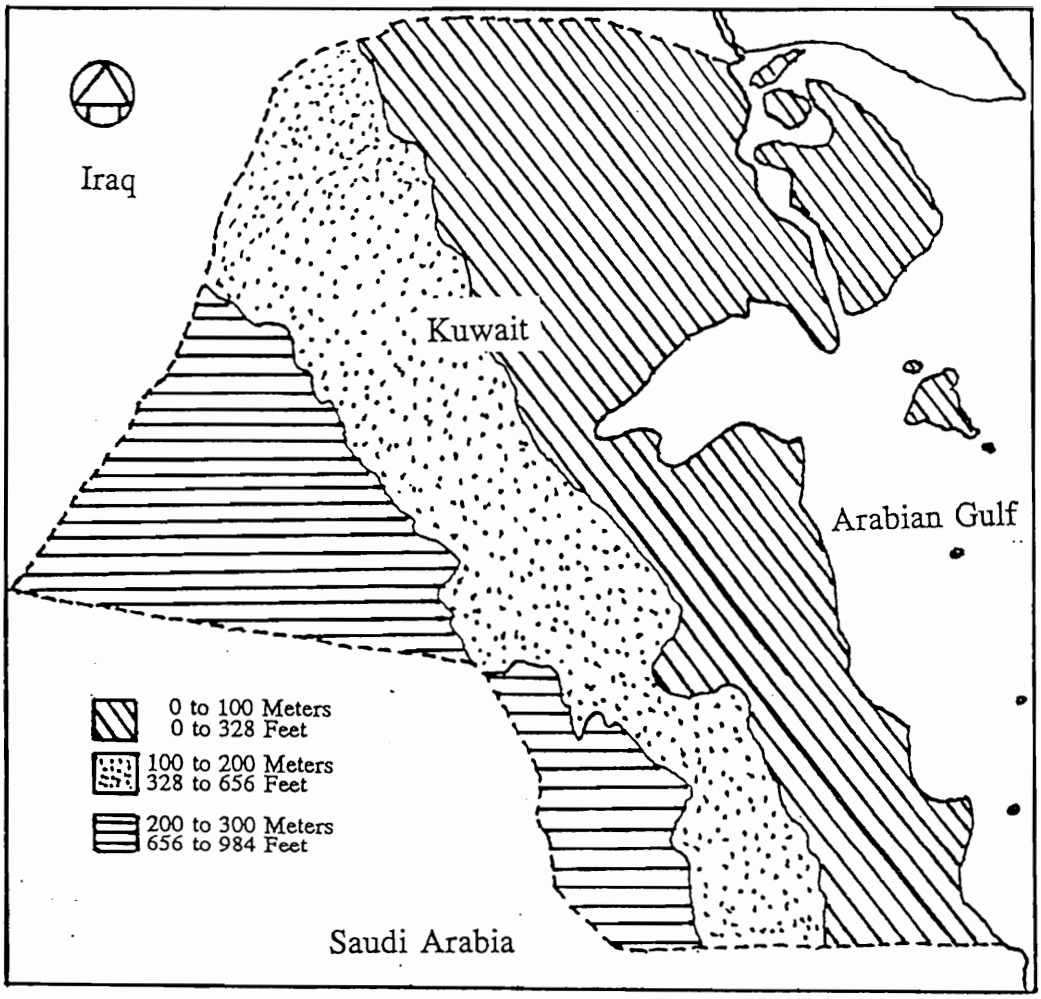

Figure 23. Kuwait's geographical location and topography.

borders. Such valleys include Baten Valley, Shaqaya Valley, and Umm Al-Raman .

Kuwait's coastal water is generally shallow with high and low tides. There are nine islands of different sizes along the coast. The biggest, but uninhabited, island is Bubiyan, Failaka is the most important island for both human settlement and economic development (Ministry of Information, 1993).

Climate

Due to its location in the Sahara geographical region, Kuwait is known for its long, hot, and dry summers, and its short, cold, and sometimes rainy winters. Dust storms often occur, with an increase in humidity, during summer. Spring and fall are short but recognizable. The average temperature in summer is 45 Celsius (113 Fahrenheit), while in winter it drops to an average of 8 Celsius (46.4 Fahrenheit). Annual rainfall is unpredictable, but it is usually between 22 mm and 35 mm (0.10 to 1.5 inch).

Oil Search and Discovery in Kuwait

In 1934, Sheikh Ahmad Al-Jabir Al-Sabah signed an agreement with the Kuwait Oil Company (KOC), an American and British consortium, and gave that company exclusive rights for oil exploration and exploitation in all Kuwait territory. Two years later, KOC drilled the first oil well; however, oil was not actually discovered until 1938 at the Burgan field (Ismael, 1993).

In September of 1939, World War II started and the KOC shut down its oil operations. After World War II, the KOC resumed its business and in 1946 oil was exported from Kuwait for the first time. Since then, oil discovery in Kuwait has been on the rise and more oil fields have been discovered. Major oil fields in Kuwait include Burgan, Ahmadi, Magwa, Wafra, Umm Gudair, Bahrah, Manakeesh, Retga, Sabriyah, and Rawdatain, as shown in Figure 24 (Environmental Protection Council, 1991).

Presently, oil and natural gas represent the two major natural resources for the Kuwaiti national income. In 1990, Kuwait had more than 900 oil wells in production. In 1986, Kuwait's production of crude oil reached 261,100,00 barrels and 362,624,000 million cubic feet of natural gas (Ministry of Planning, 1993). Kuwait's oil revenues jumped from 255,000 Kuwaiti Dinar (KD) (about US $867,000) in 1946 to 8,151,840,000 KD (about US $27,716,256,000) in 1984.

Pre and Post-Oil Kuwait

Economy

From the day Kuwait was formally established as Grane in 1713, to the day that oil was found and exported in 1936, Kuwait's economy depended mainly on pearl-diving, fishing, seafaring, trade, ship-building, herding, and agriculture. Kuwait's location near the Arabian Gulf provided the people of Kuwait with the major source of natural pearl in the world. Therefore, pearl-diving was the most important

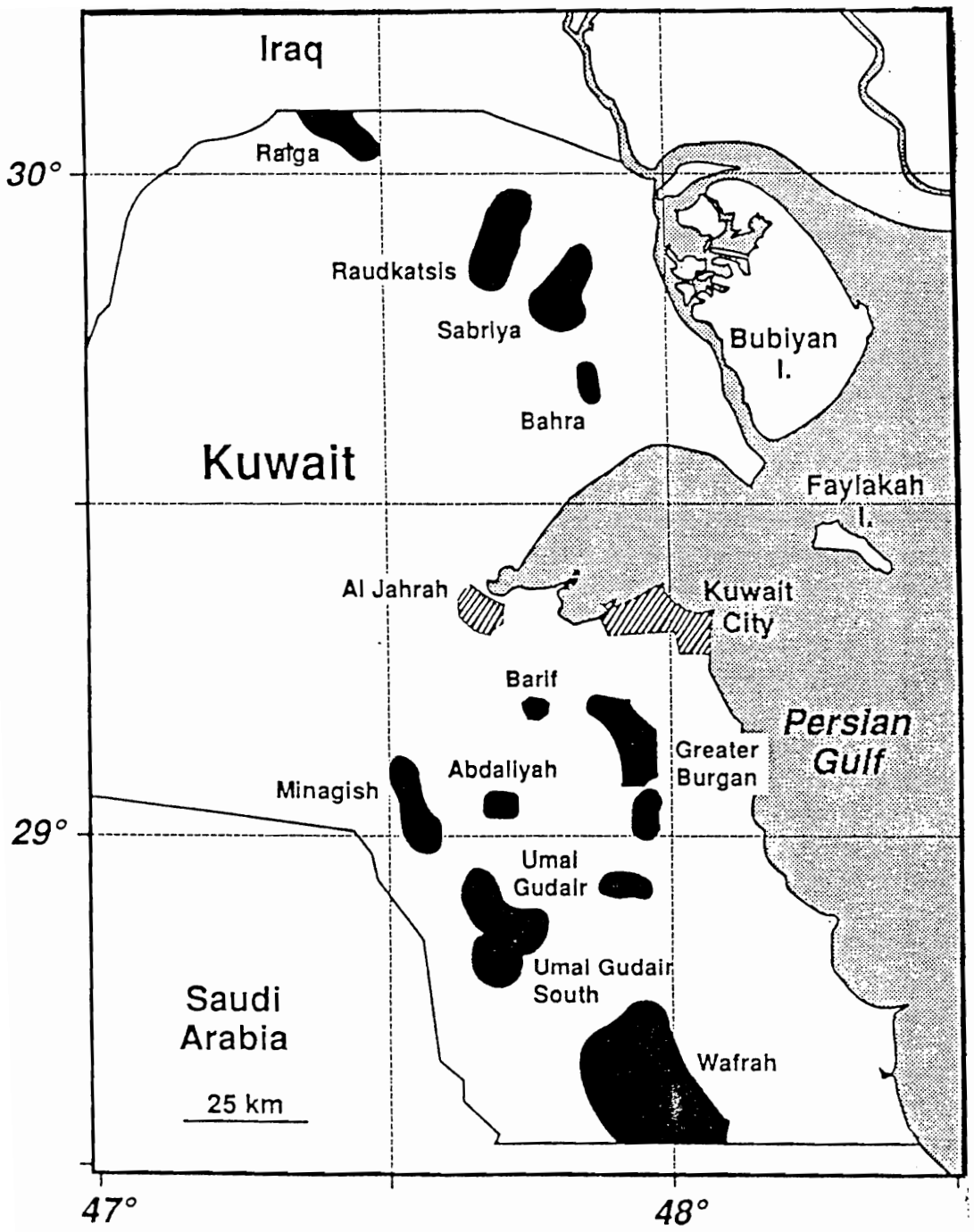

Figure 24. Locations of major oil fields of Kuwait.

industry in Kuwait and the major source of income for most of the people in old Kuwait. In 1904 Kuwait had more than 960 vessels, and more than 9,000 employees engaged in pearl-diving. Before the First World War, exports of pearl exceeded 2 million British Pounds in value (Al-Sabah, 1980), about 3,000,000 U.S. dollars.

During the cold days of winter, many of the people in Kuwait used to fish for a living. Fish from the Arabian Gulf was an essential part of the daily diet for most of the Kuwaitis, especially the poor ones. Famous fishing catches were Zubidi, Naqrur, Newaibi, and shrimp. Fishing methods included hand net, floating net, line, and tidal water fishing traps. During 1900, fish supplies to the local market was around 10,000 pounds a day (Al-Sabah, 1980).

The strategic location of Kuwait influenced Kuwait's economy through sea and land trade. Kuwait was an important trading center and transit station for trade between many countries in and around the Arabian peninsula, including Iraq, Iran, Turkey, India, and East Africa. Therefore, seafaring, trade, and ship-building were three other major sources for jobs for old Kuwaitis. Kuwaiti shipyards produced more than 50 ships of different sizes and types every year, with an average capacity ranging between 150 to 300 tons. In 1820, Kuwait had 35 sailing ships; by the end of 1905 Kuwait had 291 sailing ships. In 1905, Kuwait's foreign trade was mainly with India (31%), Turkish Arabia (27%), Great Britain (15%), Persia (9%), and France and Germany (19%) (Al-Sabah, 1980). The Great Depression and the development of the cultured pearl in Japan, as well as the trade blockade of the Najd

against Kuwait reduced the number of Kuwaiti seafaring ships to a minimum. Ship-building in Kuwait suffered significantly as a consequence. In the years after World War II, the Kuwait work force was soon utilized in the oil industry.

Kuwait's hot and dry climate, low rainfall, and limited sources of underground fresh water made successful and economically sound herding and agriculture very difficult to achieve. However, villages such as Al-Jahra, Al-Funtas, Abu-Halifah, and Dimna (now called Salimia) were known for their variety of vegetables during the seasons of summer and winter. Those villages provided all of Kuwait City's vegetables. But Kuwait had to import all its grains and other agricultural products. Similarly, herding sheep, camels, cattle, and horses was mainly for local use, and was mainly practiced by the Bedouin tribes in Kuwait. Herding served such purposes as supplying wool and sheepskins, as well as covering daily needs of milk, butter, yogurt, and meat. Camels and horses were used for transportation and mobility of men and belongings (Al-Sabah, 1980).

In the early 1960s, Kuwait and its people began feeling the benefits of oil discovery and export. Kuwait's revenues from sales of crude oil and natural gas in 1989 exceeded 2,772,500,000 KD (about US $9,426,500,000) (Ministry of Planning, 1990-1991). Oil, oil products, and natural gas have been and will remain for years to come the major natural source of wealth for Kuwait. Today, a very small portion of the Kuwaiti population still works in pearl-diving, fishing, ship-building, herding and agriculture. Most of the people in Kuwait work for the government. In the 1985

Census, the major labor forces in Kuwait were professional and technical workers (24%); administrative and managerial workers (38%); clerical workers (39%); sales workers (11%); service workers (10%); agriculture, animal husbandry, fishing, and hunting workers (2%); production workers and laborers (3%) (Ministry of Planning, 1990-1991, p. 98).

Education

Until the First World War, Kuwait had no educational system. However, there were a few classes to teach Arabic reading and writing, basic mathematics, and reciting the Quran, the Holy book of Muslims. An old teaching class, called "Kit-tab", was a small room or area in the teacher's (Mulla's) house. Male and female students were taught in different classes by teachers of their same sex. Each student had to bring one Rupiah a month to the teacher. One Rupiah is equal to 75 Kuwaiti Fills or about 26 to 28 US cents. Students graduated when they had finished learning and reciting the Quran. In 1912, the people of Kuwait built their first formal school and named it Al-Mubarakiah after their ruler Sheikh Mubarak Al-Sabah. The same educational methods and curriculum continued until 1937, when a new curriculum and a new faculty and staff were employed to improve education in Kuwait (Al-Hatim, 1980). Later, education improved quickly and rapidly to meet the ever-increasing needs and challenges of an oil country.

Elementary, middle, and high school systems, curricula, and teaching methods

and materials have improved tremendously in Kuwait during the last 30 years. In the scholastic year of 1989-1990, Kuwait had 120 kindergartens, 197 elementary schools, 180 middle schools, and 136 high schools. Also, for the same scholastic year Kuwait had four religious institutes and 31 special training schools for handicapped students (Ministry of Planning, 1990-1991). During the scholastic year of 1987-1988, the total number of students in government schools reached 372,000 students and the number of teaching staff was 14,000 men and women (Ministry of Information, 1989).

College and higher education have also been improving in Kuwait since Kuwait University was inaugurated in 1966. There are also a few two-year colleges that cover different areas of study. Male and female students with high grade point averages get the chance every year to compete for scholarships to study in Arab and foreign universities around the world at the government's expenses.

Health

Dr. Arthur Bennett was the first formal physician to work in Kuwait. In 1910 Dr. Bennett, a member of the Reformed Church in America's Arab Mission based in the Iraqi city of Busra, was invited by Sheikh Mubarak Al-Sabah to work in Kuwait to help cure sick members of the Al-Sabah family. Before Dr. Bennett, local barbers had served in that profession. The next year, Sheikh Mubarak allowed the mission to build the first hospital in Kuwait. In 1913, the American Hospital was completed under the supervision of Dr. Stanley Mylrea. This hospital served as the only

hospital in Kuwait until 1949, and it was open for patients with all diseases (Quality Publishing Ltd.)

Kuwait's first Ministry of Health was founded in 1936. In the same year, a free clinic was opened with one doctor and one pharmacist, and in 1949, the first Kuwaiti hospital, Al-Amiri Hospital, was built to accommodate 100 patients. Later, Al-Amiri Hospital was expanded to accommodate 582 bed-patients and cover medical needs in the areas of general surgery, anaesthesia, orthopaedic surgery, internal diseases, pediatrics, women's diseases and maternity, skin diseases, ear, nose, throat, and ophthalmic (Quality Publishing Ltd.) In 1989, Kuwait had 16 hospitals and sanitariums, 68 clinics, 222 dental clinics, 24 mother care centers, 43 child care centers, 30 preventative centers, and 714 school clinics. Those hospitals and clinics had 6,104 beds (Ministry of Planning, 1990-1991).

Social Welfare

Before the discovery of oil and the wealth which came with it, social affairs in Kuwait were more the responsibility of Kuwaiti families than of the Kuwaiti government. For example, taking care of orphans, foundlings, elderly, mentally retarded, and handicapped persons was mainly the responsibility of the family. However, the Ministry of Social Affairs and Labor was established in 1955 to improve living conditions for needy Kuwaiti individuals and families (Ministry of Information, 1993).

In 1962, the Ministry of Social Affairs and Labor established a financial program to aid individuals and families with incomes below the poverty line and to provide training and educational programs to improve job opportunities. Also, the Ministry provided special housing programs to low and middle income families and provided a children's house for orphans, foundlings, and illegitimate children (Quality Publications Ltd.) Now, the Ministry of Social Affairs and Labor provides the elderly, the handicapped, and the mentally retarded with all kinds of health, social, psychiatric, and professional care to help them become effective and active members of the Kuwaiti society (Ministry of Information, 1993). On other social levels, the Kuwaiti government provides great support to consumer co-operative societies, welfare societies, clubs and sports federations and other services to the people of Kuwait.

In conclusion, although Kuwait is still a small Arabian country, it has been striving to satisfy its domestic needs and to become actively involved in international affairs. Since oil was discovered in 1934, the Kuwaiti government had paid attention to the development of its human and natural resources. Good health, education, and housing for every Kuwaiti is still among the top priorities of the government.

APPENDIX - B

Survey Questionnaire: English Version

THE IMPACT OF OIL-RELATED POLLUTION ON HOUSING SATISFACTION
OF Kuwaiti HOUSEHOLDS

Ali Saleh Al-Najadah, Ph.D. Candidate
Department of Housing, Interior Design and Resource Management
Virginia Polytechnic Institute and State University / USA

Identification # (HEAL# / ORP#) Interviewer's ID#:

INTERVIEWER'S INSTRUCTIONS: Please, call your randomly selected prospect, then introduce yourself and tell him/her about the nature and purpose of this study. Ask your prospect for his/her interest in participating this study and responding to the following questions. Tell your prospect that the survey will be conducted through the telephone and it will take about 30 minutes. Also, tell your prospect that his/her identity will remain confidential and he/she has the right at any time to stop the interview or skip any question that he/she wishes not to answer. Finally, if your prospect does not object to participating in the interview, then ask him/her if you can continue with the interview or if you need to interview him/her at a different time. If your prospect would like to be interviewed at a different time then book the preferred date and time, of the interview before you end the conversation; however, if your prospect is ready for the interview, then start immediately with the first question. DO NOT FORGET TO THANK YOUR PROSPECT AT THE END OF THE INTERVIEW FOR HIS/HER COOPERATION IN THIS STUDY.

Trials of telephone contacting should not exceed five calls to each prospect because of the time limitation allocated for data collection. Circle your participants' answers on their questionnaire, then mark those answers carefully with #2 pencil on the Optical Scan Sheet provided with each questionnaire. Make sure that each participant's identification numbers from the HEAL project and this study are recorded carefully and clearly on both participant's questionnaire and Optical Scan sheet. BE VERY POLITE, SPECIFIC, AND CAREFUL IN YOUR INTERVIEW. ASK THE QUESTIONS AND HELP PROSPECTS UNDERSTAND THE QUESTION WITHOUT LEADING HIM/HER TO A SPECIFIC ANSWER. GOOD LUCK.

1. What is your age?
   1. 18-39 years old
   2. 40 years or older

2. Are you aware of any of the different types of ORP in Kuwait which resulted from the Iraqi invasion?
   1. Yes
   2. No

3. What is your nationality ?
   1. Kuwaiti
   2. Non-Kuwaiti

4. Are you male or female?
   1. Male
   2. Female

5. What is your home address(.....)

6. What is the name of your governorate?
   1. Capital
   2. Hawalli
   3. Ahmadi
   4. Al-Jahra
   5. Al-Frwania

7. Are you afraid of your exposure and the exposure of any of your family members and belongings to the different threats of oil-related pollution (ORP)?
   1. Yes
   2. No

(IF THE ANSWER ON Q#7 WAS NO THEN STOP AFTER Q#37; HOWEVER, IF THE ANSWER WAS YES THEN CONTINUE THE INTERVIEW.)

8. Are you familiar with any of the different effects of ORP on humans and non-humans in Kuwait?
   1. Yes
   2. No

9. If your answer to the previous question YES, then how did you know about the different types of ORP and their effects on humans and non-humans?
   1. I deal with them in my profession (what is your profession.....)
   2. I read about them in some governmental publications (e.g. reports, documents, pamphlets)
   3. I read about them in some non-governmental publications (e.g. newspapers, journals, reports, pamphlets)
   4. I learned about them from attending seminars and/or conferences on ORP
   5. I heard about them at work
   6. I heard about them at the deawaniah
   7. Others (Please identify that source.....)

10. What is your marital status
   1. Single
   2. Married
   3. Widow
   4. Divorced
   5. Separated

INTERVIEWER'S INSTRUCTIONS: If the participant is single, then go to question # 17.

11. Do you have children?
   1. Yes
   2. No

12. If the answer to the previous question was YES, then, where do your children live?
   1. In Kuwait (number of children.....)
   2. Outside of Kuwait (number of children.....)

13. Did any of your children develop any health problem because of any type of ORP?
   1. Yes
   2. No

14. If the answer to the previous question was YES, then, what is the nature of your child's/ children's developed health problems?
   1. Respiratory problems (lungs or breathing problems)
   2. Cardiac problems (heart problems)
   3. Dermal problems (skin problems)
   4. Ingestion problems (stomach or digestive problems)
   5. Allergy (asthma)
   6. Others (Please explain.....)

15. Did the existing health problems of any of your children increase because of any type of ORP?
   1. Yes
   2. No

16. If the answer to the previous question was YES, then, what is the nature of your child's/ children's existing health problems?
   1. Respiratory problems (lungs or breathing problems)
   2. Cardiac problems (heart problems)
   3. Dermal problems (skin problems)
   4. Ingestion problems (stomach or digestive problems)
   5. Allergy (asthma)
   6. Others (Please explain.....)

17. Did you develop any health problem because of any type of ORP?
   1. Yes
   2. No

18. If the answer to the previous question was YES, then, what is the nature of your developed health problems?
   1. Respiratory problems (lungs or breathing problems)

2. Cardiac problems (heart problems)
3. Dermal problems (skin problems)
4. Ingestion problems (stomach or digestive problems)
5. Allergy (asthma)
6. Others (Please explain.....)

19. Did your existing health problems increase because of any type of ORP?
1. Yes
2. No

20. If the answer to previous question was YES, then, what is the nature of your existing health problems?
1. Respiratory problems (lungs or breathing problems)
2. Cardiac problems (heart problems)
3. Dermal problems (skin problems)
4. Ingestion problems (stomach or digestive problems)
5. Allergy (asthma)
6. Others (Please explain.....)

21. Please select one or more of the following symptoms if you or any of your family members experience them any time you stay at home.
1. Headaches
2. Nausea
3. Dizziness
4. Sore Throats
5. Dry or Itchy Skin
6. Sinus Congestion
7. Nose Irritation
8. Excessive Fatigue
9. Others (Please identify.....)

22. What kind of heating, cooling and ventilation systems do you use at home? You may select one or more of the following.
1. Central cooling and heating (HVAC)
2. Air conditions
3. Split units
4. Electrical Fans
5. Hand Fans
6. Electrical Heaters
7. Coal or Gas Heaters
8. Natural Air coming through the doors and windows
9. Others (Please identify.....)

23. Please rank in order the different types of ORP that bother your the most outside your home. Use number (1) for the type of ORP that bothers you the most and number (6) for the type of ORP that bother you the least.
( ) Crude oil
( ) Oil related gases or gases that resulted from the pre-set oil fires
( ) Odor and bad smells from ORP or the pre-set oil fires
( ) Soot
( ) Solid and semi-solid oil related particulate
( ) Others (Please explain.....)

24. Please rank in order the different types of ORP that bother your the most inside your home. Use number (1) for the type of ORP that bothers you the most and number (6) for the type of ORP that bother you the least.
( ) Crude oil
( ) Oil related gases or gases that resulted from the pre-set oil fires
( ) Odor and bad smells from ORP or the pre-set oil fires
( ) Soot
( ) Solid and semi-solid oil related particulate
( ) Others (Please explain.....)

25. Has your home been treated from outside against the visible effects of ORP?
    1. Yes
    2. No

26. Please explain why your home was or was not treated from outside against ORP.
    * Reason of treatment: .....
    * Method of treatment: .....
    * Reason for selecting this method of treatment: .....
    .....
    .....

27. Has your home been treated from inside against the visible effects of ORP?
    1. Yes
    2. No

28. Please explain why your home was or was not treated from inside against ORP.
    * Reason of treatment: .....
    * Method of treatment: .....
    * Reason for selecting this method of treatment: .....
    .....
    .....

29. How far do you live from the nearest source of ORP?
    1. Less than 5 Kilometers
    2. More than 5 kilometers and less than 10 kilometers
    3. More than 10 kilometers and less than 20 kilometers
    4. More than 20 kilometers and less than 40 kilometers
    5. More than 40 kilometers (Please specify the approximate distance in kilometers.....)

30. What educational level have you completed?
    1. Illiterate
    1. Elementary school
    2. Middle school
    3. High school
    5. Two years college
    6. Four years college
    7. Graduate (with a Master degree or a Ph.D. degree)

31. Type of residence
    1. Villa for low-income families
    2. Villa for middle-income families
    3. Apartment
    4. Traditional house (Arabic style)
    5. Home addition (Molhak)
    6. Others (Please explain.....)

32. You or your family
    1. Own your dwelling unit
    2. Rent your dwelling unit

33. How long have you been living in your present dwelling?
    1. Before the Iraqi invasion of Kuwait
    2. Since the Iraqi invasion of Kuwait
    3. Since the liberation of Kuwait from the Iraqi invasion

34. If your response to the previous question was answer #1, then how long have you been living in this residence?
    1. Less than one year to 5 years
    2. More than 5 years to 10 years
    3. More than 10 years to 15 years
    4. More than 15 years (How many years.....)

35. Where you living in your present residence during the Iraqi invasion of Kuwait?
    1. Yes
    2. No

36. Did you stay in Kuwait while the oil fires were burning?
    1. Yes
    2. No

37. What is the approximate monthly income of all your family members who live with you at home?
    1. Less than 500 Kuwaiti Dinar (K.D.)
    2. 500 K.D.- 750 K.D.
    3. 750 K.D.- 1000 K.D.
    4. 1000 K.D.-1250 K.D.
    5. More than 1250 K.D. (Please specify to the nearest 50 K.D.....)

INTERVIEWER'S INSTRUCTIONS: Pleas circle ONLY the best selected responses the Optical Scan Sheet with a pencil number 2 for the following statements. Use #1 for Strongly Disagree (S.Dis.), #2 for Disagree (Disag), #3 for Agree (Ag.), #4 for Strongly Agree (S.A.), and #5 for Not Applicable (N.A).

Statement	S.Dis 1	Disag. 2	Agree 3	S.Agree 4	N.A. 5
THE CULTURAL MEANINGS OF HOME AND THE THREAT POSED BY ITS CONTAMINATIONS WITH ORP:					
1. Homes are places for families.					
38. I see, smell, and/or feel the effects of ORP inside my dwelling unit (e.g. sooty fallouts, odor and emission of gases).....	( )	( )	( )	( )	( )
39. I see, smell, and/or feel the effects of ORP outside my dwelling unit (e.g. sooty fallouts, and emission of gases.....	( )	( )	( )	( )	( )
40. I am afraid of the posed threats of ORP outside my dwelling on my family's health, and mine.....	( )	( )	( )	( )	( )
41. I am afraid of the posed threats of ORP inside my dwelling on my family's health, and mine.....	( )	( )	( )	( )	( )
42. I feel uncomfortable at home because of my fear of the ORP that affected my dwelling unit.....	( )	( )	( )	( )	( )
43. I spend most of my free time outside my home to reduce the posed risks of ORP on my health.....	( )	( )	( )	( )	( )
44. I get very upset and do not act normal at home because I feel threatened by ORP effects.....	( )	( )	( )	( )	( )
2. Homes provide protection and represent security.					
45. The design of my home can protect me and my family from the threats of ORP.....	( )	( )	( )	( )	( )
46. I feel very safe to drink, eat and breathe at home	( )	( )	( )	( )	( )
47. My home is built from good materials that can protect me against the threats of ORP.....	( )	( )	( )	( )	( )
48. I am very upset because my home has been invaded by some ORP. I no longer feel free and secure to use the different spaces at home.....	( )	( )	( )	( )	( )
3. Homes are affective anchors with sacred connotations.					
49. I lost my love and care for my home because it was affected by some oil-related pollutants.....	( )	( )	( )	( )	( )

INTERVIEWER'S INSTRUCTIONS: Pleas circle ONLY the best selected responses the Optical Scan Sheet with a pencil number 2 for the following statements. Use #1 for Strongly Disagree (S.Dis.), #2 for Disagree (Disag), #3 for Agree (Ag.), #4 for Strongly Agree (S.A.), and #5 for Not Applicable (N.A).

Statement	S.Dis 1	Disag. 2	Agree 3	S.Agree 4	N.A. 5
50. My home is no longer the source of my proudness because it is contaminated with ORP.....	( )	( )	( )	( )	( )
51. It is hard for me to be happy in my contaminated home.....	( )	( )	( )	( )	( )
4. Homes are expression of their owners' and residents' identities.					
52. My home is part of me.....	( )	( )	( )	( )	( )
53. The sooty fallouts affected the beauty of my home	( )	( )	( )	( )	( )
54. I feel as if I lost my social prestige because of the contamination of my home with ORP.....	( )	( )	( )	( )	( )
55. My relatives and friend do not visit me at home as much as they used to because they fear the threats of ORP in my home.....	( )	( )	( )	( )	( )
56. I believe that my home price have dropped significantly because my home is contaminated with ORP...	( )	( )	( )	( )	( )
57. Real estate agents and home buyer find my home and neighborhood less desirable for living and/or investment.	( )	( )	( )	( )	( )
5. Homes provide privacy.					
58. I feel as if I lost control on my home because I couldn't control its contamination with ORP.....	( )	( )	( )	( )	( )
59. I am very angry because my home is contaminated with ORP and many people have to break my privacy in order to help me decontaminate it.....	( )	( )	( )	( )	( )
60. My uncertainty about the contamination level in and around my home made me an insecure victim of an uncontrolled threat.....	( )	( )	( )	( )	( )

INTERVIEWER'S INSTRUCTIONS: Read the following statements **ONLY** to the participants who are homeowners or members of homeowner families.

THE CULTURAL MEANINGS OF HOMEOWNERSHIP AND THE THREAT POSED BY CONTAMINATION WITH ORP.

1. Homeownership is a major part of people's dreams.					
61. The contamination of my home with ORP destroyed my dream of owning a healthy home.....	( )	( )	( )	( )	( )
62. Owning an expensive contaminated home made me an owner of big problem.....	( )	( )	( )	( )	( )
63. My home was my castle, but because of its contamination with the ORP it became my prison.....	( )	( )	( )	( )	( )
64. I have worked so hard for many years to make my homeownership dream come true, but its contamination with the ORP shattered my dream.....	( )	( )	( )	( )	( )

INTERVIEWER'S INSTRUCTIONS: Pleas circle ONLY the best selected responses the Optical Scan Sheet with a pencil number 2 for the following statements. Use #1 for Strongly Disagree (S.Dis.), #2 for Disagree (Disag), #3 for Agree (Ag.), #4 for Strongly Agree (S.A.), and #5 for Not Applicable (N.A).

Statement	S.Dis 1	Disag. 2	Agree 3	S.Agree 4	N.A. 5
65. The contamination of my home with ORP made me and my family depend on other people (e.g. officials and professional individuals) to help us decontaminate our home.....	( )	( )	( )	( )	( )
2. Homeownership is thought to promote independence and confer rights.					
66. I became financially dependent on the government or one of the banks in Kuwait to borrow some money for decontaminating my home from ORP.....	( )	( )	( )	( )	( )
67. I am no longer free to do what I want to do with my home because it is contaminated with ORP.....	( )	( )	( )	( )	( )
3. Homeownership makes homeowners members of a respected category.					
68. Since I became a homeowner, I felt as if I became a member of a respected category in my society.....	( )	( )	( )	( )	( )
69. The contamination of my home with ORP made me feel as if I am a member of a less respected category in my society.....	( )	( )	( )	( )	( )
70. I feel that I lost my socio-economic status among my people because of the contamination of my home with ORP	( )	( )	( )	( )	( )
HOUSING SATISFACTION AND THE THREAT POSED BY CONTAMINATION WITH ORP.					
71. My satisfaction level with my home has been reduced mainly because of its contamination with some oil pollutants.....	( )	( )	( )	( )	( )
72. My satisfaction level with my home before it was contaminated with ORP was much higher than after it was contaminated with ORP.....	( )	( )	( )	( )	( )
73. I am not satisfied with my home because its exteriors are contaminated with some oil pollutants.....	( )	( )	( )	( )	( )
74. I am not satisfied with my home because its interiors are contaminated with some oil pollutants.....	( )	( )	( )	( )	( )
75. I am not satisfied with my home because my neighborhood is still contaminated with oil pollutants...	( )	( )	( )	( )	( )
76. I am not satisfied with my home because it is close to major sources of oil-related pollution.....	( )	( )	( )	( )	( )
77. I like to move out to another house in the same neighborhood that is less contaminated with ORP than mine.	( )	( )	( )	( )	( )
78. I will move out to another house in the same neighborhood that is less contaminated with ORP than mine.	( )	( )	( )	( )	( )
79. I would like to move from my present house to another one that is far from major sources of ORP.....	( )	( )	( )	( )	( )

INTERVIEWER'S INSTRUCTIONS: Pleas circle ONLY the best selected responses the Optical Scan Sheet with a pencil number 2 for the following statements. Use #1 for Strongly Disagree (S.Dis.), #2 for Disagree (Disag), #3 for Agree (Ag.), #4 for Strongly Agree (S.A.), and #5 for Not Applicable (N.A).

Statement	S.Dis 1	Disag. 2	Agree 3	S.Agree 4	N.A. 5
80. The contamination of my home with ORP has no effect on my satisfaction level with my home's present condition.....	( )	( )	( )	( )	( )
81. The contamination level in my neighborhood with ORP has no effect on my housing satisfaction with my current home conditions.....	( )	( )	( )	( )	( )
82. Regardless of the remaining visible and invisible effects of ORP inside and outside my home, presently and over all, I am satisfied with my home.....	( )	( )	( )	( )	( )

83. INTERVIEWER'S INSTRUCTIONS: Please ask the participant if he/she has any concerns regarding his/her residential contamination with ORP (Please use the back of this page to write down the respond).

Survey Questionnaire: Arabic Version

أستبيان المرحلة الثانية : النسخة العربية

أثر التلوث النفطى على حالة رضا أهالى الكويت عن مساكنهم على صالح النجادة

طالب دكتوراة فى جامعة فرجينيا تك بالولايات المتحدة الأمريكية و مدرس مساعد بقسم التصميم الداخلى التابع لكلية التربية الأساسية بدولة الكويت

أرقام التسلسل: دراسة الهيل (.) دراسة الاسكان و التلوث النفطى (.....) رقم هوية جامع البيانات (....)

الأسم الكامل للمشوك: .....

رقم التليفون: .....

يرجى الاتصال بالمشوك المذكور أعلاه على رقم التليفون المبين بجانب اسم المشوك. عرف نفسك و اذكر للمشوك أنك تريد عمل مقابلة تليفونية معه تهدف لدراسة أثر التلوث النفطى الذى نتج عن حرائق النفط عام 1991 على حالة رضا أهالى الكويت عن مساكنهم. ذكر المشارك بأن هذه الدراسة هى امتداد لدراسة سابقة قد تمت مشاركته فيها فى صيف عام 1992 حيث كان الموضوع يدور حول دراسة الآثار الاجتماعية و النفسية للتلوث النفطىعلى سكان الكويت. تمت تلك الدراسة بالمشاركة مع مجلس حماية البيئة الكويتية و مولت من قبل مؤسسة الكويت للتقدم العلمى. أذكر للمشارك بأنك ترغب فى مساعدته لأهمية هذه الدراسة و بين له أن اسمه سيضل سريا و المعلومات التى سيقدمها من خلال المقابلة سيستفاد منها فى أغراض علمية. كذلك اذكر للمشارك أن المقابلة ستأخذ من 20 الى 30 دقيقة. ان أحب الشارك أن يجيب على الاستبيان فى وقت المكالمة فيرجى متابعة ذلك ، أما ان اعتذر المشارك لضيق الوقت و أراد أن تتم المقابلة فى وقت أخر فلا بأس فى ذلك. يرجى تسجيل اليوم و الوقت المناسب لاجراء المقابلة.

يرجى عدم الاتصال بالمشارك الواحد أكثر من خمسة مرات فى أيام مختلفة و فى أوقات مختلفة و ذلك لضيق فترة جمع البيانات و اجراء المقابلات. تأكد من كتابة رقم هويتك على ورقة الأسئلة و تأكد من وجود رقمى دراسة الهيل و دراسة آثار التلوث النفطى على سكان الكويت على ورقة الأسئلة أيضا. يرجى قراءة الأسئلة بشكل محايد لا يوحى بأهمية اجابة من الاجابات المقترحة دون أخرى. يمكن أعادة قراءة الأسئلة للمشارك اذا طلب ذلك و لكن يرجى عدم شرحها له. لا بأس بشرح معنى أية كلمة فى أى من الأسئلة اذا طلب المشارك ذلك. لا تنسى أن تشكر المشارك فى نهاية المقابلة على تعاونه معك.

1. ما هو عمرك؟
   1. 18 سنة – أقل من 40 سنة
   2. 40 سنة أو أكثر
2. هل أنت ملم بأية معلومات عن التلوثات النفطية التى نتجت عن تدمير و حرق العراق لآبار النفط الكويتية؟
   1. نعم
   2. لا
3. ما هى جنسيتك؟
   1. كويتى
   2. غير كويتى
4. هل أنت رجل أم امرأة؟
   1. رجل
   2. امرأة
5. ما هو عنوان مسكنك؟

   .....

   .....
6. ماهى المحافظة التى تسكن فيها؟
   1. العاصمة
   2. حولى
   3. الأحمدى
   4. الجهراء
   5. الفروانية
7. هل أنت متخوف من تعرضك أنت أو أفراد أسرتك ومتلكاتك لمخاطر الملوثات النفطية الناتجة عن الغزو العراقى للكويت؟
   1. نعم
   2. لا
8. هل لديك معرفة بمخاطر الملوثات النفطية على الكائنات الحية و غير الحية فى الكويت؟
   1. نعم
   2. لا
9. اذا كانت اجابتك عن السؤال السابق بنعم، فمن أي المصادر علمت بآثار الملوثات النفطية على الكائنات الحية و غير الحية فى الكويت ؟ (يمكنك اختيار أكثر من أجابة واحدة)
   1. مجال التخصص الذى أعمل به. (ما مجال تخصصك؟.....)
   2. أجهزة الاعلام الحكومية (أذاعة، تلفزيون، تقارير رسمية، الخ).
   3. أجهزة الاعلام غير الحكومية (جرائد يومية، مجلات و دوريات، الخ).
   4. مؤتمرات، ندوات، محاضرات، ورش عمل، الخ.
   5. الحديث مع الزملاء فى مكان العمل.
   6. الديوانية.

7. مصـــادر أخـــرى (مـــا هـــي تلـــك المصادر؟.....)

10. ما هي حالتك الاجتماعية؟

1. أعزب
2. متزوج
3. أرمل
4. مطلق
5. منفصل

تعليمات هامة لجامع البيانات: اذا كان المشارك أعزبا، فيرجى الانتقال الى السؤال رقم (17).

11. هل لديك أبناء؟ (بنين و بنات)

1. نعم
2. لا

12. اذا كانت الاجابة على السؤال السابق بنعم، فأين يسكن هؤلاء الأبناء؟

1. داخل الكويت (عددهم.....)
2. خارج الكويت (عددهم.....)

13. هل أصيب أى من أبنائك (بنين و بنات) بمشاكل صحية نتيجة التعرض للملوثات النفطية؟

1. نعم
2. لا

14. اذا كانت الاجابة على السؤال السابق بنعم، فما هى تلك المشاكل الصحية (يمكن أختيار أكثر من أجابة واحدة)

1. أمراض فى الجهاز التنفسى
2. أمراض فى القلب
3. أمراض جلدية
4. أمراض فى الجهاز الهضمى
5. أمراض الحساسية (ضيق التنفس أو التنك)
6. أمراض أخرى (ما هى ؟ .....)

15. هل زادت المشاكل الصحية السابقة لأى من أبنائك (بنين و بنات) نتيجة التعرض للملوثات النفطية؟

1. نعم
2. لا

16. اذا كانت الاجابة على السؤال السابق بنعم، فما هى تلك المشاكل الصحية (يمكن أختيار أكثر من أجابة واحدة)

1. أمراض فى الجهاز التنفسى
2. أمراض فى القلب
3. أمراض جلدية
4. أمراض فى الجهاز الهضمى
5. أمراض الحساسية (ضيق التنفس أو التنك)
6. أمراض أخرى (ما هى ؟ .....)

17. هل أصبت أنت بأية مشاكل صحية نتيجة تعرضك للملوثات النفطية؟

1. نعم
2. لا

18. اذا كانت الاجابة على السؤال السابق بنعم، فما هى تلك المشاكل الصحية (يمكن أختيار أكثر من أجابة واحدة)

1. أمراض فى الجهاز التنفسى
2. أمراض فى القلب
3. أمراض جلدية
4. أمراض فى الجهاز الهضمى
5. أمراض الحساسية (ضيق التنفس أو التنك)
6. أمراض أخرى (ما هى ؟ .....)

19. هل زادت مشاكلك الصحية السابقة نتيجة التعرض للملوثات النفطية؟

1. نعم
2. لا

20. اذا كانت الاجابة على السؤال السابق بنعم، فما هى تلك المشاكل الصحية (يمكن أختيار أكثر من أجابة واحدة)

1. أمراض فى الجهاز التنفسى
2. أمراض فى القلب
3. أمراض جلدية
4. أمراض فى الجهاز الهضمى
5. أمراض الحساسية (ضيق التنفس أو التنك)
6. أمراض أخرى (ما هى تلك الأمراض؟ .....)

21. هل تشكو أو يشكو أى من افراد عائلتك من أى من الأعراض الصحية التالية حال تواجدكم فى المسكن؟ (يمكن أختيار أكثر من أجابة واحدة)

1. صداع
2. غثيان (لوعة فى الكبد)
3. دوار (دوخة)
4. احتقان فى مجرى التنفس
5. حكة أو جفاف فى الجلد
6. أحتقان فى الأنف
7. أحتقان فى الجيوب الأنفية
8. ارهاق و خمول عام
9. عوارض أخرى (ما هى ؟ .....)

22. ما هى الوسائل المستخدمة فى تدفئة أو تبريد أو تهوية منزلك ؟ (يمكن اختيار أكثر من أجابة واحدة)

1. تبريد و تدفأة مركزية (سنوال)

2. مكيفات
3. وحدات تبريد
4. دفايات كهربائية
5. مراوح يدوية (مهاف)
6. مراوح كهربائية
7. دفايات على الغاز أو الفحم
8. تهوية طبيعية بفتح الأبواب و الشبابيك
9. وسائل أخرى (ما هى ؟ .....)

23. يرجى ترتيب الملوثات النفطية التالية الحادثة على مسكنك من الخارج ان وجدت و ذلك حسب درجة مضايقتها لك (ضع رقم 1 لأكثر الملوثات مضايقة لك و رقم 6 لأخفها مضايقة لك)

( ). نفط خام
( ). غازات نفطية الأصل، أو غازات ناتجة عن احتراق النفط
( ). روائح كريهة نفطية الأصل، أو ناتجة عن احتراق النفط
( ). سخام (سنون) نفطى
( ). مخلفات و دقائق نفطية صلبة أو شبه صلبة
( ). مواد أخرى (ما هى تلك المواد؟.....)

24. يرجى ترتيب الملوثات النفطية التالية الحادثة فى مسكنك من الداخل ان وجدت و ذلك حسب درجة مضايقتها لك (ضع رقم 1 لأكثر الملوثات مضايقة لك و رقم 6 لأخفها مضايقة لك)

( ). نفط خام
( ). غازات نفطية الأصل، أو غازات ناتجة عن احتراق النفط
( ). روائح كريهة نفطية الأصل، أو ناتجة عن احتراق النفط
( ). سخام (سنون) نفطى
( ). مخلفات و دقائق نفطية صلبة أو شبه صلبة
( ). مواد أخرى (ما هى تلك المواد؟.....)

25. هل قمت بمعالجة مسكنك من الخارج ضد أى من الملوثات النفطية؟

1. نعم
2. لا

26. يرجى توضيح سبب قيامك أو عدم قيامك بمعالجة مسكنك من الخارج ضد أى من الملوثات النفطية. عند معالجة المسكن يرجى ذكر وسيلة المعالجة و سبب اختيار تلك الوسيلة:

- سبب المعالجة .....
- سبب عدم المعالجة .....
- وسيلة المعالجة .....
- سبب اختيار وسيلة المعالجة .....

27. هل قمت بمعالجة مسكنك من الداخل ضد أى من الملوثات النفطية؟

1. نعم
2. لا

28. يرجى توضيح سبب قيامك أو عدم قيامك بمعالجة مسكنك من الداخل ضد أى من الملوثات النفطية. عند معالجة المسكن يرجى ذكر وسيلة المعالجة و سبب اختيار تلك الوسيلة:

- سبب المعالجة .....
- سبب عدم المعالجة .....
- وسيلة المعالجة .....
- سبب اختيار وسيلة المعالجة .....

29. كم يبعد محل إقامتك عن أقرب مصدر رئيسى للتلوث النفطى؟

1. 10 كيلومتر (كم) أو أقل
2. أكثر من 10 كم و حتى 20 كم
3. أكثر من 20 كم و حتى 40 كم
4. أكثر من 40 كم و تعادل تقريبا (.....كم)

30. ما هى آخر مرحلة تعليمية أنهيتها؟

1. أمى (بدون اية شهادة دراسية)
2. ابتدائى
3. متوسط
4. ثانوى
5. أقل من جامعى (دراسة فى أحد كليات السنتين)
6. جامعى
7. شهادة عليا (ماجستير، دبلوم عالى، دكتوراه، ما بعد الدكتوراه)

31. ما هو نوع مسكنك؟

1. فيلا حكومية دخل محدود
2. فيلا حكومية دخل متوسط
3. شقة سكنية
4. بيت عربى
5. ملحق
6. مسكن آخر (ما هو؟ .....)

32. هل تملك مسكنك أم ان مسكنك مؤجر؟

1. مسكنى مملوك
2. مسكنى مؤجر

33. متى بدأت الاقامة فى مسكنك الحالى؟

1. من قبل الغزو العراقى للكويت
2. أثناء الغزو العراقى للكويت
3. من بعد تحرير الكويت من الغزو العراقى

34. اذا كانت الاجابة على السؤال السابق بالخيار رقم (1)، فما مدة أقامتك في المسكن الحالي؟

1. 5 سنوات أو أقل
2. أكثر من 5 سنوات و حتى 10 سنوات
3. أكثر من 10 سنوات و حتى 15 سنة
4. أكثر من 15 سنة (حدد عدد السنوات .....)

35. هل كنت في مسكنك طوال مدة الاحتلال العراقي للكويت؟

1. نعم
2. لا

36. هل كنت في مسكنك طوال فترة احراق آبار النفط؟

1. نعم
2. لا

37. ما هو تقديرك لاجمالي الدخل الشهري لكافة أفراد اسرتك؟

1. 500 دينار أو أقل
2. أكثر من 500 دينار و حتى 750 دينار
3. أكثر من 750 دينار و حتى 1000 دينار
4. أكثر من 1000 دينار و حتى 1250 دينار
5. أكثر من 1250 دينار (كم تقريبا .....)

تعليمات هامة لجامع البيانات: يرجى رسم دائرة حول اجابة واحدة فقط لأي من الأسئلة من 38 حتى 82.

أولا: أثر الملوثات النفطية على المعاني الحضارية للمسكن.

أ. المسكن هو مكان للعائلة

38. أنا أرى، أشم، و/أو أحس بآثار الملوثات النفطية و روائحها الكريهة داخل مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

39. أنا أرى، أشم، و/أو أحس بآثار الملوثات النفطية و روائحها الكريهة خارج مسكني (حول و قريب من المسكن)

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

40. أنا متخوف على صحتي و على صحة أفراد عائلتي من أخطار الملوثات النفطية الموجودة خارج مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

41. أنا متخوف على صحتي و على صحة أفراد عائلتي من أخطار الملوثات النفطية الموجودة داخل مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

42. أحس بعدم الراحة في مسكني بسبب خوفي من مخاطر الملوثات النفطية التي أصابت مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

43. أقضي معظم أوقات فراغي خارج مسكني لأقلل من فرصة تعرض صحتي لمخاطر التلوث النفطي.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

44. أتضايق و أتصرف بشكل غير طبيعي في مسكني بسبب خوفي على نفسي من مخاطر التلوث النفطي داخل مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

ب. المسكن يوفر لي الحماية و الأمان

45. أنا متيقن من أن تصميم مسكني قادر على حمايتي و حماية أفراد عائلتي من مخاطر التلوث النفطي.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

46. أحس بالأمان من مخاطر التلوث النفطي عندما آكل و أشرب و أتنفس في مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

47. مسكني مبني من مواد تحميني من مخاطر التلوث النفطي.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

48. أنا متضايق لأن التلوث النفطي قد غزى مسكني، بحيث لم أعد أشعر بتوفر الأمان و الحرية في استخدام كافة مرافق مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

ج. المسكن مأوى هام ذو معان مقدسة

49. لقد فقدت حبي و اهتمامي بمسكني لأنه قد تأثر بالملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

50. كان و لم يزل مسكني مصدر فخر لي رغم تأثره بالملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق
5. غير مطابق

51. كثيرا ما ينتابني الحزن عندما أفكر في الوضع الحالي لمسكني المتأثر بالملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

د. المسكن يعبر عن شخصيات مالكيه و ساكنيه

52. أحس بأن مسكني هو جزء مني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

53. جزيئات السخام الأسود (السنون) الناتجة عن حرائق البترول أثرت على جمال و نظافة مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

54. لم أعد أحس بقيمتي الاجتماعية السابقة بسبب عيشي في مسكن متأثر بالملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

55. انقطع أقربائي و أصدقائي عن زيارتي في البيت بسبب خوفهم من تأثر صحتهم بالملوثات النفطية داخل مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

56. أعتقد بأن مسكني قد قلت قيمته الشرائية في السوق بسبب تأثره بالملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

57. يعتقد سماسرة (دلالوة) و مشتري العقار بأن مسكني و الحي الذي أقطنه قد أصبحا غير صالحين للسكن أو الاستثمار بسبب تأثرهما بالملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

هـ. المسكن يوفر لي الخصوصية المطلوبة

58. لم أعد قادرا على حماية مسكني من أقتحام الملوثات النفطية له .

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

59. أنا منزعج من كثرة احتياجي لدخول المتخصصين في محاربة التلوث النفطي الى مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

60. أشعر بأنني أصبحت ضحية التلوث النفطي الذي أصاب مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

ثانيا : أثر الملوثات النفطية على المعاني الحضارية لملكية المسكن.

تعليمات هامة لجامع البيانات: *تقرأ الأسئلة التالية فقط في حالة ما اذا كان المشارك يملك مسكنه أو من عائلة تملك مسكنها (أنظر السؤال رقم 32). ترسم دائرة حول الاجابات الصحيحة للأسئلة التالية.*

61. لقد حطمت الملوثات النفطية حلمي بامتلاك مسكن صحي.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

62. ان امتلاكي لمسكن غالي الثمن و متأثر بالملوثات النفطية قد جعل مني مالكا لمشكلة كبيرة.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

63. كنت أرى بيتي قصرا لي و لكن بعد تأثره بالملوثات النفطية أصبح سجني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

64. لقد عملت لسنوات طويلة كي أحقق حلمي بامتلاك بيت العمر و بعد امتلاكه جاءت الملوثات النفطية و بددت ذلك الحلم.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

65. لقد أصبحت أنا و عائلتي نعتمد على معونة الآخرين في تخليصنا من مخاطر تأثر مسكننا بالملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

ب. ملكية المسكن تعطي الاستقلالية و تثبت الحقوق.

66. أعتمد في الحصول على التمويل اللازم لتخليص مسكني من الملوثات النفطية على مصادر خارجية (حكومية أو خاص).

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

67. لم أعد أحس بالحرية الكاملة لعمل ما يطيب لي في مسكني بسبب تأثره بالملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

ج. ملكية المسكن تجعل من المالك عضوا محترما في المجتمع.

68. منذ أن أصبحت مالكا لبيتي و أنا أحس بأنني أصبحت عضوا محترما في المجتمع.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

69. ان تأثر مسكني بالملوثات النفطية قد أثر بشكل سلبي على الاحترام الاجتماعي الذي كنت أتمتع به سابقا.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

70. ينظر لي أقربائي و أصدقائي و معارفي بأنني أصبحت أقل مكانة اجتماعية اقتصادية من السابق بسبب تأثر مسكني بالملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

ثالثا : أثر الملوثات النفطية على حالة رضا السكان الكويتيين عن مساكنهم.

71. لقد قل مستوى رضاي عن مسكني خاصة بعد تلوثه ببعض الملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

72. لقد كان مستوى رضاي عن مسكني قبل تأثره ببعض الملوثات النفطية أعلى بكثير من رضاي عنه بعد تأثره بتلك الملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

73. أنا غير راض عن مسكني لتأثره من الخارج ببعض الملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

74. أنا غير راض عن مسكني لتأثره من الداخل ببعض الملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

75. أنا غير راض من مسكني لأن منطقتنا لا زالت متأثره بالملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

76. أنا غير راض عن مسكني لقربه من أحد المصادر الرئيسية للملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

77. أحب أن أنتقل من مسكني الحالي الى مسكن آخر في نفس منطقتنا على أن يكون ذلك المسكن أقل تلوثا من مسكني الحالي.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

78. سوف أنتقل الى مسكن آخر أقل تأثرا بالملوثات النفطية من مسكني الحالي. يقع المسكن الجديد في نفس المنطقة التي نسكنها حاليا.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

79. أحب أن أنتقل من مسكني الحالي الى مسكن آخر في منطقة أخرى ليكون ذلك المنزل بعيدا عن أي من المصادر الرئيسية للملوثات النفطية.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

80. أن تأثر مسكني بالملوثات النفطية لم يؤثر ابدا على حالة رضاي عن مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

81. لم يؤثر مستوى التلوث النفطي في منطقتنا على حاله رضاي عن مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

82. على الرغم من وجود بعض الآثار الظاهره و غير الظاهره للملوثات النفطية داخل و خارج مسكني الا أنني حاليا و بشكل عام راض عن مسكني.

1. بشدة غير موافق 2. غير موافق 3. موافق 4. بشدة موافق 5. غير مطابق

83. هل لديك اية اضافات أخرى لها علاقة بأثر الملوثات النفطية على المساكن و السكان الكويتيين؟ يرجى ذكرها بالتفصيل. لا تنسى شكر المشارك في نهاية المقابلة على تعاونه معك.

VITAE

Ali Saleh Al-Najadah

Personal Data

* Date of Birth: April 25, 1956
* Place of Birth: Kuwait City, Kuwait
* Name of Parents: Saleh H. Al-Najadah & Abbodah A. Al-Shemali
* Name of Spouse: Halimah Ahmad Al-Najadah
* Children: Fahad, Mohammad, Ahmad, Khadijah, Sarah, and Doa.

Education

May 1996	Ph.D. in Housing, Interior Design, and Resource Management, Virginia Polytechnic Institute and State University (VPI&SU), Blacksburg, Virginia, USA; Topic of dissertation: *The Impact of Oil-Related Pollution of Housing Satisfaction of Kuwaiti Households.*
Sept. 1989	M.S. in Housing, Interior Design, and Resource Management, VPI&SU; Topic of dissertation: *Attitudes of Interior Design Students Toward Creativity in Design Problem Solving Using CADD Versus Conventional Drafting Tools.*
Dec. 1985	B.S. in Interior Design, Winthrop University, Rock Hill, South Carolina, USA.
May 1976	Diploma in Science and Education, Teachers Institute of Education, Al-Odealiah, Kuwait
May 1974	High School Diploma in Science, Al-Jahed High School, Al-Dasmah, Kuwait.

Professional Experience

Jan. 1990-	Assistant Teacher, Department of Interior Design, College of Basic Education, Al-Odeliah, Kuwait.
Jan. 1986- April 1987	Supervisor Dramatic Activity, Department of Scholastic Activity, Ministry of Education, Kuwait.
Feb.-April	Interior Design Trainee (90 hours of field experience), North

Feb.-April 1985	Interior Design Trainee (90 hours of field experience), North Carolina National Bank Corporation (NCNB), Design Department, Charlotte, North Carolina, USA.
1979-1980	Manager, Al-Arabi Establishment for Art Production, Department of Interior Design, Kuwait.
Jan.-May 1981	Science Teacher, Abdullah Bin Rawaha Elementary School, Al-Rudah, Kuwait.
Aug. 1976-March 1979	Science Teacher, Khaled Bin Al-Waleed Elementary School, Al-Nuqrah, Kuwait.

Committees

1995-1996	Graduate Students' Representative, Dean's Search Committee, College of Human Resources, VPI&SU.
1995-1996	Graduate Students' Representative, Graduate Advisory Committee, Department of Housing, Interior Design, and Resource Management, VPI&SU.
1994-1995	Graduate Students' Representative, Academic Affairs Committee, College of Human Resources, VPI&SU.
1993-1995	Graduate Students' Representative, Graduates' Honor Court, VPI&SU.
1992	Member, Planning Committee -- Event with Michael Clark, Department of Housing, Interior Design, and Resource Management, VPI&SU.
1984-1985	Chairman, Space Planning Committee, School of Consumer Science and Allied Professions, Winthrop University.
1984-1985	Student member, Curriculum Committee, School of Consumer Science and Allied Professions, Winthrop University.
1984-1985	Member, Dean's Student Advisory Council, School of Consumer Science and Allied Professions, Winthrop University;

Student Organizations

1996-1997	Founder and Member, Kuwait Student Association (KSA), VPI&SU.
1988-	Member, Muslim Student Association (MSA), VPI&SU.
1995-	Member, Arab Student Association (ASA), VPI&SU.
1995-1996	Vice-President, Kappa Omicron Nu (KON) -- O Beta Zeta Chapter, a National Honor Society in Home Economics, College of Human Resources, VPI&SU.
1992-	Member, Phi Upsilon Omicron -- Beta Lambda Chapter, a National Honor Society in Home Economics, College of Human Resources, VPI&SU.
1996	Member, Omicron Delta Kappa -- Alpha Omicron Circle, National Leadership Honor Society, VPI&SU.
1984-1985	Chairman of Programming and Social Activities, International Club, Winthrop University.
1983-1985	Student Member, Institute of Business Designers (IBD), Winthrop Student Chapter, Winthrop University.
1983-1985	Student Member, American Society of Interior Designers (ASID), Winthrop Student Chapter, Winthrop University
1984-1985	Treasurer, ASID Student Chapter, Winthrop University;

Professional Organizations

1992-	Member, Council on Tall Buildings and Urban Habitat, USA.
1986-1990	Member, Kuwait Society for Formative Arts, Hawalli, Kuwait.
1989	Member, Community Shelter Steering Committee, New River Community Action, Inc. (NRCA) (A non-profit organization to shelter the homeless), Christiansburg, Virginia, USA.

1978-1980 Officer, Al-Arabi Theater, Kuwait.

1977-1981 Decoration Supervisor, Al-Arabi Theater, Kuwait.

Community Services

Spring 1994 Soccer Coach, under 10 years old team, Southwest Virginia Soccer Association, Blacksburg, Virginia.

1989 Designed the renovation plans for the NRCA Guest House (Shelter for the homeless), NRCA.

1986-1987 Part Time Lecturer on Weaving, Dar Al-Athar Al-Islamya, Kuwait National Museum, Kuwait, Kuwait.

1982-1984 Lecturer on Carpentry, Social and Cultural Association, Kuwait. Director of Dramatic Activity (1973-1979), Social and Cultural Association, Kuwait.

Honors and Awards

March 1992 Third Place Award on Posters done in the study area of Humanities -- *The Socio-Psychological Effects of Oil-Related Pollution on Kuwaiti Households*, 9th Annual Graduate Research Symposium, VPI&SU.

1987 Certificate of Appreciation in the recognition of participation in *"The First Exhibition of the Old Environment in Kuwait"*, Kuwait National Museum, Kuwait.

1987 Certificate of Appreciation of participation in the Kuwait National Day Exhibition "25th February", Kuwait Society for Formative Arts, Kuwait.

1986 Membership Gold Medal of the 25th Anniversary of Al-Arabi Theater, Kuwait.

1985 Certificate of Appreciation in recognition of service on the Deans' Student Advisory Council, School of Consumer Science and Allied Professions, Winthrop University.

Scholarships

1981	One-year full scholarship (airplain tickets, tution, health insurance, dental benefits & monthly salary) to study English as a Second Language at the English Language Institute at Univesity of South Carolina, Columbia, South Carolina, USA.
	Four-years full scholarship to obtain a B.S. degree in Interior Design from Winthrop University.
1987	Two-years full scholarship to obtain an M.S. degree in housing, Interior Design, and Resource Management from VPI&SU.
1990	Six-years full scholarship to obtain a Ph.D. dgree in Housing, Interior Design, and Resource Management from VPI&SU.

Conference Papers

Nov. 1995	Al-Najadah, A. S., Siler, B., Hudek, J., Terrll, K., Prillaman, S., Cramer, S., & Ellis, W. Home Renovation for Patients with Muscular Dystrophy: A Case Study. Paper presented at the 4th Scientific Conference of the National Union of Kuwait Students, Washington, D.C., USA.
May 1994	Al-Najadah, A. S. & McLain-Kark, J. Attitude of Interior Design Students Toward Creativity in Design Problem Solving Using Computer-Aided Design Versus Conventional Drafting Tools. Paper presented at the 3rd Student Scientific Conferences of The National Union of Kuwait Students in the United Kingdom and Ireland, London, United Kingdom.
April 1993	Al-Najadah, A. S. & Parrott, K. R. The Socio-Psychological Effects of Oil-Related Pollution on Kuwaiti Households. Paper presented at the 2nd Student Scientific Conference of The National Union of Kuwait Students in the United Kingdom and Ireland, London, United Kingdom.
Nov. 1992	Al-Najadah, A. S. & Parrott, K. R. The Socio-Psychological Effects of Oil-Related Pollution on Kuwaiti Households. Paper presented at the Fourth General Conference of the Third World Academy of Science. Kuwait, Kuwait.

April 1992 Al-Najadah, A. S. & Woods, J. E. Indoor Environmental Quality in War Damaged Buildings of Kuwait: Cultural and Technical Acceptability. Paper presented at the Rehabilitation of war Damaged Buildings. Kuwait: Council on Tall Buildings and Urban Habitat.

Panel Discussions

1996 Cultural Diversity, Kappa Omicron Nu --O Beta Zeta Chapter, College of Human Resources, VPI&SU.

1996 International Perspectives on Aging: *Older Adults in Kuwait*, Department of Gerontology, VPI&SU.

1994 *Family and Housing in Kuwait*, 1994 International Year of The Family - Celebrating Families, Department of Housing, Interior Design, and Resource Management, VPI&SU.

Roundtable Discussions

Oct. 1995 Al-Najadah, A. S. & Elizabeth A. DeMerchant. Flexible Wheel: A Tool for the 21st. Century. Presented at the 1995 Southeast Regional Conference of the Interior Design Educators Council, VPI&SU.

Workshops

Dec. 1995 Al-Najadah, A. S. & Elizabeth A. DeMerchant. Flexible Wheel: A Tool for Critical Thinking and Prediction. (Conducted in Arabic Language), St. Louis, Missouri.

Sept. 1995 Al-Najadah, A. S. Personal Skills: Types, Usages, and Methods of Improvement. (Conducted in Arabic Language). Chattanooga, Tennessee

1993 Al-Najadah, A. S. Improving Conversation, Communication, and Interactions Skills with Others. (Conducted in Arabic Language), Illinios.

1993 Al-Najadah, A. S. Leaders and Leadership. (Conducted in Arabic Language). St. Louis, Missorrri. USA.

1993 Al-Najadah, A. S. Get to Know Yourself. (Conducted in Arabic Language). St. Louis, Missorri. USA.

June 1992 Al-Najadah, A. S. Leadership: Types, Skills, and Challenges. (Conducted in Arabic Language), Charlotte, North Carolina, USA.

1985 Al-Najadah, A. S. Skills in Public Speaking. Al-Mansoriyah, Kuwait.

Posters

1995 Al-Najadah, A. S. & Parrott, K. R. The Socio-Psychological Effects of Oil-Related Pollution on Kuwaiti Households. Poster presented at the 14th Annual of the National Union of Kuwaiti Students, Washington, D.C., USA.

1994 Al-Najadah, A. S. & Parrott, K. R. The Socio-Psychological Effects of Oil-Related Pollution on Kuwaiti Households. Poster presented at the Virginia Tech's Very Important Posters (VIP) Celebration of the 1994 International Year of the Family - Celebrating Families. Virginia Cooperative Extension, VPI&SU.

1993 Al-Najadah, A. S. & Parrott, K. R. The Socio-Psychological Effects of Oil-Related Pollution on Kuwaiti Households. Poster presented at the 1993 Annual Conference of the American Association of Housing Educators, Columbus, Ohio, USA.

1992 Al-Najadah, Al. S. & Parrott, K. R. The Socio-Psychological Effects of Oil-Related Pollution on Kuwaiti Households. Poster presented at the 9th Annual Graduate Research Symposium, VPI&SU.

1994 Al-Najadah, A. S. & McLain-Kark, J. Attitude of Interior Design Students Toward Creativity in Design Problem Solving Using Computer-Aided Design Versus Conventional Drafting Tools. Poster presented at the 5th Annual Graduate Research Symposium, VPI&SU.

Publications

April 1993 Al-Najadah, Ali S. and Parrott, Kathleen R. The socio-psychological effects of oil-related pollution on Kuwaiti households (Paper Published in Arabic Language). Engineers, 40, 60-63.

June 1993 Al-Najadah, A. S. & Parrott, K. R. The socio-psychological effects of oil-related pollution on Kuwaiti households (Abstract Published in Arabic Language). Minbar Al-Etihad, pp. 39-41.

Funds

1993 Al-Najadah, A. S. & Parrott, K. R. The Socio-Psychological Effects of Oil-Related Pollution on Kuwaiti Households. Traveling funds (US $200.00) provided by the Departement of Housing, Interior Design, and Resource Management at VPI&SU to partially cover the traveling cost of first author to 2nd Student Scientific Conference of The National Union of Kuwait Students in the United Kingdom and Ireland, London, United Kingdom.

1992 Al-Najadah, A. S. & Parrott, K. R. The Socio-Psychological Effects of Oil-Related Pollution on Kuwaiti Households. Research funds (2,000.00 Kuwait Dinar, Approximaitly US $ 6,600.00) for data collection provided by the Kuwait Foundation for the Advancement of Science (KFAS).

1992 Al-Najadah, A. S. & Parrott, K. R. The Socio-Psychological Effects of Oil-Related Pollution on Kuwaiti Households. Funds (US $75.00) provided by the Departement of Housing, Interior Design, and Resource Management at VPI&SU to develop colored slides for presentation in Fourth General Conference of the Third World Academy of Science. Kuwait, Kuwait.

Ali Saleh Al-Najadah