SATISFACTION WITH PUBLIC HOUSING: THE CASE OF ABUJA, NIGERIA

By

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(ABSTRACT)

Public housing programs have been the major tool for providing shelter in Abuja City, Nigeria. The purpose of the study was to determine the relationships between housing satisfaction and structure types, building features, housing conditions, neighborhood facilities, management, and demographic/socioeconomic characteristics. The main objective was to develop a model for determining factors which affect housing satisfaction in public housing in Nigeria.

The sample of 1,089 households was randomly selected from the residents living in 19,863 public housing units in Abuja City. The public housing units were built and are managed by the Federal Capital Development Authority (FCDA). All data for the study were collected through self-administered questionnaires, which had been developed, pretested, and revised. The instrument measured the residents' level of housing satisfaction on a five-point Likert scale. The data were analyzed using descriptive statistics, analysis of variance, multiple regression, and correlation analysis.

The majority of the sample was households of more than four persons, headed by males from 31 to 40 years of age. The respondents were well educated, renters, and employees of the federal ministries. The residents expressed dissatisfaction with their overall housing situation; however, a significant positive relationship was found between housing satisfaction and satisfaction with structure types, building features, housing conditions, neighborhood facilities, and housing management. The mean satisfaction score for the room units differed significantly ($p \leq .05$) from the means for the other structure types. Residents of the room units were less satisfied than any other residents.

Privacy within the house had the strongest effect on satisfaction with building features. Interior construction quality had the greatest influence on satisfaction with housing conditions, while cleanliness of the neighborhood had a strong effect on neighborhood satisfaction. FCDA housing officials' attitudes affected residents' satisfaction with management.

The model variable that contributed most to the explanation of variation in overall housing satisfaction was management. However, all five of the single-item measures contributed significantly to the prediction of housing satisfaction. Government housing policy should encourage a decent living environment, effective housing management, and construction of high quality structure types which incorporate users' needs and preferences.

DEDICATION

This dissertation is dedicated to my wife

Catherine N. Ukoha, MD

for her strong support, patience, and continual encouragement.

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Chapter I

INTRODUCTION

The provision of housing does not measure the success of housing programs in either developed or developing countries. The suitability of the living environment in relation to location, safety, privacy, services, and social organization should be seen as important aspects of housing programs. The failure of public housing projects to meet the users' needs in the early 1970s (for example, Pruitt-Igoe, in St. Louis, Missouri, and Rosenggaard in Malmo, Sweden) demonstrated the importance of the concept of a suitable living environment, and illustrated the complete lack of knowledge about the physical aspects of housing quality (Wiedemann, Anderson, Butterfield, & O'Donnell, 1982). Consequently, these failures created an awareness and a need to understand the determinants of satisfaction with the residential environment. Since these public housing failures, more attention has been directed to the concept of "user satisfaction" as a subjective indicator of housing success (Awotona, 1990; Morris & Winter, 1978; Muoghalu, 1984; Onibokun, 1976). In addition, emphasis has also been placed on the concepts of habitability and livability (Beamish, 1983; Soen, 1979). The concept of habitability supports the interactions of tenant-dwelling-environment-management, with a view to meeting the users' housing needs, aspirations, and expectations (Onibokun, 1974).

Habitability, convenience of the housing unit, and physical quality of the surroundings have also been noted as decisive factors in housing satisfaction (Gallogly, 1974). The housing unit is a part of an environment in which inhabitants interact with various segments of the environment.

Apparently, these housing segments or components will have a negative or positive influence on the inhabitants, and ultimately affect their satisfaction with the units in a particular environment. Some factors, such as building features, housing conditions, structure type, neighborhood facilities, and demographic/socioeconomic characteristics, have been shown to have both direct and indirect effects on housing satisfaction (Chapin, 1938; Davis & Fine-Davis, 1981; Kaitilla, 1993; Morris & Winter, 1978; Muoghalu, 1991; Ozo, 1990). Management also has been found to be an important factor in public housing satisfaction (Burby & Rohe, 1989; Johnson & Abernathy, 1983; Onibokun, 1974). The importance of management as a strong predictor of housing satisfaction has been demonstrated (Francescato, Weidemann, Anderson, & Chenoweth, 1979). Also, great concern has been expressed in the combination of subjective and objective criteria in meeting residents' satisfaction (Muoghalu, 1984).

Most studies of housing satisfaction have been conducted in the United States or other developed countries, while Africa and other developing nations have been largely ignored. The majority of the housing research conducted in the United States has been based on the residential satisfaction model (Morris & Winter, 1978). It is now important to test the applicability of this model in an urban housing context in developing countries. One such country is Nigeria.

Nigeria is a West African coastal state on the shore of the Gulf of Guinea. The climate is tropical in the south, with an average annual temperature of 90 degrees Fahrenheit and high humidity. It is drier and semi-tropical in the northern part of the country. The area covers 356,669 sq.

miles, and current estimates place the population at 88.5 million (National Population Commission, 1992). The urban population is over 15 million, and most obtain their housing from the public housing programs.

In most Nigerian urban centers, the population is restricted by a limited quantity of overcrowded housing that is often of poor quality with inadequate infrastructure. Another important characteristic of the urban areas is the dominance of a poor and low-income population. Residents of most cities live in crowded one- or two-story rooming houses with densities as high as 2,000 dwelling units per 2.5 acres, and with 40-60% of the families occupying one room and sharing inadequate or intermittent services. Residents of these housing units often pay rents exceeding 50% of their income (Federal Capital Development Authority [FCDA], 1979).

The federal government of Nigeria created a new federal capital, Abuja, in 1976. Centrally located in the country (see Appendix A), this new urban center has a population of 378,671 (National Population Commission, 1992). A few years after the new city was formed, about 10% of the population were middle and upper income civil servants, approximately 3% were professionals (indigenous and expatriates) engaged in planning and construction services, and more than 70% were low-income groups. The population was mixed in terms of ethnicity, age, family composition, and education (National Population Commission, 1992).

The federal government established the Federal Capital Development Authority (FCDA) in 1976, to coordinate the development, provision, and implementation of housing programs in Abuja. This was the most significant intervention by the federal government in the housing sector, in

which it directly and actively participated in the provision of housing rather than leaving it principally to the private sector. The construction of public housing (bungalows, townhouses, multifamily apartments, single-family -- detached/semi-detached housing, and room units) started in 1980, and many units have been completed while construction of new housing units is still going on. These housing prototypes were the first large-scale public housing projects provided in Abuja, and were designed to provide shelter for both high- and low-income families in order to solve a housing shortage problem. The construction was completed under the auspices of the FCDA, which also has the responsibility of managing and assigning occupants to the housing units. Most of the residents have been living in public housing since 1982. In 1991, the president of the country, senior cabinet staff, and most civil servants moved into the city to join other civil servants already in the city, and this increased the urban population. As a result, the demand for housing in Abuja currently is high. This recent movement might have forced residents into more crowded, less desirable housing than they would prefer.

The housing conditions in the public housing complexes in Abuja are not high quality. Local reports indicate that the residents' quality of health is degenerating due to overcrowding and trash littering the environment (Ocholi, 1992). Transportation shortages and poor neighborhood facilities (e.g., lack of designed playgrounds for children) are other problems that jeopardize the well-being and quality of life of the residents (Ocholi, 1992). In addition, the physical attributes are deteriorating due to poor construction quality, including poorly fitted windows and louvre panes, and poor quality doors and wall paints. This is especially a problem in Nyanya, a suburb of

Abuja city (Okiti, 1993). In spite of the federal government's commitment, the provision of adequate, livable, affordable, and satisfactory housing still remains a problem in the new city.

Studies concerning residential satisfaction and post-occupancy evaluation of public housing in urban centers of African nations are limited despite the extensive use of public housing programs to meet the shelter needs of the population. The lack of research in public housing has been a problem for the Nigerian government, because the officials cannot ascertain the opinions of the residents about their housing. Policy-makers cannot effectively address housing problems or improve on existing good qualities in housing without creating appropriate policies based on research results. It is doubtful whether developing nations can achieve the provision of satisfactory housing to the people concerned without adequate research on public housing. In view of the prevailing housing problems, the goal of the Nigerian government's housing program to provide decent and satisfactory living environments for all by the year 2000 will not be met. An analysis of the housing situation and its effects on tenants' lives is needed so that efforts can be made to improve the quality of life. More specific information on background is presented on chapter III.

Justification of the Study

With the creation of a new capital city, Abuja, by the federal government of Nigeria, many public housing units were constructed. Residents have moved into these units, but the recent change of the federal seat to Abuja has increased the population and created an acute housing

shortage. The shortage has added to existing crowded conditions, and apparently forced residents to live in less desirable housing than they would prefer. This situation may lead to psychological stress and mental strain, especially for children. The existing public housing is in deplorable condition because of poor construction quality and poor neighborhood facilities (e.g., lack of designed playgrounds for children and nearby schools).

Because of transportation shortages, residents have difficulty getting to work, day care, or shopping, and conducting other activities. Building features (e.g., inadequate storage space and number of bedrooms) also are problems to the residents. The environmental integrity of the housing developments is in jeopardy as a result of the lack of garbage collection and the problem of litter. This constitutes environmental hazards, causes pollution problems, and has detrimental effects on quality of life. The management of the public housing is another major problem. The authorities do not respond to maintenance problems which frequently occur. The management has failed to establish policies and other procedures which will reinforce regulations and encourage orderly environments.

Since the provision of public housing is the keystone of the federal housing policy (Federal Republic of Nigeria, 1991), it is important to examine the housing and neighborhood satisfaction of tenants who live in public housing units.

Statement of the Problem

The federal government of Nigeria has been involved in building large-scale public housing projects in Abuja for over 12 years. A full

understanding of the impact of the housing on residents' satisfaction is not known. Further, the importance of various components of the housing (i.e., structure types, building features, conditions of house, neighborhood facilities and management) and the particular characteristics of the household living in the houses are not understood.

Purpose of the Study

The purpose of the study was to determine the relationships between overall housing satisfaction and satisfaction with structure types, building features, housing conditions, and neighborhood facilities. In addition, it included an examination of the effect of demographic/socioeconomic characteristics on housing satisfaction as well as the effects of public housing management on housing satisfaction.

Objectives of the Study

The study examined five residential districts of Abuja City where housing developments were categorized into five types of public housing: bungalows, townhouses, multifamily apartments, single-family housing, and room units.

The study had the following objectives:

1. To determine the factors affecting satisfaction with public housing.
2. To test the applicability of the Residential Satisfaction Model (Morris & Winter, 1978) in the cultural context of urban Nigeria and develop appropriate techniques to use in analyzing and assessing satisfaction with public housing in Nigeria.

Significance of the Study

This study has particular relevance for both government and residents of public housing in Nigeria. First, the results may suggest appropriate ways to improve public housing management. Second, the study will identify those aspects of the building features, neighborhood facilities, and housing conditions with which residents have become dissatisfied and suggest how these aspects of housing can be improved. As a result of this identification, tenants' dissatisfaction with their residence could be alleviated. Third, this study will draw the government's attention to the needs of families who are likely to be very dissatisfied. The study may help shape future public housing policy in Nigeria by suggesting appropriate policies to address the housing satisfaction problems. Also, this study will suggest numerous implications for planners, architects, construction engineers, and others concerned with providing and improving the housing situation of low-, moderate-, and high-income groups in Abuja, and other Nigerian cities with similar housing and neighborhood characteristics as in Abuja city.

Finally, the study may suggest a basis for developing appropriate and suitable standards for public housing based on objective and subjective criteria. From the data, other studies could be conducted to develop a check-list with basic information on necessary facilities required for public housing in developing nations. A data base could be produced for improving the quality of public housing and enabling further study to be conducted in order to bridge the gap in the literature on housing satisfaction in Nigeria. The study could offer recommendations to FCDA with respect to what aspects

of housing and neighborhood facilities are most valued by the users and subsequently should be incorporated into future public housing development. It may point out some of the consequences of poorly designed environments and the effects of these on the quality of life.

Theoretical Framework

The model for this study was derived from the theoretical Model of Residential Satisfaction developed by Morris and Winter (1978). Socio-demographic characteristics influence housing satisfaction directly and indirectly through six norms: tenure, structure type, space, quality, expenditure, and neighborhood (see Figure 1). Demographic characteristics influence the level of satisfaction, but researchers have found that housing features have the most direct impact (Kaitilla, 1993; Lane & Kinsey, 1980; Ozo, 1990). Morris and Winter suggested that neighborhood deficits such as lack of play areas and bad roads, have a direct effect on housing and neighborhood satisfaction. Length of stay also affects housing and neighborhood satisfaction. Housing satisfaction depends on attainment of conditions congruent with cultural and family norms which in turn influence life satisfaction and self-concept (Morris & Winter, 1975). Deficits arise when incongruent conditions exist.

Numerous studies on housing satisfaction have been conducted based on the above theoretical framework. Some noted that cultural norms for housing are consistent among people of various cultures (Yockey, 1976). Satisfaction is one of the ways of ascertaining how well housing in various regions of the country and among people of various cultures fulfill housing

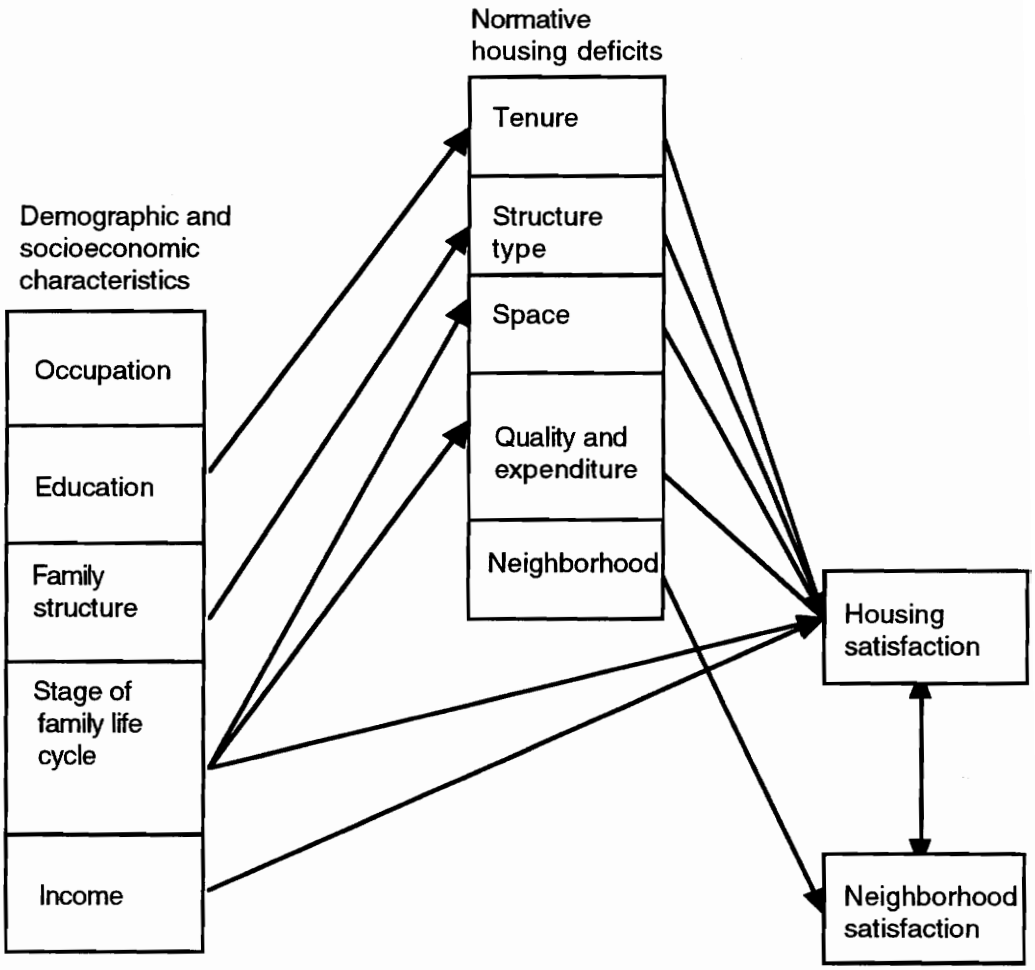

Figure 1. Residential Satisfaction Model (Morris & Winter, 1978)

expectations (Lindamood, 1978). When individuals move, they expect that they will experience immediate high levels of satisfaction. The level of satisfaction may decrease relatively quickly when the residents perceive housing deficits.

Proposed Conceptual Framework

The proposed conceptual model in Figure 2 presents suggested relationships between the independent variables (public housing management, neighborhood facilities, housing conditions, building features, structure types, and demographic/socioeconomic characteristics) and the dependent variables (housing and neighborhood satisfaction) utilized in this study. The basic concept of the model is that housing satisfaction is directly affected by the demographic/socioeconomic characteristics and public housing management. Also, both public housing management and demographic/ socioeconomic characteristics indirectly influence housing satisfaction through housing deficits such as structure types, tenure, housing conditions, building features, and neighborhood facilities which have direct effects on housing and neighborhood satisfaction. Neighborhood facilities also affect neighborhood satisfaction directly, and housing satisfaction indirectly through neighborhood satisfaction.

The proposed conceptual model has relationships with the cultural norms which are consistent among the people in various regions of any country. The housing norms of a developed nation such as the United States, which are tenure, structure type, space, quality, expenditure, and

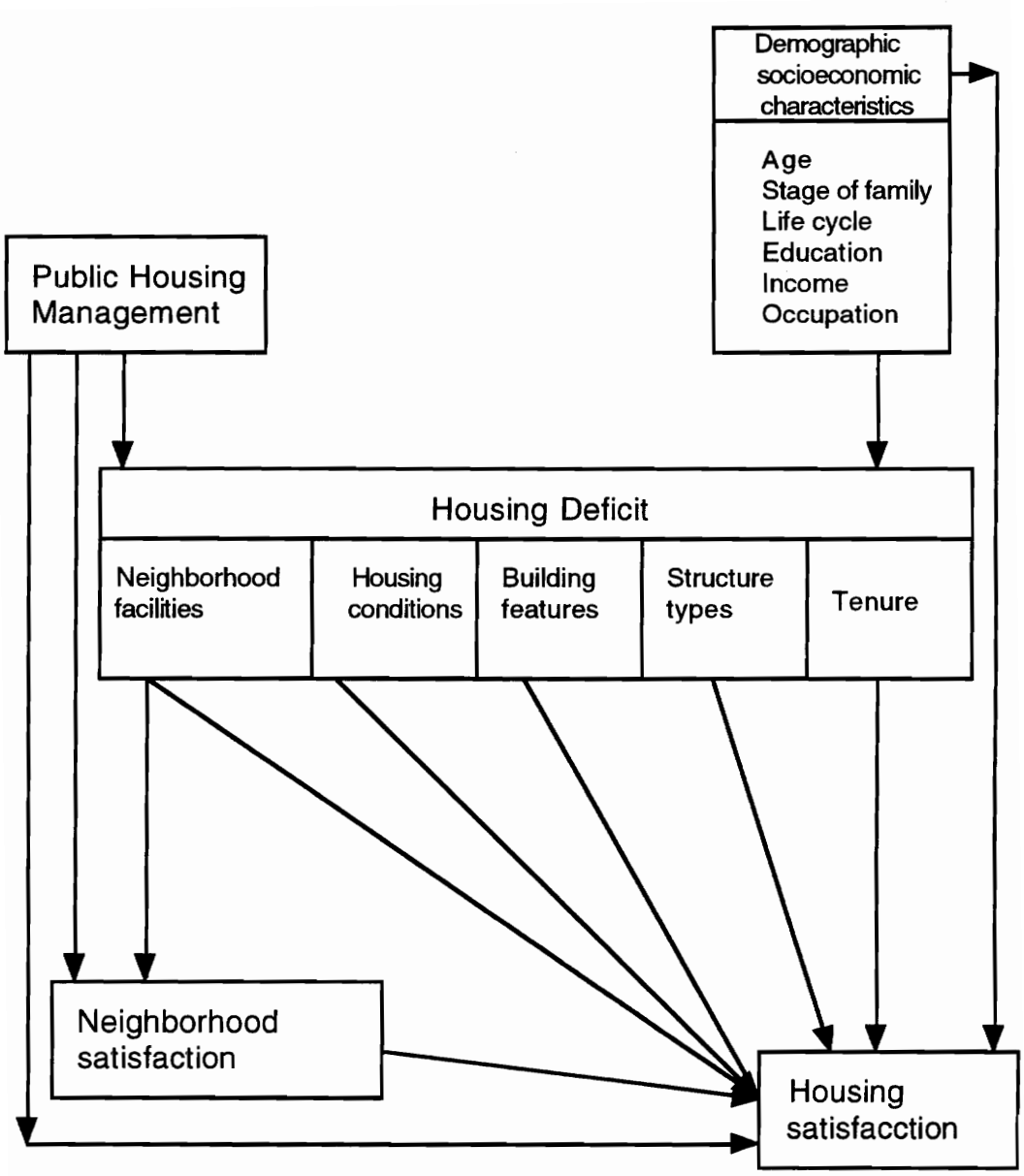

Figure 2. Proposed Conceptual Framework

neighborhood, conform to the expectations of the residents in the urban areas in Nigeria. The architectural forms and structure types of housing in these urban areas in Nigeria have been influenced to a great extent by Western culture. Thus, the model sets the basis for investigating these relationships between the management, housing deficits (structure types, building features, housing conditions, and neighborhood facilities) and housing satisfaction. The hypothesized associations would buttress the similarities in housing norms among urban Nigerians and citizens of developed nations. However, the housing management variable was used in this study because public housing is still a rental program and under the auspices of the federal and state governments. Also, tenure was not examined because occupants of public housing in Nigeria are renters.

Research Questions

The study addressed the following questions:

1. Is there a difference in the level of housing satisfaction among residents living in bungalows, townhouses, multifamily apartments, single-family houses, and room units?
2. How satisfied are public housing residents with their building features? Does their satisfaction with building features affect their overall housing satisfaction?
3. How satisfied are public housing residents with their housing conditions? Does their satisfaction with housing conditions affect their overall housing satisfaction?

4. How satisfied are public housing residents with the neighborhood facilities? Does their satisfaction with their neighborhood affect their overall housing satisfaction?
5. How satisfied are public housing residents with the management of the Federal Capital Development Authority? Does their satisfaction with housing management affect their overall housing satisfaction?
6. What are the effects of overall satisfaction with various housing characteristics (structure types, building features, housing conditions, neighborhood facilities, and housing management) on overall housing satisfaction?
7. What are the influences of the demographic/socioeconomic characteristics on overall housing satisfaction?

Assumptions

This study was conducted with the following assumptions:

1. The satisfaction that families derive from their housing and neighborhood facilities is an important aspect of their well-being.
2. Housing satisfaction is a perception/reflection of how housing needs are met.
3. Housing satisfaction is a function of habitability and livability.

Limitations

The study did not represent the total population of residents in the new federal capital, Abuja, since only households who live in the five

residential districts of the Abuja City and in the specified structure types were examined. Therefore, generalizations should be limited to the residents in developed or similar housing types and neighborhoods in Abuja, Nigeria.

The use of FCDA estate inspectors as research assistants in this study was another limitation. Their participation in data collection could have positively or negatively influenced the responses of the residents.

Delimitations

The study placed the following delimitations:

1. The sample was comprised of residents in public housing provided by the federal government of Nigeria under the auspices of FCDA.
2. The complexes were bungalows, townhouses, multifamily apartment, single-family housing, and room units in the Garki, Wuse, Karu, Kubwa, and Nyanya districts which have similar features.

Operational Definitions

Dependent Variables

Housing satisfaction. The level of contentment experienced by the household members relative to their current housing situation as measured by Morris and Winter (1978).

Neighborhood satisfaction. The level of contentment experienced by the individual members of neighborhoods, relative to their neighborhood attributes such as play areas for children and proximity of markets and religious centers.

Satisfaction with housing characteristics. The level of contentment experienced by the household members with regards to structure types, building features, housing conditions, neighborhood facilities, and housing management.

Satisfaction with housing deficits. The level of contentment experienced by the household members relative to the individual items of the building features, housing conditions, neighborhood facilities, and housing management.

Independent Variables

Building features. These are the basic facilities in a typical housing unit, such as size and number of bedrooms, size of living room, size of dining room, and storage space.

Demographic/socioeconomic characteristics. These variables include gender, age, income, rank, education, occupation, household size, length of residence, and rationale for assigning the housing unit.

Household. Individuals occupying a separate housing unit.

Housing characteristics. The components of a dwelling unit. Variables include building features, type of structure, housing conditions, neighborhood facilities, and housing management.

Housing conditions. The physical state of the housing unit. Variables include quality of construction, roof, walls, floor, windows, paint, and plumbing fixtures.

Housing management. The basic procedures used in assigning and managing the public housing by the FCDA. Variables include amount of

rent, response to repairs, furnishing of the houses, garbage collection, and enforcement of rules and regulations.

Housing unit. A dwelling unit in which spaces are arranged for resting, preparation of foods, and social interaction.

Neighborhood facilities. These are the basic facilities in the neighborhood, such as parks, open spaces, play areas for children, schools, hospitals or clinics, police protection, shopping centers or markets, and transportation.

Neighborhood satisfaction. The amount of contentment experienced by the individual members of neighborhoods, relative to their neighborhood attributes such as play areas for children, and proximity of markets and religious centers.

Structure types. The five basic structure types in public housing in Abuja are bungalows, townhouses, multifamily apartments, single-family housing, and room units. The bungalows are one-bedroom, two-bedroom, and three-bedroom housing units on the ground floors. The townhouses are attached two-bedroom, and three-bedroom housing units of two floors for a family. The multifamily apartments are three or four-story walkup apartments with one-bedroom, two-bedroom, three-bedroom, and four-bedroom units. The single-family housing are detached/semi-detached three-bedroom, and four-bedroom dwelling units of two floors for a family. The room units are one- or two-room units (four units attached) and arranged in clusters or blocks. More specific information about the structure types is discussed in Chapter III.

Tenure. The types of housing possession which include ownership, rental, and subsidized/allocation.

Measurement of Satisfaction

Composite measure. Series of individual questions that examine the level of contentment experienced by the household in relation to structure types, building features, housing conditions, neighborhood facilities, and management.

Single-item measure. One question that examines the level of contentment experienced by the household in relation to structure types, building features, housing conditions, neighborhood facilities, management, and overall housing satisfaction.

Chapter II

REVIEW OF LITERATURE

The review of literature for this study explored existing related research on residents' satisfaction with public housing projects in order to establish a theoretical base for the study and to ascertain the most important variables in past studies that have influenced housing satisfaction in public housing projects. Housing can be a symbolic expression of one's personality and can generate feelings of satisfaction or dissatisfaction. Thus, the literature review addressed housing satisfaction in general and focused on independent variables associated with housing satisfaction in public housing in the following categories: structure types, building features, housing conditions, neighborhood characteristics, management, and demographic/socioeconomic characteristics.

Housing Satisfaction

Recognizing the importance of housing satisfaction to peoples' quality of life and well-being, numerous researchers have conducted studies to identify factors that contribute to housing satisfaction. Studies reveal that housing satisfaction is influenced by variables such as users' characteristics, dwelling unit characteristics, management, and environmental and locational factors (Awotona, 1990; Johnson, 1989; Muoghalu, 1984, 1991; Onibokun, 1974, 1976; Vrbka & Combs, 1991). Demographic/socioeconomic characteristics, as well as features of the dwelling units, have been found to be related to an overall measurement of satisfaction with housing (Campbell, Converse, & Rodgers, 1976; Morris & Winter, 1978). The number of persons

per room, structure type, value of rent, and age of the structure are important attributes which have strong relationships with housing satisfaction (Campbell et al., 1976). As has been found by earlier researchers (Francescato, et al., 1979; Lindamood, 1978; Onibokun, 1973, 1974, 1976), the facilities and services available in a housing unit are vital in determining satisfaction with that unit. Previous research has found correlations between neighborhood and dwelling satisfaction variables (Awotona, 1990; Galster & Hesser, 1981). Preference for neighborhood is associated with changes in age, family life cycle, income level, and other demographic characteristics. Social characteristics of the neighborhood and its level of maintenance are important determinants of satisfaction with neighborhood (Vrbka & Combs, 1991). Thus, a standard neighborhood is one which is safe, beautiful, good for children, close to good schools, and close to nature (Vrbka & Combs, 1991).

Residents might be satisfied with the physical structures but at the same time express dissatisfaction with both physical and social aspects of the neighborhood (Cooper, 1975). Safety, proximity to good schools and transit stops, friendliness of the neighbors, and access to parks are critically important to housing satisfaction. A sense of territoriality and feeling of security in the neighborhood or immediate surrounding area have been noted to be important to residential satisfaction (Sommer, 1974). Similarly, Newman (1973), in his thesis of defensible space, strongly argued that territoriality is vital to site security. Satisfaction is a function of the resident's neighbors or of his perception of them (Rossi, 1955; Vrbka & Combs, 1991). Housing satisfaction is a product of both the housing unit and neighborhood characteristics (Rent & Rent, 1978).

Theoretically, residential satisfaction explores the household satisfaction with the housing unit, as a separate physical unit, as well as the neighborhood as a total of physical and spatial aspects (Kaitilla, 1993). Residential satisfaction is not an absolute measure for evaluating housing; it varies with time. Residents could express satisfaction when the house pleases them or when there are no complaints if an opportunity is given to them to do so.

Measuring Housing Satisfaction

Housing satisfaction is the level of contentment experienced by the household members relative to their current housing satisfaction (Morris & Winter, 1978). In some aspects it is measured by a single question such as, "what is your opinion about your house?" or by a series of structured questions referring to different components of a dwelling unit, such as structure type, tenure, and housing conditions. Residents' opinions are usually rated on a Likert scale.

Earlier studies computed the mean scores of housing satisfaction, and a few developed Relative Satisfaction Indices (RSI) and Relative Habitability Indices (RHI) (Muoghalu, 1984; Onibokun, 1974) which measured satisfaction with specific features and compiled a total score. Other statistical tests (chi-square, correlation, canonical correlation, and discriminant and factor analyses) have been used to determine the relationship between overall housing satisfaction and specific housing variables (Onibokun, 1976; Western, Weldon, & Haung, 1974; Williams, 1971). Recent studies have mainly used multiple regression, ANOVA, and path analysis to demonstrate the

significance of variables that are associated with housing satisfaction (Davis & Fine-Davis, 1981, 1991; Weidemann, et al., 1982).

Building Features

Satisfaction with the whole house is not the same as satisfaction with specific building features. The design and availability of building features in public housing play an important role in determining the level of satisfaction among the residents. The building features in the housing units are determined by the available space and budget with which the designer had to work. The availability of space for different functions was a strong determinant of satisfaction in a study of clearance and rehousing (Chapin, 1938). Building features also depend on structure type. Dissatisfaction with multifamily housing may not be a result of structure type, but due to insufficient specific building features, such as space (Homenuck, 1973). It is obvious that structure type and availability of basic building features are associated, and structure type determines the features which will be available. Researchers have noted that in single-family homes, satisfaction with the dwelling and neighborhood is influenced by individual features rather than demographic characteristics (Campbell et al., 1976; Lane & Kinsey, 1980). The number of rooms per family and the availability of space for different uses are determinants of satisfaction (Morris & Winter, 1978; Ozo, 1990).

Kaitilla's (1993) study was designed to determine what specific aspects of housing are considered important to low-income urban households' satisfaction with public housing in Papua, New Guinea. The study undertook a post-occupancy evaluation which surveyed a total of 139 houses.

A questionnaire containing 20 structured items was administered to randomly selected households. The questions addressed existing building features (size and number of bedrooms, size of living/dining rooms, kitchen, bathroom/toilet, storage facilities, pantries, and wardrobes), and other factors such as privacy, marital status, and length of residence. In addition, participants were asked what they would remove, modify, or add in order to improve the level of satisfaction. According to the findings, tenants expressed dissatisfaction with the size of the house, number of bedrooms, storage space, and the design in general. Thus, the results support Kaitilla's hypothesis that building features are strongly related to housing satisfaction.

Ozo (1990) investigated the livability of core housing projects in Benin City, Nigeria. The author found that number of bedrooms, privacy, and location of kitchen contributed the most to dissatisfaction. This study is important because core housing is the first public housing program in Nigeria which had provisions for adding two-bedrooms at the rear by the tenant.

Structure Types

Satisfaction with the dwelling unit is related to the type of dwelling structure (Lam, 1985; Morris & Winter, 1978). Since the structure type and the availability of desired features are associated, different structure types offer different services which are crucial in determining satisfaction with the housing unit (Johnson & Abernathy, 1983). Also, the availability of space depends on the structure type, and the amount of space in a dwelling unit correlates with the satisfaction level (Galster, 1980; Kinsey & Lane, 1983). Structure type is the single factor which is most directly related to satisfaction.

Residents derive the most satisfaction from living in single-family homes as compared to multifamily dwellings because of available amenities, such as room, privacy, and yard space (Morris & Winter, 1978; Rent & Rent, 1978).

Johnson and Abernathy (1983) conducted a study of urban multifamily housing satisfaction to determine the relationship of housing features and demographic characteristics to overall levels of satisfaction for residents of high-rises, three-story walk-up, and townhouses. The data came from interviews with 755 residents of multifamily housing in Greater Vancouver, British Columbia. A stratified random sample was used to select the respondents from the 19 multifamily housing projects. The questionnaire focused on both the degree of overall satisfaction and satisfaction with specific features of the dwelling and development, as well as demographic characteristics related to satisfaction. Analysis of variance used to compare the structure types showed significant differences in overall satisfaction with dwelling and development. Also, multiple regression explained the percentage of variation by selected variables and by types. The study found that townhouse residents expressed more satisfaction than high-rise residents. Development features in the selection of multifamily units such as privacy and suitability for children were related to satisfaction with development. These results suggest that structure type, space for children, and privacy are important determinants of dwelling satisfaction.

Williams (1971) studied multifamily housing solutions for the physical design of high-density housing, and housing type preferences among low-income families in a southwestern city of the U.S. A sample of 217 families was randomly selected. The data collection instrument consisted of

questions on preference for each housing type and color slides of six different housing types: single-family house, townhouse, duplex, four-plex, walk-up apartment, and high-rise. Chi square was used to test for statistical significance and gamma was used to measure the strength of association. The findings pointed out that about half the sample would accept multifamily housing of moderate density with amenities such as privacy, protection, outdoor space, and an option to purchase the dwelling units.

Housing Conditions

Satisfaction with housing conditions is regarded as a subjective evaluation of the level to which housing condition needs are met. Housing conditions are affected by numerous factors: engineering, social characteristics, and behavioral attributes of the occupants. Lord and Rent (1987) contended that satisfaction is associated with the quality of the housing unit. It is important to point out that since the resident's satisfaction is not absolute, and housing conditions are not static, the housing condition or the resident's satisfaction at a given time can be measured only in relative terms. The habitability, convenience of the housing unit, and the physical appearance of the surroundings are important factors in housing satisfaction (Gallogly, 1974). Poor housing conditions are generated by problems posed by inadequacy of internal facilities (Ozo, 1986). When internal facilities (kitchen, bath, toilet), are shared by residents the problems of privacy and inconvenience are exacerbated.

In a study of social indicators for measuring residential satisfaction of occupants in marginal settlements in Costa Rica, Chi and Griffin (1980)

utilized factor analysis to group 21 variables which measured the satisfaction of 300 respondents in terms of housing conditions, community location, safety, utilities, and services in three housing developments. Cristobal Colon and Los Corales are communities with new public housing while Limoncto is a squatter settlement in the city of Limon. The questions were open-ended and interviewers were randomly assigned to different households in the same community in order to obtain representative samples since random selection was not possible. The study reported that the mean values of residential satisfaction were significantly different in the three communities. Residents of public housing were more dissatisfied with community location and safety in relation to churches, schools, and markets than residents of the squatter settlement. Squatters were dissatisfied with their housing conditions and public utilities while public housing tenants expressed satisfaction with these issues. The study did not measure the sociopsychological aspects of the neighborhood which have been noted as important components of residential satisfaction (Morris & Winter, 1978).

Muoghalu (1984) contended that successful public housing in Nigeria should involve a combination of objective and subjective indicators of residential satisfaction. The study was conducted in two public housing estates in Enugu, Nigeria. The study used a survey design which included structured interviews (open-ended and closed-ended) and direct observations. The data came from a 10% stratified sample of 1,236 houses which reflected the number of houses and house types in each estate. A total of 105 households (8.5% of total occupied stock) responded. The instrument consisted of 22 questions based on physical, social, and psychological

indicators of housing attributes. The respondents scored their perception on a five-point Likert scale. The researcher computed the relative satisfaction indices (RSIs) for all 105 respondents for the attributes and used factor analysis to reduce the variables to six factors. The six factors were used to compare the satisfaction of the occupants in the two public housing estates. The study concluded that occupants were dissatisfied with their housing, especially those in the older housing estates.

In a similar study, Ozo (1986) examined the housing conditions and the nature of problems in low-income public housing in Benin City, Nigeria. The study noted that the housing conditions of the urban poor are characterized by overcrowding, shared facilities, and rental status. Also, the study revealed the inadequacy of internal facilities, problems of privacy and convenience, and high rental costs which compelled low-income residents to spend high proportions of their income on rent.

Likewise, Muoghalu (1991) conducted a study which measured housing and environmental quality of residents in Benin City, Nigeria. The data came from residents in public housing estates, new residential zones, and privately developed housing. A total of 330 houses were selected on the basis of stratified random sampling of streets and houses. The instrument dealt with the dwelling units and their characteristics, internal and environmental facilities, characteristics related to location, accessibility, social aspects, quality, tenure, and housing management. In addition, residents were asked to enumerate variables that influenced their satisfaction and contributed to dissatisfaction. The estates of the Federal Housing Authority (FHA) scored low in structural materials while the privately developed estates scored

significantly above the mean. The environmental facilities (e.g., trash removal vehicles, treatment plants) in all the estates were in poor condition and demonstrated the need for more services such as street cleaning and garbage removal in urban centers. The internal facilities (e.g., kitchen and bath) in the public housing were shared among the occupants and created conflicts and dissatisfaction. Interference with family privacy was a significant problem.

Davis and Fine-Davis (1981) examined objective and subjective indicators in relation to housing and neighborhood satisfaction to determine which characteristics were influential in predicting overall satisfaction with housing and neighborhood. A sample of 2,019 individuals in the Republic of Ireland was selected from the Electoral Register by the RANSAM (computer-based system for selecting national random samples) technique which included stratification, clustering, and selection with probability proportional to size. The questionnaire addressed objective indicators, such as whether the house was owned or rented and the existence of kitchen and bathroom. It also measured subjective indicators, such as satisfaction with kitchen, central heating, housing, and neighborhood. The respondents scored all the items on a four-point scale. The study also focused on attitudinal variables like satisfaction, which was scaled on a five-point Likert scale. The researcher used correlational analysis, four-way analysis of variance, and multiple regression in the analysis of the data. The study found that the physical aspects of the accommodation largely predicted satisfaction with the housing, and safety, public transportation, and condition of property in the immediate vicinity predicted neighborhood satisfaction.

Neighborhood Characteristics/Facilities

A neighborhood is seen as the location of the dwelling unit and the condition of the immediate surrounding area (Morris & Winter, 1978). Characteristics include the physical attributes of the location, cultural groups, economic status, and some types of social interaction with people (Kaplan, 1985; Mukherjee, 1980; Russ-Eft, 1979). The importance of the nearby natural environment, especially trees and open spaces, has been shown to be crucial to housing satisfaction (Herzog, Kaplan, & Kaplan, 1982; Kaplan, 1978, 1983). Studies have found that neighborhood dissatisfaction occurs with regard to distances traveled to school by children, access to employment and medical centers, and geographical location of housing estates (Awotona, 1990; Muoghalu, 1991). Research has also noted that access to public transportation, community and shopping facilities, and physical environmental variables (roads and drainage) generated dissatisfaction among the users (Ozo, 1990).

Satisfaction with neighborhood has been noted as an important determinant of dwelling satisfaction (Gruber & Shelton, 1987; Morris & Winter, 1978; Vrbka & Combs, 1991) to the extent that residents might neglect inadequacies in the dwelling when they are satisfied with the neighborhood (Rent & Rent, 1978). Neighborhood generally includes the development and space outside the development. For the residents, it is part of their living environment. A better physical environment improves health, reduces crime and delinquency, and enhances individual motivation, as well as general life satisfaction (Dean, 1949; Schussheim, 1974).

Weidemann, et al. (1982) examined the relationship between residential environment and residential satisfaction and the predictors of residents' perception of safety. The study was a post-occupancy evaluation of multifamily public housing in Decatur, Illinois. The study had structured self-reports in which residents rated their satisfaction with the appearance of the housing, privacy, management, maintenance, and safety from crime. A total of 246 households participated in the study and responded to 236 questions on a five-point scale. Multivariate analyses and multiple regression techniques were used in the computation of the results. The researchers concluded that physical, social, and management aspects of the residential environment influence residential satisfaction. They also demonstrated that residents' safety and security within the neighborhood predict their level of satisfaction.

Rent and Rent (1978) studied the factors related to residential satisfaction of tenants in low-income housing in South Carolina. The data came from 33 low-income housing projects which were not randomly selected because of the unavailability of a complete list of the projects. A total of 257 tenants participated in the interviews which addressed six categories: residential satisfaction (i.e., satisfaction with house and neighborhood), structural aspects of the housing units, previous housing experience, degree of integration or social participation in society, housing aspirations, and occupants' social-psychological perspective toward society. Analysis was based on percentages and chi square techniques. The researchers found that the tenants were satisfied with their housing and neighborhood.

The findings confirmed the positive relationship between neighborhood and housing units.

Lord and Rent (1987) conducted a study to investigate the satisfaction of 160 residents who were living in eight scattered-site public housing projects in Charlotte, North Carolina. Residents' satisfaction was measured by a single question--what is your opinion about your dwelling unit? They noted that residents' satisfaction was associated with the sense of happiness and safety with the neighborhood, positive changes over previous residence, and overall satisfaction with life. Neighborhood characteristics such as access to schools, friendliness of neighbors, and size of project were clearly expressed as sources of satisfaction by the residents, while access to public transportation, shopping, and jobs created the greatest dissatisfaction.

Gruber and Shelton (1987) examined residents' perceptions of satisfaction related to neighborhoods and housing units in order to determine if neighborhood characteristics contributed to neighborhood and overall housing satisfaction. The data came from 305 residents of three housing types--105 conventional homes, 90 mobile homes, and 110 apartments in North Carolina. Residents rated how satisfied they were with each characteristic on a five-point Likert scale. The researchers noted that residents' positive assessments of satisfaction with their neighborhood depended on the degree to which they perceived their neighborhoods to be attractive, pleasant, and friendly. However, the perceived quality of neighbors had more influence on apartment residents' satisfaction with the neighborhood than it had on conventional home or mobile home residents' satisfaction.

Onibokun (1974) adopted a systems approach to evaluating consumers' satisfaction with public housing projects in Canada. His study tested the hypothesis that public housing tenants are generally dissatisfied with their accommodations. The data were collected by direct interview techniques in which questionnaires were administered to 199 female heads of households in public housing in three Canadian cities. The questions focused on three subsystems--dwelling, management, and environment. A five-point Likert scale was used in which the tenants expressed their degree of satisfaction on 74 variables. The Relative Satisfaction Indices (RSI) and Relative Habitability Indices (RHI) were computed for each of the respondents. The findings show that tenants were dissatisfied with the environment, inadequacy and inefficiency of the public transportation, open space, playgrounds, private yards, and interference from neighbors. The stereotypical "bad image" of public housing was present in their minds and caused dissatisfaction to the tenants. The method adopted in the study could be used for cross-cultural housing studies, but it would be important to note that using only female heads of households might limit the generalization of the results.

Satisfaction is a function of several factors such as dwelling units, neighborhood characteristics, and environment. This is consistent with the findings of Western, et al., (1974) whose study evaluated the impact of the government's housing policy on people's satisfaction with their urban environment in Singapore. The data came from two sample populations, one residing in the new government housing and the other in the old central row and tenement housing. A systematic random sampling was used to select 1,165 participants who were asked to indicate how satisfied they were

with different aspects of their environment. The data were factor analyzed and the results showed a relatively high level of satisfaction for both groups of residents, while housing form alone had no significant effect on the general level of environmental satisfaction among Singapore residents.

Tenure

Homeownership has been identified as an important housing norm in the United States (Morris & Winter, 1978); not only has American housing policy encouraged homeownership (Mitchell, 1985), but financial institutions have been created to facilitate homeownership (Aaron, 1972; Hays, 1985). Research in housing has shown that people who own their homes are more satisfied with their housing than those who rent (Campbell et al., 1976; Fried, 1982; Morris, Crull, & Winter, 1976; Speare, 1974; Tremblay, 1981). Ownership of a single-family dwelling unit appears to be the strongest of the four primary housing norms identified by Dillman, Tremblay, and Dillman (1979), and Tremblay (1981), and also strong among the five housing norms found to influence housing satisfaction (Morris & Winter, 1978). Schorr (1970) noted that a condition for satisfaction among multifamily housing residents is ownership of the apartment. Renters are less satisfied with their housing than are owners (Danes & Morris, 1985; Lane & Kinsey, 1980).

Management

Francescato, et al. (1979) demonstrated the relative importance of specific design and management in predicting satisfaction with the residential environment. The level of services provided by the management (e.g., local

authority) is a contributor to satisfaction (Ozo, 1990). Research has indicated that good management could increase the relative satisfaction of tenants in public housing (Onibokun, 1974; Weidemann, et al., 1982). The provision of adequate recreational space and neighborhood day-care centers by the management would reduce parental stress in child-rearing (Onibokun, 1973).

Management variables and experience with previous residence are useful in predicting residential satisfaction in both low- and high-rise housing units (Francescato, Weidemann, Anderson, & Chenoweth, 1975). Management has been seen as a very high predictor of residents' satisfaction (Weidemann, et al., 1982). Management variables (rent and housing allocation) generated dissatisfaction among users in core housing in Nigeria (Ozo, 1990). Also, management performance (e.g., enforcement of rules and handling of complaints) is related to satisfaction with housing (Burby & Rohe, 1989; Johnson & Abernathy, 1983).

Awotona (1990) conducted a study to evaluate the level of satisfaction of residents in Festival Town in metropolitan Lagos, Nigeria. The degree of satisfaction was measured on a five-point Likert scale which focused on the general housing environment, such as location, service and management, dwelling, and estate. The study concluded that most of the users were found to be dissatisfied with the management.

Demographic/Socioeconomic Characteristics

Demographic/socioeconomic characteristics play important roles in residential satisfaction among different socioeconomic groups in housing projects. Preferences vary due to factors such as socioeconomic status, stage in

the family life cycle, educational level, age, occupational expectation, and race (Hinshaw & Allott, 1972). The level of satisfaction has been noted to be positively correlated with social class (Fried, 1982). Residents with higher incomes are inclined to show higher levels of satisfaction with their neighborhoods (Campbell, et al., 1976; Danes & Morris, 1985; Davis & Fine-Davis, 1981; Spain, 1988). High levels of satisfaction with housing are positively associated with young heads of households, high education, and low household sizes (Danes & Morris, 1985). Lane and Kinsey (1980) concluded that education has a positive effect on housing satisfaction for renters, but not for homeowners. Apparently, those with high levels of education who prefer to be renters instead of homeowners do so because of their lifestyle preference. Research has shown that younger people with lower incomes were the least satisfied with their neighborhood (Davis & Fine-Davis, 1981).

Onibokun (1976) studied the influence of social system characteristics of public housing tenants on their satisfaction with housing. The data came from direct interviews with 199 tenants (female heads of household) randomly selected from 601 tenants who lived in the 15 public housing projects in three cities in Ontario, Canada. The questionnaire had 74 items which addressed various aspects (social, physical, psychological, environmental and administrative) of public housing that could affect the degree of satisfaction. Tenants scored their level of satisfaction on a five-point Likert scale for each of the 74 variables. The study computed an index of relative satisfaction for the tenants and used only 17 variables in the analysis of variance to determine if there were differences among the tenants

in the three cities. Other statistical tests (partial correlation, chi-square, canonical correlation and discriminant analyses) were used to explain the observed differences. The study found that people's social system characteristics are strongly related to their satisfaction with public housing. Thus, the study pointed out that the physical soundness of a building does not justify or guarantee habitability, especially when socioeconomic status, degree of interaction, life style, and self-conceived image of the tenants are not considered. The sample used in the study (female heads of household) limits the generalization to similar groups such as male heads of household.

Mullins and Robb (1977), in a descriptive study of the residents' assessment of a New Zealand public housing scheme, argued that the tenants showed an overwhelming acceptance of public housing unlike the poor acceptance among tenants in the United States. The sample represented 10% of public housing households in Porirua and consisted of 510 dwellings which housed an estimated 1,177 people. The interview schedule focused on demographic characteristics, migration, social relations, attitude towards dwelling, living in Porirua, employment, shopping behavior, leisure activities, and education. The authors concluded that the Porirua residents were satisfied with the public housing and the residential environment. The results were different from the views expressed by residents in the United States, especially those in high-rise buildings (Mullins & Robb, 1977). Also, the conclusions of the study raised doubts about the generalization that public housing residents are socially disoriented and unhappy and that the housing is physically inadequate.

Summary

Some of the analytical approaches found in the literature are rather specific. This means that some studies concentrate on the social aspects, while others deal with economic, psychological, physiological, and environmental aspects of housing satisfaction. Only a small part of the literature deals with the overall satisfaction of tenants in public housing and an insignificant part deals with the subject in other sub-cultural contexts. This review revealed that key variables such as building features, structure type, housing conditions, neighborhood facilities, tenure, management, and demographic characteristics are related to housing satisfaction.

The review pointed out the importance of consideration of the users' preference in planning and designing public housing. Michelson (1968) also noted similar observations when he challenged architects who argued that occupants lack the knowledge to distinguish between good and bad design, and it is no use to record and consider their preference and satisfaction. Architects believe that they are the ones to plan and educate the public about their housing and living environment. Michelson concluded that houses built without consideration of the needs of the users are occupied by tenants who have no alternatives and usually have heavy hearts. He contended that a direct relationship exists between the interrelationship of people and their built environment. Michelson noted:

> Thus, even though a lack of wisdom may prevent people from housing that is clearly in their own best interests, it is their preferences--and not architectural theories--that will, in the long run, influence much of what happens in the cities (p. 37-38).

The review of literature in this study has shown that most of the studies (e.g., Galster & Hester, 1981; Homenuck, 1973; Morris & Winter, 1975, 1978; Newman, 1973; Onibokun, 1973, 1974; Rent & Rent, 1978; Speare, 1974) have been conducted in developed countries while few (e.g., Awotona, 1990; Muoghalu, 1984, 1991; Ozo, 1986, 1990) were done in developing countries. It is interesting to note the differences and similarities between developed and developing nations. Differences exist in lifestyles which influence opinions or perceptions about public housing. The review revealed the use of high-density and high-rise structures for public housing and the negative image of housing projects in the United States, while developing nations (e.g., Nigeria and New Zealand) concentrate on the use of low-density dwellings (single-family detached/semi-detached homes, duplex, walk-up housing) for their public housing. Public housing in developing nations is acceptable to both low- and high-income families. However, there is a gap in the existing literature related to housing satisfaction in developing nations. The existing studies in the developing nations identified variables similar to those in developed nations (e.g., structure type, housing quality, neighborhood facilities, management approach, environmental conditions and demographic characteristics) which have significant influence on the residential satisfaction of tenants in public housing. The review also identified that the variables are interrelated and interdependent, although few studies addressed the overall satisfaction of tenants.

The review revealed that earlier studies conducted in the 1950s and 1960s focused on the effects of demographic characteristics, design qualities, housing conditions, and neighborhood characteristics on housing satisfaction

while more recent studies done in the mid-1970s and 1980s have dealt with psychological effects and policy issues. Few studies investigated the effect of management on housing satisfaction, and those not in detail. In addition, earlier studies used non-parametric statistics while recent ones applied parametric analysis such as multiple regression which predicted the most important variables in explaining housing satisfaction in housing research. The review noted that the instruments used to measure satisfaction were mainly structured questionnaires scored on a five-point Likert scale. Both objective and subjective criteria are important in planning and designing public housing as evidence from these studies indicates.

Chapter III

BACKGROUND AND METHODOLOGY

The purpose of the study was to determine the factors that affect satisfaction with housing among public housing residents in Abuja, Nigeria. In this chapter a background section that explains information about Abuja is provided first. Also included are sections that describe the methodology of the study: (a) source of data, (b) description of instrument, (c) selection of sample, (d) collection of data, and (e) analysis.

Background

The Federal Capital Development Authority (FCDA) has completed over 22,000 housing units in Abuja. The units are the largest public housing projects in the federal capital territory (FCDA, 1994). In addition to the completed housing projects, other federal agencies have made contributions to residential accommodation. The Federal Housing Authority (FHA) has completed 1,571 housing units and embarked on 608 two-, three-, or four-bedrooms luxury flats. The Federal Ministry of Works and Housing (FMWH) completed 52 prototype low-cost housing units (FCDA, 1992).

Federal employees are assigned to certain housing types built by federal government agencies (FCDA, FHA, FMWH) based on their civil service ranks (Federal Republic of Nigeria, 1980). For example, directors and principal officers are assigned to single-family (detached or semi-detached) dwelling units; senior and intermediate officers are assigned to townhouses, and multifamily apartments (three or four-story walkup); and the bungalows and room units were originally meant for junior officers. In addition, those

without assigned housing are provided with housing allowances according to their rank. Housing allowances are added to their monthly income and those who were assigned to public housing units forfeit the allowance.

Most of the public housing projects are in accordance with the four categories of housing types proposed in the Abuja Master Plan: detached/semi-detached, townhouse and bungalow, and multifamily apartments, except the room units with kitchen, bath, and toilet shared among the residents. This study focused on the level of housing satisfaction for the five categories (bungalows, townhouses, multifamily apartments, single-family detached/semi-detached housing, and room units) which have the largest number of units completed and are managed by the FCDA.

The Master Plan for Abuja was designed by International Planning Associates (IPA) based in the United States (FCDA, 1979). The Master Plan presents not only the land use, transportation, infrastructure, housing, and services, but also their interrelationships and it provides general framework for development. In addition, the Master Plan provides major elements of the residential environment, physical organization, and design concepts.

Residential District

According to the Master Plan, the residential units are divided into small units known as neighborhoods. Four residential districts (Garki, Wuse, Maitama, Asokoro) with 33 neighborhoods and a Central Business District were planned in the Phase I development of Abuja. The federal government has not built public housing in the Maitama and Asokoro districts, but lots had been allocated to individuals to develop single, detached units. Presently, public housing has been developed in 11 districts (FCDA, 1994), but the study

focused on five residential districts (Garki, Wuse, Karu, Kubwa, and Nyanya). The projected target population for Phase I was 230,000. The Plan also proposed that each district and neighborhood be provided with a center of facilities, such as supermarkets, small shops, and banks for the residents. Provisions were made for open space, play areas, parks, and surface parking lots for residents in all the districts. The FCDA management had assigned most of the completed housing (bungalows, townhouses, and multifamily apartments, single-family housing, and room units) to the civil servants based on their rank (Federal Republic of Nigeria, 1980). The structure types are described below and floor plans and photographs shown in Appendices B and C, respectively.

Structure Types

Bungalow. The bungalows have either one bedroom, two bedrooms, or three bedrooms. The one bedroom dwelling has a small living room, kitchen, toilet, and shower. They were constructed in row-house form (four to six units attached). The two-bedroom or three-bedroom dwelling has a living room, dining room, kitchen, and full bathroom. Most are built as semi-detached dwelling units and a few are constructed in a row-house form (four units attached). There are 2,240 one-bedroom or two-bedroom bungalows designated for junior civil servants, and a few three-bedroom bungalows for intermediate officers (FCDA, 1992).

Townhouse. These two-bedroom units are on two floors with the living room, dining room, kitchen, and toilet (half bath) on the first floor. Two bedrooms and a bathroom (full bath) are located on the upper floor.

There are four to six housing units attached. There are 3,805 two-bedroom units for intermediate civil servants (FCDA, 1992).

Multifamily apartment. The multifamily apartments were built as three or four-story walk-ups. They are designed as one- two- or three-bedroom apartments with a living room, dining room (for the two- or three-bedroom), kitchen and bathroom (full bath) for each family. Each apartment block is designed specifically as one-, two-, or three-bedroom units with 16 to 24 apartments in each block. The 2,261 completed multifamily apartments are for intermediate civil servants (FCDA, 1992).

Single-family (detached/semi-detached) housing. These dwelling units have two floors with living room, dining room, kitchen, and toilet (half bath) on the ground floor. In the three-bedroom units the bedrooms, a family lounge, and a bathroom (full bath) are on the upper floor. In some designs with four, five, or six bedrooms, one bedroom with a full bathroom is placed on the ground floor while the remaining bedrooms are on the upper floor. The single-family (detached/semi-detached) houses are built for principal officers, and few of the three, four, five, or six bedroom housing units have been completed (FCDA, 1992).

Room units. These are one- or two-room units (four units attached) arranged in clusters or blocks, and are characterized by a high level of sharing. Three blocks share a court yard, kitchens, toilets, and showers. These units were built as labor camps for construction workers and were later assigned to junior civil servants. There are about 6,687 one-room units, and 1,904 two-room units (FCDA, 1992).

Construction Materials for Housing

The major building materials are corrugated roofing sheets, cement block for walls and foundations, wood for doors and door/window frames, glass louvres for window panes, and reinforced concrete for slabs, beams, and columns. Prefabricated component building systems played an important role in the construction of residential housing. Few of the materials were manufactured locally and most had to be imported. Ultimately, this increased the cost of housing units in Nigeria.

The Central Business District

The Central Business District is the hub of the city. This area is reserved for the ministries, cultural centers, three branches of the government (the presidency, the national assembly (congress), and the judiciary), and the diplomatic zone.

Infrastructure/Public Services

The master plan for Abuja also specified adequate infrastructure and public services, although presently public services are limited. Facilities such as public transportation for intra- and inter-city services are insufficient (Ocholi, 1992). Educational facilities, libraries, police, fire, post and telegraph offices, sport facilities, water, sewage disposal, and roads are available (FCDA, 1992), but no study has been conducted to determine if the residents are satisfied with these facilities.

Methodology

Source of Data

The data for this study came from interviews conducted with families living in the five different structure types of FCDA public housing

(bungalows, townhouses, multifamily apartments, single-family housing, and room units) in five districts of Abuja, Nigeria. According to the report on house census, there are about 3,204 houses in Garki, 2,731 houses in Wuse, and 1,464 houses in Karu. Kubwa and Nyanya districts have 6,424, and 6,040 houses respectively (FCDA, 1994). The public housing units in these districts were built in the Phase I development of Abuja which started in 1980. Most structure type categories in each district were identical new construction and similar in basic characteristics--size of unit, quality of construction, shopping centers/markets, and neighborhood and transportation facilities. However, there is some variety in design and constriction technique in various districts.

Description of Instrument

The researcher developed, evaluated, pretested, and revised a self-administered questionnaire. The instrument was printed in booklet format as recommended by Dillman (1978). The instrument had a provision for identification number, block number, structure type, location, and date of interview on the cover page. The revised, precoded questionnaire had primarily closed-ended questions with one open-ended question. The open-ended section offered the interviewees the opportunity to raise issues that the questionnaire did not address and also to offer suggestions. The instrument measured the residents' level of housing satisfaction with various housing characteristics and public housing management using a Likert scale ("1" for "very dissatisfied" to "5" for "very satisfied") for the independent and dependent variables (see Appendix D). The questionnaire contained six sections:

(a) Structure type. (Questions 1 to 4). Questions in this section focused on housing satisfaction with structure types and living arrangement. A question was designed to categorize the respondents in the five structure types to enable the researcher to determine if there were differences in level of satisfaction due to structure types.

(b) Building features. (Questions 5 to 19). This section contained questions which addressed size and number of rooms, size of living room and dining room, size and location of kitchen, space for children to play and study, storage space, and privacy. A question on the overall opinion about building features was also included.

(c) Housing conditions. (Questions 20 to 31). The questions in this section sought information regarding quality of construction, quality of floors and walls, quality of paint, water pressure, plumbing fixtures, and an overall opinion about the condition of the housing.

(d) Neighborhood facilities. (Questions 32 to 47). These questions assessed residents' level of satisfaction with proximity to work, shops and markets, schools and playgrounds. Questions concerning available bus services, police protection, incidence of burglary activities, and the landscape of the neighborhood were included. A question on the overall opinion about neighborhood facilities was also included.

(e) Management. (Question 48 to 57). The questions in this section were designed to measure the way management responded to repairs, complaints, rent and garbage collection systems, as well as rules and regulations and the respondent's overall opinion about management.

(f) Overall opinion. (Question 58). This section had only one question which assessed the residents' overall housing satisfaction.

(g) Demographic/socioeconomic characteristics. (Questions 59 to 68). These questions were related to respondent's sex, age, education, rank, occupation, income, length of stay, and household size. Information about other members of the household, and rationale for assigning the housing unit was also gathered.

(h) Comments. (Question 69). This section had one open-ended question which requested respondents' comments about their housing situation or living environment.

Pilot Test

The pilot test was done in Abuja City, Nigeria, in January, 1994, to determine the problems with questionnaire items and response rate. The pilot instrument was not printed as a booklet, but on sheets of 8 1/2 x 11 inch paper and corner stapled. A total of 12 residents of public housing in two districts (Garki and Wuse) participated. Residents in the other three districts did not participate because during the pilot testing the study only focused on Garki and Wuse districts. A trained assistant distributed the self-reporting questionnaires to the 12 households and nine were returned. The residents who participated were heads of households with university degrees. The overall response rate was 75%. The pilot test revealed that some questions measured the same variable based on the comments from the respondents. The pretest resulted in removal of confusing questions, rewording for clarity, and addition of new questions. The instrument was also revised based on

comments from the researcher's dissertation advisory committee. The process was useful in validating the instrument.

Selection of Sample

The sample of 1,430 households was selected from residents living in a total of 19,863 public housing units. The houses were categorized into five different structure types located in five districts. Originally, a total of 450 households would have been selected from each of the two districts (150 households from each of the three structure types: bungalows, townhouses, and four-story walkups). However, the FCDA official who assisted the researcher in the selection of the sample advised on extending the study to the five districts (Garki, Wuse, Karu, Kubwa, and Nyanya) to provide a proper representation of Abuja City. The selection of residents in each district was based on random sampling. In each district, structure types were randomly and proportionally selected based on the number of that particular structure type in the district. The residents were randomly interviewed from the selected structure types. For example, in Garki (Area 2, Section 1), 20 bungalows (in row/terrace houses of four units in a block) which housed about 80 families were randomly selected. The researcher selected 10 households from the 20 bungalows. This procedure was used to select residents from the townhouses, multifamily apartments, single-family houses, and room units in all the districts. This procedure was used in the absence of a master list of the residents whom the FCDA had officially assigned to the housing units.

Response rate. As shown in Table 1, a total of 1,430 (7.2%) houses were selected from 19,863 completed public houses in the five districts. A total of 1,110 households responded to the self-administered questionnaires. About 320 households refused to complete the questionnaires or were not at home when the research assistants knocked at their doors. Twenty-one were rejected because the respondents did not complete the questionnaires according to the stipulated guidelines. The remaining 1,089 households that participated in this study represented a usable return rate of 76.15%.

Collection of Data

All data for the study were collected through self-administered questionnaires between November and December 1994. Because the instrument was self-reporting, the researcher worked with the FCDA staff in collecting the data. The FCDA offered 20 estate inspectors (staff of FCDA estate department) who helped in delivering and collecting the questionnaires. All research assistants (FCDA estate inspectors) participated in the training program in which detailed instructions regarding the procedure for administering the survey were given. This procedure helped to avoid very low response rates, especially since Nigerian residents are not familiar with housing research studies coupled with the inefficient postal services.

In the field, the research assistants were divided into three groups (two groups had seven research assistants; the third group had six assistants) with a supervisor for each group; the researcher coordinated all the groups. The assistants visited the randomly selected structure types where the

Table 1

Response Rate

	Garki	Wuse	Karu	Kubwa	Nyanya	Total
Number of houses	3,204	2,731	1,464	6,424	6,040	19,863
Number of selected houses	293 (9.14%)[a]	275 (10.07%)[a]	241 (16.46%)[a]	321 (5.00%)[a]	300 (5.00%)[a]	1,430 (7.20%)[b]
Non-responses	21	50	39	115	95	320
Number of responses	272	225	202	206	205	1,110
Unusable responses	5	4	4	3	5	21
Usable responses	267 (91.13%)[c]	221 (80.36%)[c]	198 (82.16%)[c]	203 (63.24%)[c]	200 (66.67%)[c]	1,089 (76.15 %)[d]

Note: [a]Percentage of selected structure types based on the number of houses in each district.
[b]Percentage of selected houses based on the total houses in the five districts.
[c]Percentage of usable responses based on the number of selected houses in each district.
[d]Percentage of total usable responses based on the total houses selected in the five districts

interviewees were randomly selected. First, the assistant knocked on the door, introduced him/her self, and handed over a letter (see Appendix E) explaining the nature of the study. Second, the assistant gave a card containing the five categories of responses ("1" for "very dissatisfied" to "5" for "very satisfied") to the respondent and briefly explained the purpose of the study and the meaning of each response. Third, the assistant gave the respondent the questionnaire and a pencil to mark responses to each question. The assistant asked the respondent to complete the questionnaire at any convenient time within the next hour, since the assistant would be back to pick up the completed questionnaire at the end of that time.

When they picked up the questionnaires the assistants responded to any questions raised by the respondents. In some cases the assistant waited for the respondent to complete the questionnaire and then responded to questions. In order to ensure confidentiality, the names and addresses of participants who requested a copy of the summary report were assigned an identification number. The household head was the person who completed the questionnaire. Where it was impossible to identify one person as the household head, or after unsuccessful attempts to contact the household, the researcher utilized a random procedure to select another household within the same block or from another block.

Dependent Variables

The dependent variables in this study were the single-item measures of satisfaction with various housing characteristics and the overall housing satisfaction. However, the single-item measures acted as independent

variables in predicting overall housing satisfaction. The single-item measures (dependent variables) which were later used as independent variables in predicting overall housing satisfaction (question 58) were:

single-item measure of structure types (question 2);

single-item measure of building features (question 19);

single-item measure of housing conditions (question 31);

single-item measure of neighborhood facilities (question 47); and

single-item measure of management (question 57).

Both single-item and overall housing satisfaction (question 58) were measured by a series of questions which were rated in a five-point Likert scale in which "1" represented "very dissatisfied" and "5" represented "very satisfied" (Appendix D). The satisfaction with various housing characteristics was treated as a continuous variable.

Independent Variables

The independent variables in this study were the multiple measures of satisfaction with various housing characteristics, and the demographic/ socioeconomic characteristics. The multiple measures had a series of questions which were rated on a five-point Likert scale in which "1" represented "very dissatisfied" and "5" represented "very satisfied." The responses were treated as continuous variables.

The following independent variables were used: structure types had three multiple measures (questions 1, 3 and 4), building features had 14 multiple measures (questions 5 to 18), housing conditions had 11 multiple measures (questions 20 to 30), neighborhood facilities had 15 multiple

measures (questions 32 to 46), housing management had nine multiple measures (questions 48 to 56), and demographic/socioeconomic had nine measures (questions 59 to 67) as indicated in Appendix D.

Hypotheses

The following hypotheses were tested:

H_1. Overall satisfaction with structure type is associated with type of structure (e.g., bungalows, townhouses, multifamily apartments, single-family houses, and room units).

H_2. Overall satisfaction with building features is associated with satisfaction with individual building features (e.g., size of bedroom, living room, dining room, and number of bedrooms).

H_3. Overall satisfaction with housing conditions is associated with satisfaction with individual housing conditions (e.g., quality of construction, walls, floors, windows, and doors).

H_4. Overall neighborhood satisfaction is associated with satisfaction with various neighborhood facilities (e.g., closeness to work, schools, shops/markets, hospitals/clinics, and recreational facilities) .

H_5. Overall satisfaction with housing management is associated with satisfaction with specific public housing management procedures (e.g., enforcement of rules, amount of rent paid, garbage collection system, and handling of residents' complaints).

H_6. Overall housing satisfaction is associated with:

(a) Demographic/socioeconomic characteristics of the residents (e.g., gender, age, education, employment, rank, income, and length of stay).

(b) Overall satisfaction with various aspects of housing characteristics (e.g., structure types, building features, housing conditions, neighborhood facilities, and housing management).

Data Analysis

The Statistical Package for the Social Sciences (SPSS-X) Data Analysis System was used for the analyses (SPSS Inc., 1990). Frequency distributions and percentages were obtained for descriptive purposes. A composite satisfaction index was computed for the responses to building features (questions 5 to 8), housing conditions (questions 20 to 30), neighborhood facilities (questions 32 to 46), and management (questions 48 to 56). The composite index was computed as the average response across the 14 items making up the building features, 11 items for the housing conditions, 15 items for the neighborhood facilities, and nine items for the management. The mean response was adjusted for missing responses by subtracting the non-applicable and missing responses from the total score. The information from one open-ended question was summarized in the following categories: maintenance and renovation, allocation process and rent, design and housing conditions, crowding, neighborhood facilities, ownership, and security (see Appendix F), but this question was not used in analysis.

Cronbach's alpha was used to assess the reliability of the composite scores. The correlation between the composite scores and single-item measures provided the opportunity for evaluating whether or not the composite scores were consistent in measuring the same construct as the single-item measures of satisfaction.

Multicollinearity was of concern in this study because of the potentially high correlations among the independent variables, many of which measure different aspects of various housing characteristics. The independent variables were the individual aspects of various housing characteristics (structure types, building features, housing conditions, neighborhood facilities, and management). Two indicators of possible presence of multicollinearity were examined. These were the correlations among the independent variables and the regression of each predictor which entered the equation through forward selection on the others. None of these indicators had values that could be interpreted as indicating the presence of multicollinearity.

Coding of Data

Dummy variables. Dummy coding was used for one of the demographic/socioeconomic variables.

Question 67: "Why you were assigned to this unit?" was used to create four dichotomous variables which were coded (0, 1) as follows:

Availability of space (0, 1), "1" for availability of space, and "0" for none;

Socioeconomic status (0, 1), "1" for socioeconomic status, and "0" for none;

Family size (0, 1), "1" for family size, and "0" for none; and other (0, 1), "1" for other, and "0" for none.

Dichotomous variable. The following questions were treated as categorical, dichotomous variables:

Question 59: "What is your gender?"

"0" for female, "1" for Male

Question 62: "Are you a civil servant?"

"1" for civil servant

"2" for non-civil servant

Trichotomous variable. The following was treated as a trichotomous variable:

Question 63: "If you are civil servant, what is your rank?"

"1" for junior officer, "2" for senior officer, "3" for director.

Continuous variables. The following variables were treated as continuous variables in categorical segments:

Question 60: "Age"

"1" under 25 to "9" over 60.

Question 61: "Highest education attended."

"1" for First School Leaving Certificate to "6" for Post-graduate. Also, the seventh option "other qualification" was recoded into the first six categories.

Question 64: "Income."

"1" less than N10,000 to "7" over N50,000.

Question 65: "Length of stay in the housing unit."

"1" less than 1 year to "6" over 10 years

Question 66: "Household size" was treated as a continuous variable: "1" for one person to "5" for more than four persons.

Test of Hypotheses

The six hypotheses were tested using the data from the questionnaires. One-way analysis of variance, regression analysis, and correlation analysis were the statistical techniques used.

H_1: One-way analysis of variance was used in testing the hypothesis that satisfaction differed across respondents from different building structures. A multiple comparison procedure was used to examine pairwise differences for significance at the .05 level.

H_2 to H_5: The relationships between the individual aspects of various housing characteristics and measures of satisfaction (single-item measures and composite scores) were tested by correlation and regression analysis.

H_6 (a-b): Multiple regression and correlation analysis were used in testing the model of the overall housing satisfaction on single-item measures of various housing characteristics. Also, multiple regression of the overall housing satisfaction on the quantitative variables on the demographic/socioeconomic variables was conducted. Also, correlation analysis of the demographic/ socioeconomic variables with the overall housing satisfaction was conducted.

Summary

This study examined the factors that affected satisfaction with housing among public housing residents in the new federal capital city, Abuja, Nigeria. This chapter has provided an overview of the background, source of data, description of the instrument, and the pilot test which had been conducted. Discussions on the selection of sample, collection of data, hypotheses, and appropriate statistical techniques for the analysis were provided. Finally, the coding of data, dependent, independent, and dummy variables were briefly discussed.

Chapter IV

DESCRIPTIVE ANALYSIS

This chapter includes a description of the sample (frequencies and percentages), and mean satisfaction scores for independent variables: structure types, building features, housing conditions, neighborhood facilities, public housing management, and demographic/socioeconomic characteristics. It provides information about the dependent variables: satisfaction with each of the housing characteristics and overall housing satisfaction. The percentages are based on the number in the sample that responded to each question.

Geographical Location of the Public Housing

Table 2 shows the five major districts of Abuja City and the various structure types located in these districts (Garki, Wuse, Karu, Kubwa, and Nyanya). All five districts had an almost equal number of respondents which was a fairly accurate representation of the general population in Abuja City. Slightly less than one-fourth of the respondents lived in two districts: Garki (24.5%) and Wuse (20.3%). The other three districts were represented by equal proportions of respondents living in the public housing: Karu (18.2%), Kubwa (18.6%), and Nyanya (18.4%).

Demographic/Socioeconomic Characteristics of Residents

All the 1,089 respondents lived in public housing built and managed by the Federal Capital Development Authority (FCDA). The demographic/ socioeconomic characteristics used in this study were gender, age, education,

Table 2

Geographical Location of Public Housing (n =1,089)

Districts	n	%
Garki	267	24.5
Wuse	221	20.3
Karu	198	18.2
Kubwa	203	18.6
Nyanya	200	18.4
Total	1,089	100

employment status, rank in work place, income, length of stay in the house, household size, and rationale for assigning the current housing unit to the occupant (see Table 3).

Over three-quarters (78.1%) of the respondents were male. The vast majority of the households in Nigeria are headed by males (National Population Commission, 1992) and the resultant high proportion of male respondents reflected this particular cultural trend.

The age of the 1,089 respondents ranged from under 25 to over 60. Approximately two-thirds (60%) of the respondents were between 26 and 35. This is unique to Abuja because as a new capital it offers more job opportunities which attract young graduates. Over half (54.0%) of the respondents were between the ages of 31 and 40 years.

The educational levels identified in the questionnaire ranged from First School Leaving Certificate (fifth grade in U. S.) to Post Graduate Degree. The majority of the respondents were well educated with over half (54.9%) having Diploma/National Certification of Education (Community College Degree in U. S.) or University Degree. More than one fifth (22.1%) had only completed high school. A small proportion of the respondents (15.8%) had obtained only a First School Leaving Certificate or had some high school education.

The majority (98.8%) of the respondents were civil servants working in various federal establishments (ministries and agencies) in Abuja. A very small proportion (1.2%) of the respondents were engaged in the private sector. About two-thirds (66.5%) of the civil servants were senior officers, whereas one-third (30.7%) were junior officers. The high proportion of civil

Table 3

Demographic Characteristics of the Respondents (n = 1,089)

Characteristics	n	%
Gender		
Male	850	78.1
Female	239	21.9
Total	1,089	
Age		
Under 25 years	37	3.4
26 to 30 years	268	24.6
31 to 35 years	376	34.6
36 to 40 years	211	19.4
41 to 45 years	122	11.2
46 to 50 years	44	4.0
51 to 55 years	22	2.0
56 to 60 years	6	0.6
Over 60 years	2	0.2
Total	1,088	
Education		
First school leaving certificate	96	8.8
Some high school	76	7.0
High school certificate	241	22.2
Diploma/national certificate of edu.	342	31.4
University degree	256	23.5
Post-graduate degree	67	6.2
Other	10	0.9
Total	1,088	
Employment status		
Civil servant	1,076	98.8
Non-civil servant	13	1.2
Total	1,089	
Rank		
Junior officer	334	30.7
Senior officer	724	66.5
Director	23	2.1
Total	1,081	

(table continues)

Table 3 (Continued)

Characteristics	n	%
Annual Household Income		
Less than N10,000 ($455)	204	18.8
N10,000 to N15,999 ($455 - $727)	334	30.8
N16,000 to N20,999 ($727 - $955)	233	21.5
N21,000 to N30,999 ($955 - $1,409)	181	16.7
N31,000 to N40,999 ($1,409 - $1,864)	91	8.4
N41,000 to N50,999 ($1,864 - $2,273)	29	2.7
Over N50,999 (Over $2,273)	12	1.1
Total	1,084	
Length of Stay		
Less than 1 year	30	2.8
1 to 2 years	205	18.8
3 to 5 years	402	36.9
6 to 8 years	263	24.2
9 to 10 years	102	9.4
Over 10 years	87	8.0
Total	1,089	
Household Size		
One	28	2.6
Two	104	9.6
Three	149	13.7
Four	184	16.9
More than four	624	57.3
Total	1,089	
Rationale for Assigning Housing Unit		
Availability of space	595	54.7
Socioeconomic status	431	39.7
Family size	22	2.0
Other	38	3.6
Total	1,086	

(table continues)

Table 3 (Continued)

Characteristics	n	%
Tenure		
Renters	1,079	99.1
Others	10	0.9
Total	1,089	
Number of Bedrooms		
One	527	48.4
Two	383	35.2
Three	123	11.3
Four	55	5.1
Total	1,088	
Household[a] with:		
Spouse	822	75.5
Children	822	75.5
Parents	74	6.8
Brothers	372	34.2
Sisters	310	28.5
Relatives	319	29.3
Non-relatives	68	6.2

Note. The number of respondents (n) may not add up to 1,089 due to missing values.

[a]There is no total because households had multiple responses.

servants in public housing in Abuja, has further demonstrated that the Nigerian Housing Policy is geared towards provision of housing for government employees. It is interesting to note that the public housing originally built for the low- and moderate-income groups appears to be dominated by the high-income group (senior officers employed by the government). Research has shown that the high-income groups had benefited more than the low-income groups from the federal public housing programs (Awotona, 1984).

Of the 1,084 respondents who reported their family income, 18.7% had annual incomes of less than N10,000. Over half (52.1%) reported income within the range of N10,000 to N20,999; while more than a quarter (27.7%) reported annual income within the range of N21,000 to N50,9999. The reported amount was the income after deducting the housing allowance. Apparently, all the respondents forfeited the housing allowance since they benefit from the public housing programs. The gross national product (GNP) per capita in 1993 was $290 (United Nation Development Program [UNDP], 1993). According to the director of policy research and documentation center, Administrative Staff College of Nigeria, the approximate median income in Nigeria in 1994 was N17,000 ($773) (Dr. E. Etuk, personal communication, April 24, 1995). Comparatively, about half (50.4%) of the respondents reported annual income greater than the national median income. The reported annual income supports the unique potential of Abuja in providing moderately or highly paid jobs for young graduates. Twenty-two Naira (N22) equals approximately $1.00 (U. S.), the official exchange rate in 1995 (Europa Publications Limited, 1995).

Most of the respondents had lived in their current housing for relatively long periods of time. Some had been pioneer residents who had lived there since the inception of the federal capital. The majority of the respondents had moved in 1991 when the federal government officially relocated to Abuja. Over three-fourths (78.5%) had been living in Abuja for three years or more, and 8% had been there for 10 years or more. Less than one fifth (18.3%) had been in Abuja for one or two years, while only 2.8% had been there for less than a year.

Nearly three-fourths (74.2%) of the 1,089 respondents lived in households of four or more persons, most often due to the extended family system in the culture. Thus, on the average, a majority (71.8%) of the respondents were living with their spouse, children, brothers, and sisters.

The public housing units in Abuja were built to provide accommodations for the people living in the city. The FCDA was to assign occupants to various structure types based on their rank in the civil service. In reality, more than half (54.6%) of the respondents were assigned based on the availability of space, while over one-third (39.7%) were assigned based on their socioeconomic status.

Approximately half (48.4%) of the respondents occupied one-bedroom units, 35.2%, two-bedrooms; and 11.3% three-bedrooms. Almost all the respondents (99.1%) rented the public housing units at a subsidized rate. A certain proportion of their monthly salary is deducted and used for the payment of the rent. The amount deducted is usually below the fair market price of renting the unit. This particular situation is prevalent at the state and federal levels where the governments are directly involved in housing

construction and allocation of finished products to the residents. The arrangement has encouraged most residents not to have any responsibility towards the house because they are not owners (Appendix F). In view of the fact that most respondents are renters, the researcher did not include tenure in further analysis.

Structure Types

Table 4 presents the structure types occupied by the respondents which were in the following categories: bungalows (row/terrace housing), multifamily apartments (three or four-story walkups), townhouses, single-family houses (detached/semi-detached), and one-or two-room units. The most common structure type occupied by the respondents was the bungalow (36.6%). In addition, the multifamily apartments provided more than one-fourth (28.9%) of the housing units occupied by the respondents. About one-fourth (25%) were the one-or two-room housing units. The townhouses and single-family houses offered 6.4% and 3.1% of the occupied units respectively.

Satisfaction with Housing Characteristics

The respondents expressed their overall opinion on the housing characteristics and the FCDA management as shown in Table 5, and graphically presented in Figure 3. The categories "very satisfied and satisfied" as well as "very dissatisfied and dissatisfied" were collapsed into satisfied and dissatisfied respectively.

Figure 3 illustrates that more than half (55.2%) of respondents were dissatisfied with their housing structure types; however, slightly less than

Table 4
Characteristics of the Structure Types (n = 1,089)

Structure Types	n	%
Bungalows (1/2/3-bedroom row/terrace)	396	36.6
Multifamily apartment (3/4-Story Walkups)	313	28.9
Townhouses (2/3-bedroom)	69	6.4
Single-family (Detached/semi-detached)	34	3.1
Room Units (One/two-room units)	271	25.0
Total	1,089	100

Table 5
Satisfaction with Housing Characteristics (n = 1,089)

Housing Characteristics	n	%
Structure Types		
Very Satisfied	64	5.9
Satisfied	363	33.5
Neither	58	5.4
Dissatisfied	362	33.4
Very Dissatisfied	236	21.8
Total	1,089	
Building Features		
Very Satisfied	71	6.5
Satisfied	416	38.2
Neither	69	6.3
Dissatisfied	302	27.7
Very Dissatisfied	231	21.2
Total	1,089	
Housing Conditions		
Very Satisfied	75	6.9
Satisfied	395	36.3
Neither	73	6.7
Dissatisfied	368	33.8
Very Dissatisfied	175	16.1
Total	1,086	
Neighborhood Facilities		
Very Satisfied	139	12.8
Satisfied	549	50.6
Neither	74	6.8
Dissatisfied	211	19.4
Very Dissatisfied	113	10.4
Total	1,086	
Public Housing Management		
Very Satisfied	44	4.0
Satisfied	278	25.6
Neither	105	9.7
Dissatisfied	427	39.3
Very Dissatisfied	232	21.3
Total	1,086	

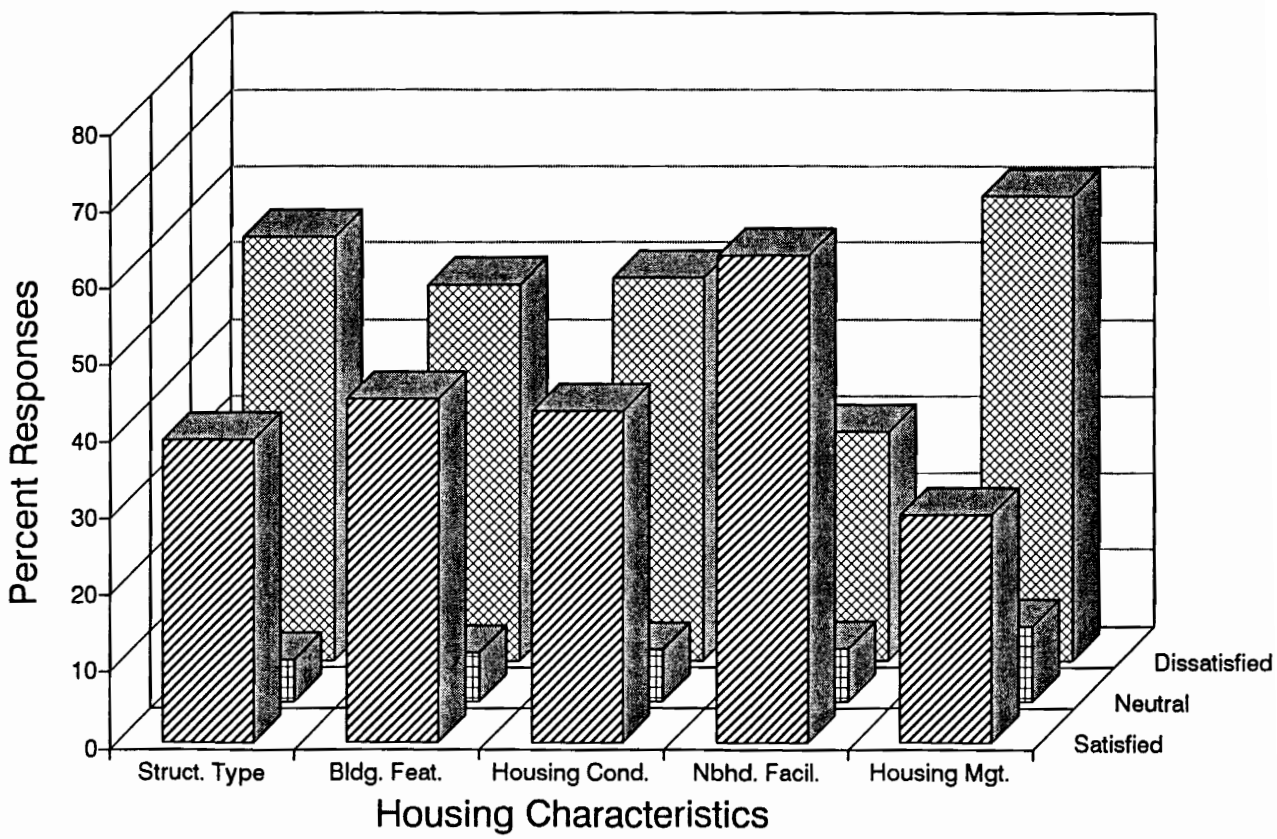

Figure 3. Satisfaction with Housing Characteristics

two-fifths (39.4%) were satisfied. The respondents were fairly evenly divided on the building features as well as the housing conditions. Approximately half the respondents (48.9%) were dissatisfied with the building features, and about 44.7% were satisfied. The same trend occurred in housing conditions. Almost half (49.9%) of the respondents indicated dissatisfaction and slightly less than half (43.2%) indicated satisfaction. A majority (60.6%) of the respondents expressed dissatisfaction with the FCDA management, while only 29.6% indicated satisfaction.

Although the respondents were dissatisfied with most of the housing characteristics, they expressed satisfaction with neighborhood facilities. Also Figure 3 highlights that a majority (63.4%) were satisfied with their neighborhood facilities, and 29.8% were dissatisfied. Satisfaction with the neighborhoods may have occurred since most of the residents had moved into the new federal capital from other congested cities, especially Lagos. Also, newly completed public housing with available facilities such as roads, water, schools, and shopping centers must have affected their satisfaction with the neighborhood. The residents liked their neighborhood facilities, but were dissatisfied with structure types, building features, housing conditions, and management.

Overall Housing Satisfaction

As presented in Table 6 and Figure 4, a substantial proportion (51.9%) of the respondents were dissatisfied with their housing, while more than one-third (39.9%) indicated they were satisfied with their housing.

Table 6
Responses to Overall Housing Satisfaction (n = 1,089)

Overall Satisfaction	n	%
Very Satisfied	53	4.9
Satisfied	380	35.0
Neither	89	8.2
Dissatisfied	386	35.6
Very Dissatisfied	177	16.3
Total	1,085	

Note. The number of respondents (n) may not add up to 1,089 due to missing values.

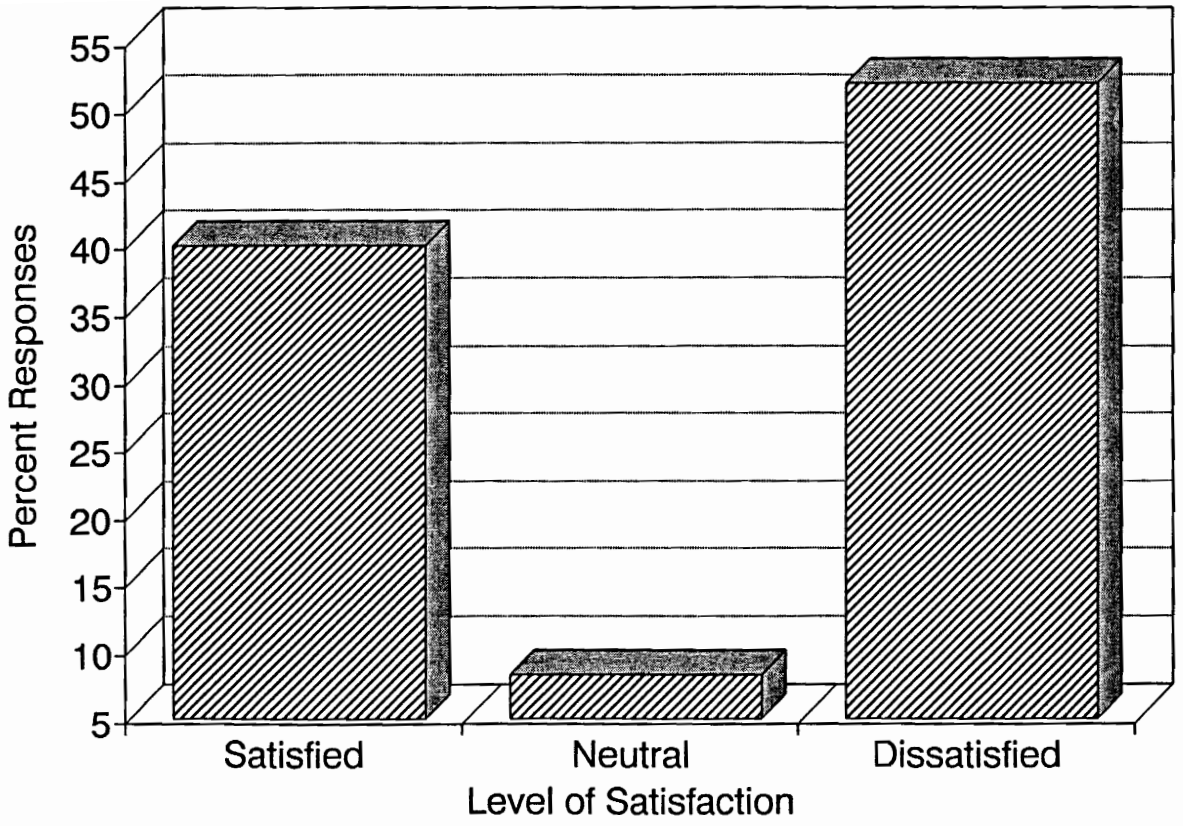

Figure 4. Overall Housing Satisfaction

Satisfaction Scores on Independent Variables

Table 7 shows the mean satisfaction scores for building features. The mean scores ranged from 1.74 (space for children to study) to 3.78 (location of kitchen) on a scale of 1 to 5, where a higher degree of satisfaction is indicated by higher mean score. Generally, the respondents indicated higher scores in only five variables: size of the living room (3.14), size of the kitchen (3.01), location of living room (3.38), location of kitchen (3.78), and location of stairs, if any, in the house (3.73). The mean satisfaction for the overall opinion on building features was 2.81 which indicates that more of the respondents were dissatisfied with building features than with any other housing characteristics except housing management with a mean of 2.52.

As shown in Table 8, the mean satisfaction scores on housing conditions appeared to be similar among the variables. The lowest mean score was for the functioning of the plumbing fixtures (2.20), while the highest was for the pressure of water (3.55). Higher mean scores on a scale (1= low to 5 = high) are associated with more satisfaction with housing conditions. The mean for the overall opinion on housing conditions was 2.85 which suggests that the respondents were dissatisfied with the housing conditions.

As reported in Table 9, the respondents reported high mean scores for most of the neighborhood facilities. The highest mean (3.95 on a scale of 1= low to 5 = high) was for neighbors. This implies that residents in public housing in Abuja appreciate the cultural lifestyles which encourage neighbors to be socially intimate and sensitive to neighbors' concerns. For example, it is culturally expected that a resident would always look after his or her

Table 7
Descriptive Statistics for the Satisfaction with Individual Building Features

Independent Variables	n	1	2	3	4	5	Mean	Std Dev
Location of stairs	402	32	37	21	230	82	3.73	1.13
Location of living room	1,033	143	156	47	543	144	3.38	1.28
Location of kitchen	1,063	183	159	49	528	147	3.28	1.34
Size of the living room	1,033	184	224	26	461	138	3.14	1.38
Size of the kitchen	1,072	227	223	49	458	115	3.01	1.38
Size of the bedrooms	1,085	210	282	44	442	107	2.96	1.36
Location of dining room	781	206	156	42	301	76	2.85	1.42
Size of wardrobes or closets	863	229	172	51	333	78	2.84	1.41
Overall opinion (single-item)	1,089	231	302	69	416	71	2.81	1.32
Number of wardrobes or closets	845	226	191	35	328	65	2.78	1.40
Size of the dining room	798	241	177	42	272	66	2.68	1.42
Number of bedrooms	1,075	369	288	34	314	70	2.47	1.38
Privacy within the house	1,054	433	219	40	289	73	2.38	1.42
Space for children to play inside the house	547	292	159	14	63	19	1.83	1.14
Space for children to study	516	286	158	7	48	17	1.74	1.08

Note. 1 = very dissatisfied, 2 = dissatisfied, 3 = either, 4 = satisfied, 5 = very satisfied. The number of respondents (n) may not add up to 1,089 due to missing values and variables not applicable.

Table 8

Descriptive Statistics for the Satisfaction with Individual Housing Conditions

Independent Variables	n	1	2	3	4	5	Mean	Std Dev
The water pressure	1,075	134	147	36	508	250	3.55	1.32
The quality of exterior construction	1,089	223	245	57	437	127	3.00	1.38
The quality of the walls	1,089	193	261	57	441	137	3.06	1.36
The quality of interior construction	1,088	215	271	49	444	109	2.96	1.36
The quality of the floors	1,088	223	282	45	413	125	2.94	1.38
Overall opinion (single-item)	1,086	175	368	73	395	75	2.85	1.29
The quality of the windows	1,087	235	327	48	384	93	2.79	1.35
The lighting of the stairwell	429	107	117	21	149	35	2.74	1.37
The quality of the interior painting	1,088	276	286	49	406	71	2.73	1.36
The quality of the exterior painting	1,089	284	304	55	375	71	2.67	1.35
The quality of the doors	1,088	320	369	33	290	76	2.48	1.34
The functioning of the plumbing fixtures	1,081	418	356	40	212	55	2.20	1.28

Note: 1 = very dissatisfied, 2 = dissatisfied, 3 = either, 4 = satisfied, 5 = very satisfied. The number of respondents (n) may not add up to 1,089 due to missing values and variables not applicable.

Table 9

Descriptive Statistics for the Satisfaction with Individual Neighborhood Facilities

Independent Variables	n	1	2	3	4	5	Mean	Std Dev
Your neighbors	1,085	48	78	57	602	300	3.95	1.01
Location of your house	1,084	108	118	34	601	223	3.66	1.21
Closeness to schools	1,056	105	126	49	550	226	3.63	1.22
Closeness to hospitals/clinics	1,083	145	177	48	514	199	3.41	1.32
Closeness to shops/markets	1,086	161	184	40	489	212	3.38	1.36
Overall opinion (single-item)	1,086	113	211	74	549	139	3.36	1.23
General cleanliness of the neighborhood	1,084	138	181	83	550	132	3.33	1.25
Physical condition and appearance	1,083	149	195	70	550	119	3.27	1.27
Closeness to friends and relatives	1,075	146	189	110	513	117	3.25	1.25
Landscape of the neighborhood	1,075	225	263	66	427	94	2.91	1.35
Public transportation and services	1,076	278	216	47	416	119	2.89	1.43
Closeness to work	1,088	262	277	35	369	145	2.87	1.44
Parking facilities for people living here	845	278	222	40	225	80	2.53	1.42
Police protection	1,073	372	272	62	295	72	2.46	1.38
Incidence of burglary activities	1,080	332	342	74	259	73	2.44	1.32
Closeness to recreational facilities	938	363	278	44	192	61	2.26	1.33

Note. 1 = very dissatisfied, 2 = dissatisfied, 3 = either, 4 = satisfied, 5 = very satisfied. The number of respondents (n) may not add up to 1,089 due to missing values and variables not applicable.

neighbor's children and property. The lowest score (2.26) was for closeness to recreational facilities. It is interesting to note that the Master Plan designated areas for open space, playgrounds, and parks, but some of those areas have been converted to building lots or used for building convenience stores for the neighborhoods. The mean score for the overall opinion on neighborhood facilities was 3.36. The respondents expressed satisfaction with most of the neighborhood facilities.

Table 10 shows the mean scores for the management. The highest mean score in the management section was 3.43 for the garbage collection system, while the lowest score was 1.66 for the FCDA management responses to necessary repairs. The residents' written comments (see Appendix F) revealed that the residents were really dissatisfied with the FCDA management response to maintenance and renovations of their houses. The mean for overall opinion of management was 2.52. Most of the items in this section had low mean scores indicating dissatisfaction. Thus, it is obvious that the residents were generally dissatisfied with the FCDA management. The dissatisfaction is attributed to lack of maintenance and the nonchalant attitudes of FCDA officials with regards to housing problems such as maintenance, and the allocation process confronting the residents (Appendix F). In addition, most of the respondents indicated in their written comments that the rents are expensive (Appendix F).

Summary

In summary, the majority of the households were headed by males 31 to 40 years of age. They were well educated and mainly senior civil servants

Table 10

Descriptive Statistics for the Satisfaction with Individual Management Procedures and Overall Housing Satisfaction

Independent Variables	n	1	2	3	4	5	Mean	Std Dev
Garbage collection system	1,028	138	182	38	442	228	3.43	1.36
Rent compared to comparable privately owned houses	1,063	263	221	52	367	160	2.94	1.46
Rules and regulations of the development	1,068	219	264	145	363	77	2.83	1.29
FCDA officials' treatment of residents	995	261	224	74	338	98	2.79	1.40
Amount of rent paid	1,069	295	241	57	340	126	2.77	1.45
Enforcement of rules	1,069	266	315	139	283	66	2.60	1.28
Overall opinion (single-item)	1,086	232	427	105	278	44	2.52	1.21
Handling of residents' complaints	1,030	470	366	56	106	32	1.87	1.09
Furnishing provided by the management	545	330	142	14	43	16	1.67	1.05
Management responds to necessary repairs	1,045	611	306	30	73	25	1.66	1.00
Overall housing satisfaction	1,085	177	386	89	380	53	2.77	1.23

Note: 1 = very dissatisfied, 2 = dissatisfied, 3 = either, 4 = satisfied, 5 = very satisfied.
The number of respondents (n) may not add up to 1,089 due to missing values and variables not applicable.

in various federal ministries and establishments. They had incomes between N10,000 and N20,999 per year (approximately U. S. $455 to $955). A high proportion of the respondents had a household size of more than four persons and had lived in Abuja for three or more years. Most respondents were renters in subsidized housing, who were assigned to their housing units based on availability of space. Most of the respondents reported high satisfaction scores for neighborhood facilities. On the other hand, the respondents reported low mean satisfaction scores for building features and housing conditions. Also, the FCDA management had the lowest mean satisfaction scores. Generally, the respondents expressed dissatisfaction with overall housing satisfaction which is consistent with previous studies conducted in Nigeria (Awotona, 1990; Muoghalu, 1984, 1991; Ozo, 1986, 1990).

Conversely, the level of dissatisfaction recorded in this study differed slightly from that found in studies of public housing in the United States (Lord & Rent, 1987; Rent & Rent, 1978; Weidemann, et al., 1982). The level of dissatisfaction was higher among residents of public housing in Abuja than what similar studies found among residents of public housing in United States. It is possible that at least part of the explanation could be attributed to the image of public housing, allocation process, maintenance, and sociopyschological aspects in both countries (Nigeria and United States).

Image of Public Housing

The image of public housing in Nigeria is different from the image in the United States. In the United States, public housing is regarded as shelter for the poor, which is provided by the government to house the low-income population (National Commission on Urban Problems, 1968). In Nigeria, it is

different; houses are provided by the government for all social strata (Federal Republic of Nigeria, 1991). In most situations the middle- and high-income groups dominate the scene. For example, the residents of the Lagos public housing estate, Festival Town, are largely middle- and high-income families (Awotona, 1984).

Allocation Process

In Abuja, Nigeria, public housing units were supposed to be allocated to civil servants based on their rank. When the ministries moved from Lagos to Abuja, the FCDA subdivided some of the housing units to different ministries for their workers. The ministries also were supposed to allocate these units to their staff according to their ranks. This did not happen. Allocation of housing units was done on the basis of who the residents knew or their relationships to the principal officers responsible for the allocation process (Appendix F). This irrational allocation process resulted in some civil servants occupying larger or smaller housing units than they were entitled to. Apparently, some of the high-income families might be assigned to housing meant for the low-income groups, while some families with lower incomes might occupy larger units because they knew the allocation officer. Obviously, these high-income families are most likely to express dissatisfaction with the housing units. For example, a resident said, "very poor housing situation because the method of allocation in Nigeria is not based on rank but on relations or otherwise Godfather. Some staff are living in two-bedroom flats while those qualified are left in under housed apartments." The residents' views are similar to research findings on housing allocation in Nigeria in which less than 20% of low-income families

did not benefit from the Nigerian mass housing distribution exercise for residents of public housing (Ogunshakin & Olayiwola, 1992).

In the United States the allocation of public housing is opened to the public and interested families apply. Qualified families are interviewed according to their position on the waiting list. For instance, in New York City, there is a waiting period but the process is orderly and well organized.

Maintenance

Moreover, the differences in the level of technology could be an attribute of the high level of dissatisfaction noted among Nigerian residents in public housing. In the United States, the advantage of technological know-how has contributed to their high response rate to maintenance problems in public housing. In Nigeria, most building materials used in construction are imported. A lack of basic technology to fix them in case of break downs is a problem, as reported by the residents in this study (Appendix F).

Sociopyschological Aspects

The disenchantment among Nigerians concerning the insensitivity of the government toward the plight of the people is quite high. Therefore, the dissatisfaction among the respondents in this study might be a result of their general dissatisfaction with the society and government as most residents noted in their comments (Appendix F). This general dissatisfaction might be partially directed to other aspects of life, including housing. In the United States, dissatisfaction among residents of public housing could be attributed to segregation of low-income families and the stereotypical "bad image" of the public housing.

Chapter V

FINDINGS AND DISCUSSION

The results of the statistical analysis of the six hypotheses are reported in this chapter. The chapter includes a discussion of the results and the proposed empirical model, and concludes with a summary. This study tested the following six hypotheses:

H_1: Overall satisfaction with structure type is associated with type of structure.

H_2: Overall satisfaction with building features is associated with satisfaction with individual building features.

H_3: Overall satisfaction with housing conditions is associated with satisfaction with individual housing conditions.

H_4: Overall neighborhood satisfaction is associated with satisfaction with various neighborhood facilities.

H_5: Overall satisfaction with housing management is associated with satisfaction with specific public housing management procedures.

H_6: Overall housing satisfaction is associated with:

(a) Demographic/socioeconomic characteristics of the residents.

(b) Overall satisfaction with various aspects of housing characteristics

In addition, the study examined the following research questions: (1) Is there a difference in the level of housing satisfaction among residents living in bungalows, townhouses, multifamily apartments, single-family houses, and room units?; (2) How satisfied are public housing residents with their building features? Does their satisfaction with building features affect their

overall housing satisfaction?; (3) How satisfied are public housing residents with their housing conditions? Does their satisfaction with housing conditions affect their overall housing satisfaction?; (4) How satisfied are public housing residents with the neighborhood facilities? Does their satisfaction with their neighborhood affect their overall housing satisfaction?; (5) How satisfied are the public housing residents with the management of Federal Capital Development Authority (FCDA)? Does their satisfaction with housing management affect their overall housing satisfaction?; and (6) What are the influences of the demographic/socioeconomic characteristics on overall housing satisfaction?

Test of Hypotheses

H_1: Overall satisfaction with structure type is associated with type of structure.

The residents' responses to how satisfied they feel about the type of house in which they live is broken out by the structure types as shown in Table 11, and graphically presented in Figure 5. A one-way analysis of variance, applied to the mean satisfaction scores, yielded significant differences ($F(4, 1078) = 36.32$, $p \leq .0001$; $MS_e = 1.48$). An application of the Tukey's HSD post hoc test indicated that the mean for the one/two-room units differed significantly ($p \leq .05$) from the means of the other structure types (bungalows, multifamily apartments, townhouses, and single-family houses). Residents of the room units were less satisfied than any other residents. By contrast, residents of single-family housing were

Table 11

Residents' Responses by Structure Types and Mean Satisfaction Level (n = 1,089)

Sructure types		1	2	3	4	5	Mean	Std. Dev.
Single-family (n=34)	n	5	7	0	17	5	3.29[a]	1.36
	%	14.7	20.6	0	50.0	14.7		
Townhouse (n=69)	n	5	25	7	24	8	3.07[a]	1.22
	%	7.2	36.2	10.1	34.8	11.6		
Bungalow (n=396)	n	65	120	23	156	32	2.92[a]	1.29
	%	16.4	30.4	5.8	39.4	8.1		
Multifamily (n=313)	n	48	100	20	130	15	2.89[a]	1.24
	%	15.3	31.9	6.4	41.5	4.8		
Room units (n=271)	n	113	110	8	36	4	1.92[b]	1.05
	%	41.7	40.6	3.0	13.3	1.5		

Note. 1= very dissatisfied, 2= dissatisfied, 3= neither, 4= satisfied, 5= very satisfied
Mean satisfaction scores with same superscripts are not significantly different from each other at the .05 level using Tukey's HSD.

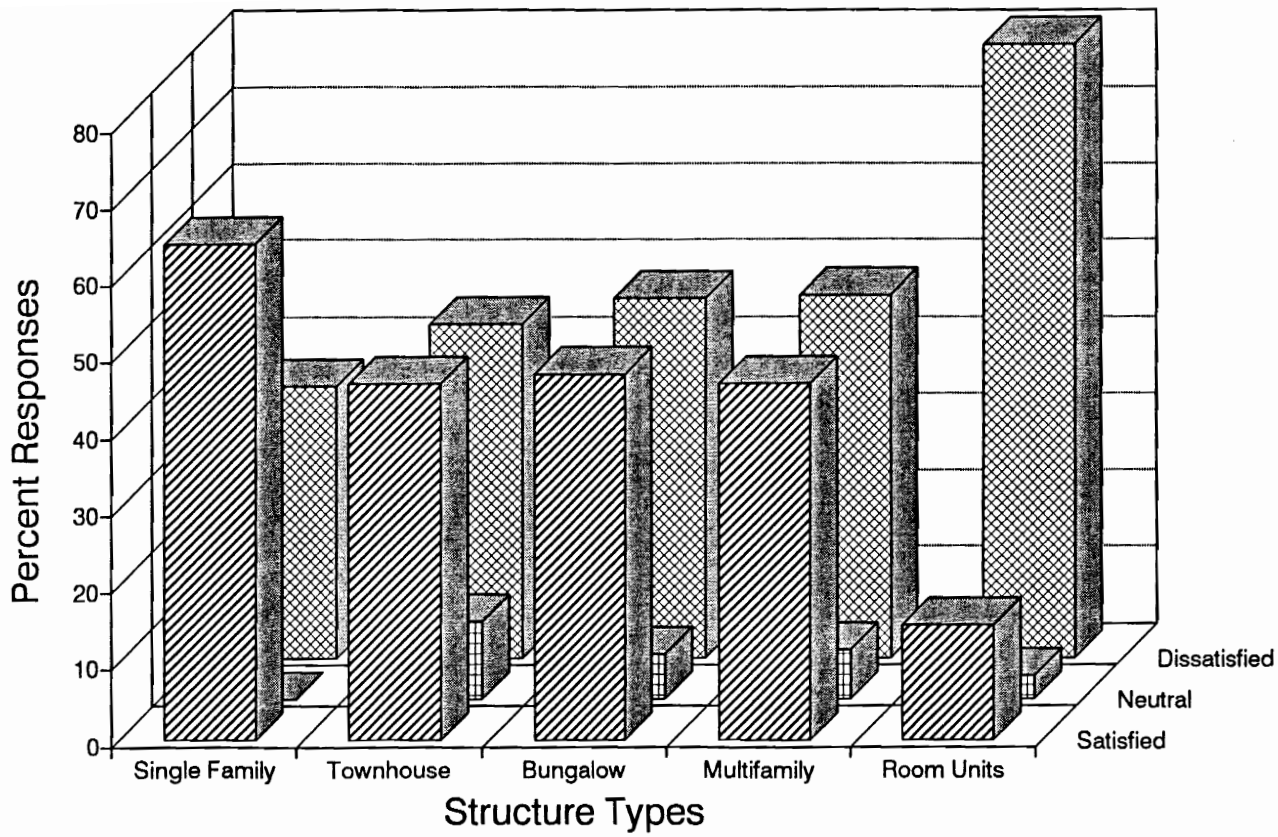

Figure 5. Satisfaction with Structure Type

the most satisfied with a mean equal to 3.29. However, not all differences are statistically significant. The findings support the hypothesized association between overall satisfaction with structure type and type of structure. It should be noted that the sample contained relatively few respondents living in single-family houses. Nonetheless, the number of respondents represented by each housing type is roughly proportional to the number in the population.

The results are consistent with the findings of other studies. Morris and Winter (1978) found that satisfaction with the dwelling unit is related to the type of dwelling structure. Residents derived the most satisfaction from living in single-family homes as compared to multifamily dwellings because of available amenities, such as room, privacy, and yard space (Morris & Winter, 1978; Rent & Rent, 1978). Also, findings suggest that satisfaction is related to structure types that have the basic features of a dwelling in contrast to a room unit.

The room units lack the basic features of a dwelling such as separate living room and bedroom, so the single room is being used as a multi-purpose space by the residents. Facilities such as kitchen, toilet, and bath are shared among the residents. As most of the respondents indicated in their written comments (see Appendix F), the lack of these basic features in the room units contributed to their dissatisfaction. Clearly, the room units did not fulfill the expectations of these residents and most likely are not an accepted housing norm, but since they have limited housing choices most residents occupy the room units with great reluctance.

H_2: Overall satisfaction with building features is associated with satisfaction with individual building features.

The 14 items measuring satisfaction with the individual building features were combined to form a composite index of building feature satisfaction. The composite score was computed as the average response taking into account non-responses. The non-responses also included not applicable responses which were eliminated and not used in the calculation. The mean and standard deviation for the composite index were 2.77 and 1.00, respectively, on a Likert scale (1= low to 5 = high). The Cronbach's alpha reliability estimate was .94. The composite scores correlated (r^a = .84) with the single-item measure of satisfaction. When corrected for attenuation due to unreliability of only the composite, the estimated correlation between true scores on the composite and the single-item responses was .87 (Crocker & Algina, 1986). Recognizing that the single-item responses are less than perfectly reliable, the estimated correlation between the true scores on both measures of satisfaction with building features would be higher than .87, suggesting a high level of concurrent validity for these two measures of satisfaction. It should be noted that the reliability coefficient for the composite index of building features was computed using item variances based on the number of respondents answering each of the 14 items.

Responses to the 14 building feature items were correlated with total scores on the composite as well as with responses to the single-item measure of building feature satisfaction. All of these coefficients are positive, as shown in Table 12. The size of the living room is most highly correlated (r^b = .69),

Table 12

Correlation of Responses to Individual Building Feature Items with Composite Index and Single-item Measure

Independent Variables	n/Item	r^a	r^b
Size of the bedroom	1,085	.74	.63
Size of the living room	1,033	.79	.69
Size of dining room	798	.75	.62
Size of wardrobes or closet	863	.72	.59
Size of the kitchen	1,072	.76	.64
Location of living room	1,033	.75	.58
Location of dining room	781	.73	.57
Location of kitchen	1,066	.72	.57
Location of stair, if any, in your house	402	.51	.35
Number of bedrooms	1,075	.69	.62
Number of wardrobes or closets	845	.69	.59
Space for children to study	516	.57	.46
Space for children to play inside the house	547	.60	.49
Privacy within the house	1,054	.70	.64
Overall opinion (single-item)	1,089	.84	

Note. All correlation coefficients were significant ($p \leq .01$).

n = Number of respondents may not add up to 1,089 due to missing values and variables not applicable

r^a: Coefficients with composite scores.

r^b: Coefficients with single-item measure.

with the single-item measure, followed by size of the kitchen (r^b = .64), and privacy within one's house (r^b = .63). Also, the correlations between the composite index and the individual building features were quite strong. The highest established correlation was for the size of the living room (r^a = .79). These associations have been found in earlier studies (Hall, 1976; Johnson & Abernathy, 1983; Williams, 1971). Privacy, size of bedroom and living room, and location of kitchen had all been found to be related to satisfaction (Kaitilla, 1993).

In response to research hypothesis (H_2), the 14 individual building features were entered into a stepwise (forward selection) multiple regression to predict the responses to the single-item overall measure of building feature satisfaction. As shown in Table 13, seven variables entered the regression equation. The relative importance of each variable in this association is indicated by the value of the beta weights. The highest beta weights were for the privacy within your house (β = 0.29), size of the living room (β = 0.22), size of the kitchen (β = 0.16), and number of bedrooms (β = 0.15). The seven variables predicted 68% (R^2 = .68) of the variance in the single-item indicator of satisfaction with building features. However, this analysis was based on only 213 respondents due to the large number of missing cases on selected items.

The findings suggest that residents living in housing in which privacy is ensured were most likely to be satisfied with building features. Moreover, those variables that entered the equation all reflect the amount of available living space (both size and number of rooms) with two exceptions -- the location of the kitchen and sense of privacy. Obviously, the larger the

Table 13

Regression Analysis of Individual Building Features on the Single-item Measure of Satisfaction with Building Features

Independent Variables	Seq. R^2	b	Beta	t-value	p-value
Privacy within the house	.43	0.27	0.29	5.86	≤ .0001
Size of the kitchen	.55	0.16	0.16	3.23	≤ .0014
Size of the living room	.61	0.24	0.23	4.82	≤ .0001
Number of wardrobes or closets	.64	0.12	0.14	2.76	≤ .0063
Number of bedrooms	.66	0.15	0.16	3.27	≤ .0013
Location of kitchen	.67	0.14	0.13	2.72	≤ .0071
Space for children to study	.68	0.13	0.12	2.65	≤ .0086

$R^2 = .68$

Adj. $R^2 = .67$

$F = 63.46$

df = 7/205

Note. Seq. R^2 = Sequential R^2

dwelling, the greater sense of privacy one can expect. Similarly, the fewer in the household, the greater sense of privacy and satisfaction among the members of the household. Moreover, the findings of this study indicated that each household had four or more persons living in various housing units of one- or two-bedroom. A respondent said "I am experiencing overcrowding and will like a bigger accommodation according to my status." Apparently, most households were dissatisfied due to overcrowding as they indicated in their written comments (Appendix F).

Literature reveals that privacy has social and psychological implications to daily life (Lawrence, 1987). Privacy creates an opportunity for a household member to perform activities within the house without invasion by other members of the family. Although privacy is related to the socio-cultural norms of any society, residents in housing with good privacy are more likely to demonstrate higher satisfaction.

Also, the location of the kitchen is critically important in the design of houses in relation to user needs. Based on their comments, the location of the kitchen outside the housing units contributed to the high level of dissatisfaction among the residents. One resident said "the design of the house is not the best for any body because the designers cannot live in them for one day." Michelson (1968) challenged architects who argued that occupants lack the knowledge to distinguish between good and bad design and it is no use to consider their preference and satisfaction. Clearly, this is true with reference to public housing in Abuja, because it appears that there was no consideration for the users' preference in planning and designing these housing units.

Table 14 presents the second analysis in which several variables were eliminated from this regression analysis. Eliminated were those items which were not applicable to all housing types such as size of dining room, size of wardrobes or closets, location of dining room, location of stairs, number of wardrobes or closets, space for children to study, and space for children to play inside the house. The remaining seven variables were entered in a stepwise (forward selection) multiple regression to predict satisfaction with single-item overall measures of building features. The results of this analysis were based on 1,000 respondents due to a few missing cases. Six variables predicted 70% ($R^2 = 0.70$) of the variance in the single-item measure of satisfaction. Five of the six variables in the second analysis appear in Table 12 (first analysis) with the exception of size of bedrooms.

The contrast shows that under normal circumstances the two variables (number of wardrobes or closets and space for children to study) which appeared in Table 13 would explain satisfaction with building features more than the size of the bedrooms. Further, the two analyses suggest that satisfaction is in large part defined by living space, whether expressed as size or number of rooms. The results of the study support the hypothesized association between individual building features and overall satisfaction with building features. However, the most important individual building features that contributed to overall satisfaction with building features were privacy, size of both kitchen and living room, number of bedrooms and wardrobes, and location of kitchen.

Table 14

Regression Analysis of Selected Individual Building Features on the Single-item Measure of Satisfaction with Building Features

Independent Variables	Seq. R^2	b	Beta	t-value	p-value
Size of the living room	.48	0.24	0.25	9.19	≤ .0001
Privacy within the house	.62	0.25	0.27	12.81	≤ .0001
Number of bedrooms	.66	0.19	0.20	9.20	≤ .0001
Size of the kitchen	.69	0.15	0.16	6.35	≤ .0001
Size of the bedrooms	.69	0.11	0.11	4.23	≤ .0001
Location of the kitchen	.70	0.09	0.09	3.65	≤ .0003
$R^2 = .70$					
Adj. $R^2 = .69$					
$F = 377.48$					
df = 6/993					

Note. Seq. R^2 -- Sequential R^2.
Selected individual building features were items common to most structure types

H3: Overall satisfaction with housing conditions is associated with satisfaction with individual housing conditions.

The 11 items measuring satisfaction with individual housing conditions were combined to form a composite index of satisfaction with housing conditions. The composite score was computed as the average of the individual items, ignoring items for which there was no response. The non-responses also included not applicable responses which were not used in the calculation. The mean and standard deviation for the composite were 2.82 and 0.92, respectively, on a Likert scale (1 = low to 5 = high). The Cronbach's alpha reliability estimate was .88. The composite score correlated (r^a = .77) with the single-item measure of satisfaction. When corrected for attenuation due to unreliability of only the composite, the correlation between the composite and the single-item responses was estimated to be .82 (Crocker & Algina, 1986). Recognizing that the single-item responses are less than perfectly reliable, the estimated correlation between true scores on both measures of satisfaction with housing conditions would be higher than .82, suggesting a high level of concurrent validity for these two measures of satisfaction. It should be noted that the reliability coefficient for the composite index of housing conditions was computed using item variances based on the number of respondents answering each of the 11 items.

The correlations between the 11 items measuring satisfaction with individual housing conditions and the two overall measures of satisfaction with housing conditions (composite index and single-item) are presented in Table 15. All coefficients were positive and significant ($p \leq .01$). The quality

Table 15

Correlation of Responses to Individual Housing Condition Items with Composite Index and Single-item Measure

Independent Variables	n/Item	r^a	r^b
The quality of exterior construction	1,089	.77	.62
The quality of interior construction	1,088	.78	.66
The quality of the floors	1,088	.72	.55
The quality of the walls	1,089	.77	.60
The quality of the windows	1,087	.71	.52
The quality of doors	1,088	.68	.52
The quality of the exterior painting	1,089	.74	.57
The quality of the interior painting	1,088	.75	.55
The functioning of the plumbing	1,081	.55	.43
The water pressure	1,075	.44	.32
The lighting of the stairwell	429	.43	.30
Overall opinion (single-item)	1,088	.77	

Note. All correlation coefficients were significant ($p \leq .01$).

n = Number of respondents may not add up to 1,089 due to missing values and variables not applicable

r^a: Coefficient with composite index.

r^b: Coefficient with single-item measure.

of the interior construction is the most highly correlated variable (r^b = .66) with the single-item measure of satisfaction, followed by the quality of the exterior construction (r^b = .62), and the quality of the walls (r^b = .60). Also, the correlations between the composite index and the individual housing conditions were positive. The quality of the interior construction recorded the highest correlation (r^a = .78). The results of the correlation analysis note that the higher the quality of the individual housing conditions, the greater the satisfaction the residents would experience in these housing units.

The 10 individual item responses were entered in a stepwise (forward selection) multiple regression to predict the single-item overall measure of satisfaction with housing conditions. Stairwell lighting was removed since this building feature is not common to all structure types (bungalows and room units). As shown in Table 16, nine variables entered the regression equation. The highest beta weights were for the quality of interior construction (β = 0.26), the quality of the exterior painting (β = 0.18), and the functioning of the plumbing fixtures (β = 0.13). These nine variables predicted 61% (R^2 = .61) of the variance in the single-item indicator of satisfaction with housing conditions.

The results indicate that residents living in public housing in which the interior spaces were carefully finished were most likely to be satisfied with the housing conditions. In addition, aesthetic qualities, durability, and the functionality of various services are determinants of satisfaction with housing condition.

Satisfaction has been associated with the quality of the housing units in previous studies (Lord & Rent, 1987; Muoghalu, 1991; Ozo, 1986). Based on

Table 16

Regression Analysis of Individual Housing Conditions on the Single-item Measure of Satisfaction with Housing Conditions.

Independent Variables	Seq. R^2	b	Beta	t-value	p-value
The quality of interior construction	.44	0.24	0.26	8.14	≤ .0001
The quality of the exterior painting	.52	0.17	0.18	7.22	≤ .0001
The functioning of the plumbing fixtures	.55	0.13	0.13	6.05	≤ .0001
The quality of the doors	.58	0.10	0.11	4.36	≤ .0001
The quality of walls	.59	0.09	0.10	3.27	≤ .0011
The water pressure	.60	0.08	0.08	3.93	≤ .0001
The quality of exterior construction	.60	0.10	0.11	3.42	≤ .0007
The quality of the floor	.60	0.07	0.08	2.95	≤ .0032
The quality of the windows	.61	0.06	0.06	2.48	≤ .0133

$R^2 = .61$

Adj. $R^2 = .60$

$F = 182.15$

df = 9/1063

Note. Seq. R^2 -- Sequential R^2.

the evidence from these findings, the hypothesized association was clearly supported. Satisfaction with the individual housing conditions is strongly related to overall satisfaction with housing conditions. The quality of construction and painting contributed the most in explaining satisfaction with housing condition, while quality of the floor and windows had little effect.

H4: Overall neighborhood satisfaction is associated with satisfaction with various neighborhood facilities.

The 15 items measuring satisfaction with individual neighborhood facilities were combined to form a composite index of neighborhood facilities satisfaction. The composite score was computed as the average response to the individual items ignoring items for which there was no response. The non-responses also included not applicable responses which were not used in the calculation. The mean and standard deviation for the composite were 3.10 and 0.74, respectively, on a Likert scale (1 = low to 5 = high). The Cronbach's alpha reliability estimate was .86. The composite score correlated ($\underline{r}^a$ = .76) with the single-item measure of satisfaction with neighborhood facilities. When corrected for attenuation due to unreliability of only the composite, the correlation between true scores on the composite and the single-item responses was estimated to be .82 (Crocker & Algina, 1986). Recognizing that the single-item responses are less than perfectly reliable, the estimated correlation between true scores on both measures of satisfaction with neighborhood facilities would be higher than .82, suggesting a high level

of concurrent validity for these two measures of satisfaction. It should be noted that the reliability coefficient of the composite index of the neighborhood facilities was computed using item variances based on the number of respondents answering each of the 15 items.

The correlation between the 15 individual neighborhood facilities and the two overall measures of satisfaction with neighborhood facilities (composite index and single-item) are shown in Table 17. All the correlation coefficients are positive, with the closeness to work and cleanliness of the neighborhood equal in magnitude (r^b = .52). Also, closeness to work recorded the highest correlation with the composite index (r^a = .68).

In response to research hypothesis (H_4), the 13 variables were entered in a stepwise (forward selection) multiple regression to predict the single-item overall measure of satisfaction with neighborhood facilities. Two variables (closeness to recreational and parking facilities) were removed because they were not provided in most of the neighborhoods. As presented in Table 18, 12 variables entered the regression equation. The results of the analysis revealed that the single-item measure of satisfaction with neighborhood facilities was largely predicted by the general cleanliness of the neighborhood (β = 0.16), and closeness to work (β = 0.14). The 12 variables predicted 58% (R^2 = .58) of the variance in the single-item indicator of satisfaction with neighborhood facilities.

The findings suggest that residents' satisfaction with neighborhood facilities were mainly determined by their feelings about their neighborhood as being clean and safe with pleasant neighbors, providing opportunities for shopping, and being accessible to work. In addition, the availability of public

Table 17.

Correlation of Responses to Individual Neighborhood Facilities with Composite Index and Single-item Measure

Independent Variables	n/Item	r^a	r^b
Location of your house	1,084	.58	.47
Closeness to work	1,088	.68	.52
Closeness to shops/markets	1,086	.67	.50
Closeness to schools	1,056	.66	.46
Closeness to hospital/clinics	1,083	.65	.45
Closeness to recreational facilities	938	.62	.40
Closeness to friends and relatives	1,075	.51	.38
Parking facilities for people living here	845	.51	.39
Public transportation facilities and services	1,076	.64	.47
Physical condition and appearance	1,083	.59	.48
Police protection	1,073	.46	.32
Incidence of burglary activities	1,080	.41	.28
The landscape of the neighborhood	1,075	.55	.47
General cleanliness of the neighborhood	1,084	.57	.52
Your neighbors	1,085	.35	.33
Overall opinion (single-item)	1,086	.76	

Note. All correlation coefficients (r^a and r^b) were significant ($p \leq .01$)

n = Number of respondents may not add up to 1,089 due to missing values and variables not applicable

r^a: Coefficient with composite index

r^b: Coefficient with single-item

Table 18

Regression Analysis of Individual Neighborhood Facilities on the Single-item Measure of Satisfaction with Neighborhood Facilities

Independent Variables	Seq. R^2	b	Beta	t-value	p-value
Closeness to work	.27	0.12	0.14	5.06	≤ .0001
General cleanliness of the neighborhood	.42	0.16	0.16	6.12	≤ .0001
Closeness to shop/markets	.47	0.12	0.13	4.74	≤ .0001
The landscape of the neighborhood	.49	0.12	0.13	5.69	≤ .0001
Police protection	.52	0.08	0.09	3.80	≤ .0002
Your neighbors	.54	0.15	0.13	5.79	≤ .0001
Location of the house	.55	0.11	0.10	4.33	≤ .0001
Public transportation facilities and services in the neighborhood	.56	0.08	0.09	3.83	≤ .0001
Closeness to friends and relatives	.57	0.09	0.09	4.18	≤ .0001
Physical condition and appearance	.58	0.10	0.10	3.92	≤ .0001
Closeness of hospitals/clinics	.58	0.07	0.08	3.04	≤ .0024
Incidence of burglary activities	.58	0.06	0.07	2.80	≤ .0053
R^2 = .58					
Adj. R^2 = .58					
F = 120.64					
df = 12/1029					

Note. Seq. R^2 -- Sequential R^2.

transportation and parking facilities were other factors which determined satisfaction with neighborhood facilities. However, the residents' satisfaction with neighborhood facilities might be a result of their living in neighborhoods where facilities and infrastructures (pipe borne water and roads) were recently completed. In contrast, most Nigerian cities not only suffer from inadequate social infrastructures, but basic facilities are practically non-existent in areas inhabited by low- and moderate-income groups (Ogunshakin & Olayiwola, 1992).

Research in this area has shown that residents' safety, location in relation to work, shopping, and public transportation, and security within the neighborhood predict high levels of satisfaction (Awotona, 1990). The results of this study support these findings. The results also indicate that satisfaction with neighborhood facilities was related to the residents' satisfaction with their neighbors. The more satisfied they were with their neighbors, the more likely they were to express a high degree of satisfaction with the neighborhood. Finally, the findings indicate that strong relationships exist between satisfaction with neighborhood facilities and overall neighborhood satisfaction. The cleanliness of the neighborhood and proximity to work are determinants of neighborhood satisfaction, whereas closeness to health centers and incidence of burglary activities had minimal effect on residents' satisfaction with neighborhood. The proximity to the health centers had little effect on the residents' satisfaction because of the perpetual lack of drugs in the hospital as they noted in their comments (Appendix F). The physical presence of the hospitals in the neighborhoods psychologically affect the

residents' satisfaction, but in reality the residents were dissatisfied with lack of drugs and poor health care management.

H_5: Overall satisfaction with housing management is associated with satisfaction with specific public housing management procedures.

The nine items measuring satisfaction with the individual FCDA management were combined to form a composite index of management satisfaction. The composite score was computed as the average response to the individual items ignoring items for which there was no response. The non-responses also include not applicable responses which were not used in the calculation. The mean and standard deviation for the composite were 2.56 and 0.81, respectively, on a Likert scale (1 = low to 5 = high). The Cronbach's alpha reliability estimate was .81. The composite score positively correlated ($\underline{r}^a$ = .75) with the single item measure of satisfaction. When corrected for attenuation due to unreliability of only the composite, the correlation between true scores on the composite and the single-item responses was estimated to be .83 (Crocker & Algina, 1986). Recognizing that the single-item responses are also less than perfectly reliable, the estimated correlation between true scores on both measures of satisfaction with management would be higher than .83, suggesting a high level of concurrent validity for these two measures of satisfaction. It should be noted that the reliability coefficient for the composite index of management was computed using item variances based on the number of respondents answering all nine items.

Responses to the nine management items were correlated with the two overall measures (composite index and single-item) of satisfaction with management. Table 19 presents the coefficients, which are all positive. The way rules are enforced recorded the highest correlation ($r^b = .56$), with the single-item measure of satisfaction with management, followed by the rules and regulations of the development ($r^b = .53$). The amount of rent paid was highly correlated ($r^a = .69$) with the composite index.

In response to the research hypothesis (H_5), the eight individual management responses were entered in a stepwise (forward selection) multiple regression to predict the single-item overall measure of satisfaction with management. Furnishings provided by the management was removed from the equation because furnishings were not provided to most residents. All the variables entered the regression equation. As shown in Table 20, the highest beta weights were for the way the officials of the FCDA treat residents when they visit their house ($\beta = 0.26$), the amount of rent paid ($\beta = 0.20$) and the rules and regulations of the development ($\beta = 0.18$).

The eight variables predicted 60% ($R^2 = .60$) of the variance in the single-item indicator of satisfaction with management. The findings suggest that the FCDA's housing management policies and personnel attitudes toward residents are important factors in predicting satisfaction with management. The results indicate that a sense of satisfaction is reflected when the rent paid in these public housing units is commensurate with the services provided. Public housing rents are basically the residents' housing allowances which have been calculated as certain percentages of salaries.

Table 19

Correlation of Responses to Individual Management Items with Composite Index and Single-item Measure

Independent Variables	n/item	r^a	r^b
Management response to necessary repairs	1,045	.55	.41
Rent compared to comparable privately owned houses	1,063	.67	.47
Amount of rent paid	1,059	.69	.49
Furnishing provided by the management	545	.53	.37
Garbage collection system	1,028	.51	.36
Rules and regulations of the development	1,068	.67	.53
Enforcement of rules	1,069	.68	.56
Handling of residents' complaints	1,030	.60	.47
FCDA officials' treatment of residents	995	.58	.52
Overall opinion (single-item)	1,087	.75	

Note. All correlation coefficients (r^a and r^b) were significant ($p \leq .01$).

n = Number of respondents may not add up to 1,089 due to missing values and variable not applicable.

r^a: Coefficient with the composite index.

r^b: Coefficient with the single-item.

Table 20.

Regression Analysis of Management Items on the Single-item Measure of Satisfaction with Management

Independent Variables	Seq. R^2	b	Beta	t-value	p-value
Enforcement of rules	.31	0.16	0.17	5.76	≤ .0001
Amount of rent paid	.43	0.17	0.20	5.20	≤ .0001
FCDA officials treatment of residents	.52	0.22	0.26	10.87	≤ .0001
Handling of residents' complaints	.55	0.14	0.13	5.03	≤ .0001
Rules and regulations of the development	.57	0.17	0.18	6.25	≤ .0001
Garbage collection system	.59	0.11	0.13	5.80	≤ .0001
Management responds to necessary repairs	.60	0.11	0.09	3.54	≤ .0004
Rent compared to comparable privately owned houses	.60	0.07	0.08	2.20	≤ .0277

$R^2 = .60$
Adj. $R^2 = .59$
$F = 174.82$
df = 8/942

Note. Seq. R^2 -- Sequential R^2.

The junior staff receive approximately 56% of the monthly salary as housing allowance, while senior staff receive 50% (E. Etuk, personal communication, April 24, 1995). Allowances are regarded as rent subsidies to enable civil servants to afford housing in the private sector or to improve their housing conditions. Thus, those who are provided with public housing forfeit these monthly allowances. Results of this study suggest that the residents in public housing felt that housing allowances they forfeit are too much for the housing types in which they live and for the services that are being offered to them.

Attributes of management, such as rules enforced and complaints handled, had been identified as important variables in earlier studies on housing satisfaction (Anthony, Weidemann, & Chin, 1990; Awotona, 1990; Burby & Rohe, 1989; Francescato et al., 1979; Ozo, 1990). These were also important in explaining satisfaction with management in this study. Management attributes (the way the officials of the FCDA treat residents when they visit their homes) seem to be of concern to most residents. The researcher gathered that the housing inspectors who respond to maintenance requests or check for illegal occupants treat residents rudely. Also, dissatisfaction with the management seems to be associated with respondents who rely on the FCDA management to handle maintenance requests.

Moreover, according to their written comments (Appendix F) it appears that the FCDA management has failed to establish policies and necessary procedures which would reinforce regulations and encourage orderly environments. Also, the comments pointed out the inefficiency of the management in allocating the public housing according to the regulations

of the federal government. The ineffective allocation process had resulted in senior officers occupying housing units meant for junior officers and vice versa. Thus, the FCDA housing management procedures have been instrumental in causing the high level of dissatisfaction noted in this study.

H_6: Overall satisfaction is associated with:

(a) Demographic/socioeconomic characteristics of the residents.

(b) Overall satisfaction with various aspects of housing characteristics.

The correlations between overall housing satisfaction and a) demographic/socioeconomic characteristics of the residents, and b) the single-item measures of satisfaction with various aspects of the housing characteristics are shown in Table 21 and 22. Socioeconomic status (rationale for assigning the housing units) had the highest correlation (r = .19) with overall housing satisfaction, followed by age (r = .14). Rank in work place and education were equal in magnitude (r = .09). Residents with higher education who are senior officers and assigned to housing units based on socioeconomic status expressed a higher level of overall housing satisfaction. The male residents were more dissatisfied than the female residents. Older residents were more satisfied with their housing situation than the younger residents. Conversely, younger and poorer residents felt the greatest dissatisfaction.

Presented in Table 22 are the correlations between overall housing satisfaction and the single-item measures of satisfaction. Building features had the highest correlation (r = .59) with the overall housing satisfaction, followed by management (r = .56). Also table 23 illustrates that the composite

Table 21

Correlation Matrix of Demographic/Socioeconomic Characteristics with Overall Housing Satisfaction

	Male	Age	Edu	Emp	Rnk	Inco	Leng	Peo	Spac	Soci	Fsize	Over
Male	1											
Age	-.26	1										
Edu	.01	.10[b]	1									
Emp	.00	-.01	.06	1								
Rnk	-.01	.28[b]	.63[b]	.07[a]	1							
Inco	.03	-.01	-.22[b]	-.01	-.39[b]	1						
Leng	-.06[a]	.20[b]	-.10[b]	-.05	.01	-.05	1					
Peo	-.01	.28[b]	.06[a]	.01	.15[b]	-.03	.30[b]	1				
Spac	-.04	-.06	.04	-.02	.04	-.04	.03	-.05	1			
Soci	.04	.02	-.08[a]	-.04	-.09[a]	.08[a]	-.04	-.00	-.89[b]	1		
Fsize	-.01	.05	.02	-.02	.06	-.05	.03	.04	-.16[b]	-.12[b]	1	
Over	-.02	.14[b]	.09[a]	.03	.09[a]	-.01	.03	.06	-.21[b]	.19[b]	.09[a]	1

Note. [a]Correlation coefficients were significant ($p \leq .05$)

[b]Correlation coefficients were significant ($p \leq .01$)

Edu -- education, Emp -- employment, Rnk -- rank, Inco -- income, Length -- length of stay, People -- household size, Spac -- availability of space, Soci -- socio-economic status, Fsize -- family size, Over -- overall housing satisfaction.

Table 22

Correlation Matrix of Single-item Measures of Various Housing Characteristics with Overall Housing Satisfaction

	SATH	SINGBF	SINGHC	SINGNF	SINGMG	OVER
SATH	1					
SINGBF	.61	1				
SINGHC	.44	.48	1			
SINGNF	.32	.36	.31	1		
SINGMG	.33	.32	.31	.36	1	
OVER	.54	.59	.55	.47	.56	1

Note. All correlation coefficients were significant ($p \leq .01$)

SATH = Single-item measure of satisfaction with structure type

SINGBF = Single-item measure of satisfaction with building features

SINGHC = Single-item measure of satisfaction with housing conditions

SINGNF = Single-item measure of satisfaction with neighborhood facilities

SINGMG = Single-item measure of satisfaction with management

OVER = Overall housing satisfaction.

Table 23

Correlation Matrix of Composite Index Measures of Various Housing Characteristics with Overall Housing Satisfaction

	Sath	Compbf	Comphc	Compnf	Compmg	Over
Sath	1					
Compbf	.64	1				
Comphc	.47	.55	1			
Compnf	.39	.45	.46	1		
Compmg	.39	.47	.51	.53	1	
Over	.54	.62	.55	.49	.59	1

Note: All correlation coefficients were significant ($p \leq .01$)

Sath = Satisfaction with structure type

Compbf = Composite index of satisfaction with building features

Comphc = Composite index of satisfaction with housing conditions

Compnf = Composite index of satisfaction with neighborhood facilities

Compmg = Composite index of satisfaction with management

Over = Overall housing satisfaction

index measures of building features and management established the high correlation ($\underline{r}$ = .62 and $\underline{r}$ = .59) with the overall housing satisfaction. These results indicate that residents in public housing with adequate building features and well-organized management procedures tend to report high levels of housing satisfaction.

In response to research hypothesis (H_{6a} and $_b$) the overall housing satisfaction was regressed on both the demographic/socioeconomic characteristics and the single-item measures of satisfaction. Table 24 shows the results of the block entry forward selection multiple regression to predict overall housing satisfaction. Three of the demographic/socioeconomic characteristics variables were entered in block 1 and explained only 7% (R^2 = .07) of the variance in the overall housing satisfaction. This result indicates that demographic/socioeconomic characteristics had little effect in explaining overall housing satisfaction of the residents. All of the five single-item measures of satisfaction entered in the second block and the R^2 increased from .07 to .59.

The highest beta weights for the demographic characteristics were for availability of space as the rationale for assigning residents to housing units (β = -0.21), and age (β = 0.12). The results reveal that demographic/ socioeconomic characteristics have minimal effect on the satisfaction with housing, but older respondents and those with higher levels of education tend to report somewhat higher levels of housing satisfaction in public housing. Nonetheless, the level of overall housing satisfaction is most likely to decrease when the rationale for assigning the housing units is based on the availability of space.

Table 24

Regression Analysis of Single-item Measures and Demographic/ Socioeconomic Characteristics on the Overall Housing Satisfaction (Empirical Model)

Independent Variables	Seq. R^2	b	Beta	t-value	p-value
Block 1					
Availability of space	.04	- 0.51	- 0.21	- 7.00	.0001
Age	.06	0.11	0.12	3.91	.0001
Education	.07	0.08	0.09	2.96	.0031
$R^2 = 0.07$					
Adj. $R^2 = 0,06$					
$F = 25.77$					
df = 3/1071					
Block 2					
Overall satisfaction with building features	.36	0.22	0.23	8.66	.0001
Overall satisfaction with management	.51	0.31	0.30	13.75	.0001
Overall satisfaction with housing conditions	.56	0.22	0.23	9.80	.0001
Overall satisfaction with neighborhood facilities	.58	0.16	0.16	7.09	.0001
Overall satisfaction with structure types	.59	0.13	0.14	5.25	.0001
$R^2 = .59$					
Adj. $R^2 = .59$					
$F = 192.96$					
df = 8/1066					

Note. Seq. R^2 -- Sequential R^2.

With regard to the single-item measures, the variable that contributed most to the explanation of variation in overall housing satisfaction was management ($\beta = 0.30$). In addition, overall satisfaction with building features as well as housing conditions were largely predictive of overall housing satisfaction. The combination of the demographic/socioeconomic characteristics and five single-item measures of various housing characteristics explained 59% of the variance in overall housing satisfaction. The findings suggest that the five single indicators (overall satisfaction with building features, management, housing conditions, neighborhood facilities, and structure types) contributed significantly to the prediction of overall housing satisfaction.

The effect of demographic/socioeconomic characteristics on housing satisfaction is consistent with some previous research. Johnson and Abernathy (1983) found that the individual features of housing characteristics other than demographics seemed most important in explaining housing satisfaction. The sample in this study lacked the variation in demographic characteristics as demonstrated by Morris and Winter (1978) who noted that demographics may have an indirect influence on housing satisfaction.

In contrast, Onibokun (1976) noted that there was no significant association between age of respondents and their relative satisfaction with public housing. However, in this study, despite the minimal effect of demographics, a significant association was found between age and residents' satisfaction.

Empirical Model

Cultural deficits in space, tenure, and structure type have been found to explain satisfaction greater than the joint effect of five (stage of the family life cycle, income, occupation, education, and family structure) household characteristics (Morris, 1976). Figure 6 presents the proposed empirical model based on the beta weights from the regression analysis. The hypothesized relationships between satisfaction with specific housing deficits, housing management, satisfaction with housing characteristics, and overall housing satisfaction are shown in the empirical model. The figure also illustrates the relationship between demographic/socioeconomic characteristics and overall housing satisfaction as well as the direct and indirect relationships.

Direct Relationships

Satisfaction with specific housing deficits has both direct and independent influence on satisfaction with various housing characteristics. The model established that the single-item measure of satisfaction with individual structure type (bungalows, townhouse, multifamily apartments and single-family dwelling units) is directly associated with overall satisfaction with structure type. Satisfaction with individual building features (size of living room, privacy, size and number of bedrooms, size and location of kitchen) had direct effect on overall satisfaction with building features.

Also, satisfaction with individual housing conditions (quality of interior and exterior construction, doors, walls, floor, windows, exterior painting, functioning of the plumbing fixtures, and water pressure) had a strong effect on overall satisfaction with housing conditions. Satisfaction with individual neighborhood facilities (closeness to work, shop/markets,

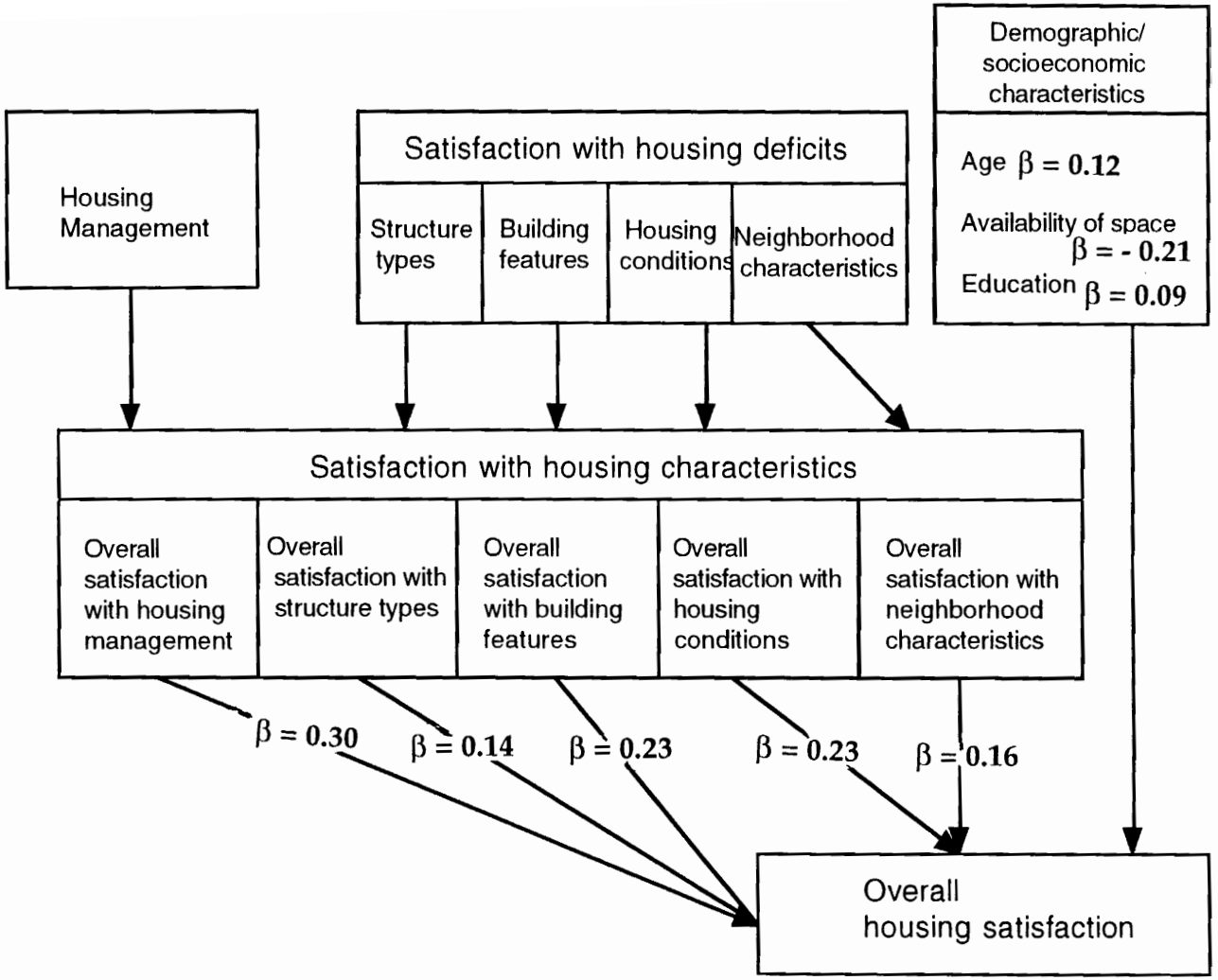

Figure 6. Proposed Empirical Model of Housing Satisfaction

friends and relatives, hospitals/clinics, cleanliness and landscaping of the neighborhood, location of the house, public transportation facilities, physical condition and appearance, incidence of burglary activities, police protection, and the neighbors) are strongly related with overall satisfaction with neighborhood facilities.

The model further demonstrated that satisfaction with individual housing management procedures (enforcement of rules, amount of rent paid, FCDA officials' treatment of residents, handling of residents' complaints, rules and regulations of the development, garbage collection system, management response to repairs, rent compared to comparable privately owned houses) had an independent influence on overall satisfaction with housing management.

Moreover, the satisfaction with various housing characteristics (overall satisfaction with: structure types, building features, housing conditions, neighborhood facilities, and housing management procedures) is directly related to overall housing satisfaction. Demographic/socioeconomic characteristics (age, education, assignment of space) had direct influence on overall housing satisfaction.

Indirect Relationships

The model suggests that indirect relationships exist between satisfaction with specific housing deficits, and housing management and overall housing satisfaction through satisfaction with various housing characteristics. The indirect relationships have not been tested.

Housing Norms

In the United States housing norms (tenure, structure type, space, quality and expenditure, and neighborhood) have shown great influence on housing satisfaction (Morris & Winter, 1978). These norms cut across each culture or society, and are somewhat similar to Nigeria.

Structure Type

In Nigeria the structure type is related to the cultural norms, income, and socioeconomic status of the people within the geographical location. The nature of the housing types and architectural forms in various regions has a positive relationship to the indigenous culture and to some extent satisfies the users' needs in those localities. In the urban centers, the architectural forms have been influenced by Western culture. Structure types reflect similar types in developed nations such as single-family dwelling, flat or apartment units, and rooming houses. This study has shown that structure types (bungalows, townhouses, multifamily apartments, and single-family dwellings) are strongly related to housing satisfaction. The results suggest that residents of the single-family houses had the highest mean score satisfaction.

Similarly, in the United States the normative structure type is the single-family detached home with yard space. The single-family house has the lowest density. Other types (apartments or single-family attached units/townhouses) with higher density are acceptable alternatives for young families living in urban areas. Research has shown that townhouse residents express more satisfaction than the residents of apartments (Johnson & Abernathy, 1983). Low-income families preferred single-family houses or

apartments of moderate density with amenities such as privacy, protection, and outdoor space as well as the option to purchase the dwelling units (Williams, 1971).

This is true also for families in this study. The residents in public housing in Abuja expressed their aspirations, desires, and preferences for single-family housing, or housing units with more than one bedroom, and indicated their desire to live in these housing units with the option to purchase them (written comments in Appendix F).

Space Norms

Nigerian cultural norms allow sharing of space among family members/relations to some extent. However, residents of public housing in Nigeria may share their bedrooms with spouse and children and their relatives or friends, not because they do not recognize the importance of privacy, but because they have no alternative. This study noted that residents expressed dissatisfaction with the size and number of bedrooms, privacy, size of the living room, and size and location of kitchen. Obviously, the larger the dwelling units, the greater the sense of privacy and satisfaction.

In the United States, living room, bedrooms, and kitchen are the norms, and the primary source of a space deficit. Generally, there is bedroom space for parents and appropriate bedrooms for children or other relatives. Sharing of space is acceptable for children of a certain age and sex, but most do not share bedrooms after an early age. Research in the United States has shown space deficit (bedroom deficit) to be a significant predictor of housing satisfaction (Morris, 1976; Yockey, 1976). This study found the same in the urban context of Nigeria.

Quality Norms

From a multicultural perspective, housing quality can be seen as a combination of several variables, including standards based on people's culture and norms (United Nations, 1969), space standards, regulations of construction, and materials (Onokerhoraye, 1984; Turner, 1972), and neighborhood and environmental conditions (Muoghalu, 1991). Quality of housing does not only reflect the nature of standards, bylaws, codes, and local regulations, but also expresses the housing needs and values of a culture and its prevailing socioeconomic circumstances and available resources. It might be difficult to transfer housing quality from one culture to another since these standards differ from country to country. Even within a given geographical location differences occur due to climate and level of urbanization, as well as social and economic activities (Muoghalu, 1991).

In Nigerian cities, housing quality is measured by certain standards such as of water, plumbing, construction, bylaws, and codes. In reality, these stipulated standards are not met in most cities due to the abuse of office by policymakers and supervising officials, lack of resources and enforcement of building codes, and poor quality construction. Past research has found residents expressing their dissatisfaction with poor quality housing and environments (Muoghalu, 1991), and this study found similar results. The results revealed that residents were dissatisfied with the quality of the construction, painting, doors, walls, floors, and windows, functioning of the plumbing fixtures, and water pressure.

Housing quality in the United States is measured by the availability of adequate water, kitchen facilities, plumbing, heating, and electricity, and the

absence of broken windows and doors. Research has shown housing quality as a determinant of housing satisfaction (Kain & Quigley, 1970; Morris & Winter, 1978). Quality norms have been achieved through the implementation and enforcement of building codes as well as increases in incomes that have raised the overall standard of living.

Neighborhood Norms

In Nigeria, urban areas have been noted to lack neighborhood facilities such as roads, schools, refuse disposal, and transportation systems (Awotona, 1991; Ozo, 1990). These inadequacies are attributed to a lack of planning and concentration of the few amenities in the primate city of Lagos, and former regional centers such as Enugu, Ibadan, and Kaduna.

Being a new capital, Abuja is unique in the sense that a Master Plan was developed in which neighborhood facilities were incorporated. Presently, Abuja has adequate infrastructure facilities (roads, drainage, and pipe borne water system) for the Phase One development. Other neighborhood facilities are hospitals and clinics, shopping centers, schools, police protection, and banks. Unfortunately, some of the areas designed for open spaces, parks, recreational developments, and playgrounds in the Master Plan are being converted for other purposes (author observation and written comments in Appendix F). The study noted that neighborhood facilities are related to housing satisfaction. Clearly, the residents expressed satisfaction with closeness to work, shops, friends, neighbors, and hospitals, location of the house, police protection, physical conditions, and cleanliness of the neighborhood. The satisfaction with neighborhood facilities came as a result

of Abuja's unique characteristics which respondents had not experienced in the other urban areas of Nigeria.

Likewise, studies conducted in the United States have found that neighborhood facilities had direct effects on housing satisfaction and indirect effects through neighborhood satisfaction (Morris & Winter, 1978). Also, research has noted a strong relationship between housing satisfaction and neighborhood satisfaction to the extent that occupants may ignore inadequacies in housing when they are satisfied with the neighborhood (Rent & Rent , 1978).

Tenure Norm

In urban Nigerian cities, rental programs have been the dominant approach used by the private and public sectors in providing shelter for families. Obviously, renting appears to be the tenure norm (Ozo, 1990). Most studies have shown that households expressed dissatisfaction with the rental programs in Nigeria, but the housing policy has failed to address the concerns of the occupants (Awotona, 1990; Muoghalu, 1984; Ozo, 1990). Because almost all respondents were renters, the tenure variable was not utilized in the regression model and did not enter into the empirical model. However, from the residents' written comments (Appendix F) it would appear that homeownership would positively influence their housing satisfaction.

The United States has made homeownership the keystone of their housing policy (Aaron, 1972; Hays, 1985; Mitchell, 1985), and tenure has been instrumental in determining the success of housing policies and a major contributor to housing satisfaction (Morris & Winter, 1978, Mitchell, 1985). Unfortunately, in Nigeria the policymakers have refused to yield to the

popular wish of the people and continually use rental programs in providing shelter.

Housing Management

The housing management variable is not a housing norm. Management was not used in Morris and Winter's (1978) Residential Satisfaction Model. However, previous studies in the United States (Francescato et al., 1975, 1979; Weidemann et al., 1982; Johnson & Abernathy, 1983) and in Nigeria (Awotona, 1990; Ozo, 1990) have noted the important role of housing management in public housing. Housing management is based on the same concept irrespective of the country. The management has the responsibility of overseeing the welfare of the residents in public housing and in this study FCDA management performed that role.

Moreover, it is likely that the United States would have better management procedures than in Nigeria because of its level of development. The findings of this study noted that housing management contributed the most dissatisfaction among the residents. Consequently, they were dissatisfied with the way FCDA officials treated them, the amount of rent paid, the enforcement of rules and regulations, the handling of residents' complaints, management response to necessary repairs, and the amount of rent paid compared to comparable privately owned houses. Thus, the poor level of maintenance and renovation noted by the residents in their comments (Appendix F) could be attributed to inefficiency by the FCDA management and the low level of technological development.

Demographic/Socioeconomic Characteristics

Public housing was built for people and the occupants have various characteristics which could influence their satisfaction with the housing. Thus, it is important to determine the effect of the demographic/ socioeconomic characteristics of various groups of people living in public housing schemes.

In both countries (Nigeria and United States) there are similarities in education, occupation, and income, and differences in family structure and stage of the family life cycle. In Nigeria, families are large due to an extended family system, which is a reflection of the lifestyles of the people, whereas in the United States, families are relatively small in size. Research conducted in Nigeria has noted that household sizes are on average 5.6 persons (Ozo, 1986), and this study found that most respondents had four or more persons in their households.

Demographic characteristics have less effect on satisfaction than the cultural deficits in space, tenure, and structure types (Morris, 1976). Research has shown that demographic/socioeconomic characteristics have direct, as well as indirect, effects through normative housing deficits (Morris & Winter, 1978). Education has a positive effect on housing satisfaction for renters (Lane & Kinsey, 1980), and this is consistent with the finding of this study. The study revealed that education positively correlated with overall housing satisfaction. Moreover, residents with higher income are inclined to show a higher level of satisfaction with the housing (Danes & Morris, 1985; Davis & Fine-Davis, 1981; Spain, 1988). This study found similar results.

However, the minimal effect of the demographic/socioeconomic characteristics (availability of space, age, and education) in explaining overall housing satisfaction might be attributed to the suggested indirect effect on overall housing satisfaction through satisfaction with various housing characteristics. This study did not examine the suggested indirect effects.

Finally, the concept of the empirical model that resulted from the Residential Satisfaction Model (Morris & Winter, 1978) is applicable to the urban context of Nigeria. However, the empirical variables in the model must be adapted to include the appropriate culture norms peculiar to the Nigerian urban environment.

Summary

In summary, the single-item measure and the composite index are reliable measures of satisfaction with various housing characteristics. Both may be referred to interchangeably. Structure types are strongly associated with overall satisfaction with structure types. There was a difference in the level of satisfaction among residents in the room units and those in the other structure types. Individual building features are significantly related to overall satisfaction with building features. Satisfaction with individual housing conditions influenced residents' overall satisfaction with housing condition. Neighborhood facilities are strongly associated with overall satisfaction with neighborhood. Various aspects of management procedures greatly influence overall satisfaction with management. Demographic characteristics had little effect in explaining satisfaction with housing, but the housing characteristics did influence overall housing satisfaction.

Chapter VI

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

A summary of the study including methodology and findings is presented in this chapter. Conclusions and implications from the findings of the study are discussed. Finally, recommendations are made for further research.

Summary

The purpose of the study was to determine the relationships between housing satisfaction and structure types, building features, housing conditions, neighborhood facilities, management, and demographic/ socioeconomic characteristics. The main objective was to develop a model for determining factors which affect housing satisfaction in public housing in Nigeria.

The sample of 1,089 households was randomly selected from the residents living in the five different structure types in the five districts of Abuja, Nigeria. In each district, structure types were randomly and proportionally selected based on the number of that particular structure type in the district.

A self-administered six-part questionnaire was developed, pretested, and revised for the study. The revised, precoded questionnaire had primarily closed-ended questions with one open-ended question.

The data were collected through self-administered questionnaires in November and December, 1994. Trained research assistants delivered and picked up the questionnaires.

ANOVA was used to test mean differences in housing satisfaction across different housing types. The mean satisfaction for respondents in the room units were significantly ($p \leq .05$) lower than the means of the other structure types. Consequently, satisfaction was significantly higher among respondents in other structure types. The findings support the hypothesized association between overall satisfaction with structure type and type of structure.

The relationship between overall satisfaction with building features and individual building features was examined by correlational analysis and regression of single-item measures of satisfaction with building features on individual building features. The size of the living room most highly correlated with both the single-item measure and the composite index. When used in multiple regression, seven of the item variables predicted 68% (R^2 = .68) of the variance in the single-item indicator of satisfaction with building features. The findings suggest that residents living in housing in which privacy is ensured were most likely to be satisfied with building features.

The relationships between overall satisfaction with housing conditions and satisfaction with individual housing condition items were examined by correlational analysis and regression of single-item measure of satisfaction with housing conditions on individual housing condition items. The quality of the interior construction most highly correlated with the single-item measure and the composite index. When used in multiple regression, nine

variables predicted 61% (R^2 = .61) of the variance in the single-item indicator of satisfaction with housing conditions. The results indicate that residents living in public housing perceived to have carefully finished interior spaces were most likely to be satisfied with the housing conditions.

The relationships between overall satisfaction with neighborhood facilities and satisfaction with specific items measuring satisfaction with neighborhood facilities were examined by correlational analysis and regression of single-item measure of satisfaction with neighborhood facilities on specific neighborhood facilities. The closeness to work and cleanliness of the neighborhood were equal in magnitude and highly correlated with the single-item measure of satisfaction. Also, closeness to work had the highest correlation with the composite index. The regression results showed that 12 items predicted 58% (R^2 = .59) of the variance in the single-item indicator of overall satisfaction with neighborhood facilities. The findings suggest that residents living in good neighborhoods which are close to work and shopping centers are most likely to be satisfied with the neighborhood.

The relationships between overall satisfaction with housing management and satisfaction with specific public housing management procedures were examined by correlation analysis and regression of single-item measures of satisfaction with management on specific management procedures. The way rules are enforced was most highly correlated with the single-item measure and the amount of rent paid recorded the highest correlation with the composite index. Eight variables predicted 60% (R^2 = .60) of the variance in the single-item indicator of satisfaction with management. The findings suggest that management policies and personnel attitudes

toward residents are important factors in predicting satisfaction with management.

The relationships between overall housing satisfaction and demographic/socioeconomic characteristics and the measures of satisfaction regarding individual aspects of housing characteristics were examined by correlation analysis. Multiple regression of the overall housing satisfaction on both demographics and the single-item measures of individual housing characteristics was conducted. Socioeconomic status (rationale for assigning the housing units), age, and education correlated significantly with housing satisfaction. Residents with higher education who are senior officers and assigned to housing units based on socioeconomic status expressed a higher level of overall housing satisfaction than their counterparts.

The single-item measure of building features, management, housing conditions, and neighborhood facilities all correlated strongly with overall housing satisfaction. Whereas the three demographic variables explained only 7% (R^2 = .07) of the variance in overall housing satisfaction, the R^2 increased to 59% when all of the single-item measures of satisfaction were entered into the equation. The results reveal that demographic characteristics have minimal effect on housing satisfaction in public housing in Abuja. While all of the single-item indicators of satisfaction are significant predictors of housing satisfaction, the management measure was the strongest single contributor.

Conclusions

Physically and sociopsychologically, housing is viewed as a bundle of attributes such as structure types, building features, housing conditions, neighborhood facilities, and management. The residents' views on these attributes, rather than on the house per se, play important roles in their expression of satisfaction. Clearly, both satisfaction with these attributes and overall housing satisfaction have been the central focus of this study. Based on the findings of the study, the researcher reached several conclusions about residents' satisfaction with public housing in Abuja, Nigeria.

1. Structure type was related to satisfaction. There was a lower level of satisfaction among residents in the room units than those in the other structure types. The structure type determines the availability of basic building features in public housing. Obviously, the single-family dwelling types have the potential of accommodating more features than the other structure types.

2. Satisfaction with individual building features is strongly related to overall expression of housing satisfaction. Generally, residents were dissatisfied with features such as space for children to study, storage, and privacy, as well as size and number of bedrooms. However, satisfactory remarks were noted for both the size and location of the living room and the kitchen. The provision of these elements contributed significantly to satisfaction with building features as well as to overall satisfaction with public housing.

3. Housing conditions are essential attributes of the living environment. The quality of the public housing correlated with the level of

housing satisfaction. The study noted that residents were overwhelmingly dissatisfied with most of the individual housing conditions except for three items: quality of the exterior construction, walls, and pressure of water. The poor quality of other aspects of construction led to frequent break downs of the plumbing fixtures which apparently contributed to dissatisfaction. Moreover, the poorly fitted windows and louvre panes, as well as poor quality doors, poor quality of the exterior and interior painting, and rough floors were sources of dissatisfaction.

4. The overwhelming majority of the residents expressed satisfaction with neighborhood facilities. This might be as a result of the newly completed facilities and infrastructure components, such as pipe borne water, roads, and paved sidewalks, as well as the location of the residential districts in relation to work place, shopping centers, and schools. Furthermore, the relative safety in the neighborhood and closeness and friendliness of the neighbors played important roles in the high level of satisfaction experienced by the residents.

5. The FCDA management is the key factor that contributed the most dissatisfaction. The FCDA lacked organized estate maintenance and management. Inefficiency in the allocation process, lack of respect in treating the residents, lack of maintenance, and the rules and regulations of the development were noted as sources of dissatisfaction. It is important to point out that some of the housing units, especially in Nyanya, are depreciating in quality due to broken sewage pipes and open waste disposal which FCDA management has failed to address.

6. The basic principles of the Residential Satisfaction Model (Morris & Winter, 1978) could be used in evaluating housing satisfaction in public housing in Nigeria. In adapting the principles, researchers must pay attention to using variables and developing questionnaires that address the phenomenon of interest considering cultural differences. The study offers considerable support for a model that incorporates demographic/ socioeconomic characteristics as well as single-item measures of various housing characteristics.

7. Based on the regression analysis, the predictor variables that contributed to overall housing satisfaction were identified as building features, housing conditions, and management. It is interesting to note that the single-item measure of management contributed the most in explaining overall housing satisfaction, while those of building features and housing conditions emerged as the second best predictor variables in the equation. Also, residents' satisfaction was positively influenced by age, education, and space as a rationale for assigning the housing units.

From the sociopsychological perspective, the general dissatisfaction which occurred among the residents might be a result of their dissatisfaction with the society and government as most residents noted this in their comments (Appendix E).

Implications

This study has several implications for theory development, residents, housing management, housing policy, and future development.

Theory Development

The results of this study establish the applicability of the Residential Satisfaction Model (Morris and Winter, 1978) in the urban context of Nigeria. The model could be used for cross-cultural housing studies. The study confirms the direct influence of housing deficits such as structure types, building features, housing conditions, and neighborhood facilities on housing satisfaction. Also, the study demonstrated that demographic/ socioeconomic characteristics have minimal direct effect on housing satisfaction. The study has provided information on the direct association between management and housing satisfaction. Moreover, the information derived from this study has laid the foundation for examining the indirect effects of both demographics and management on housing satisfaction in the urban context of Nigeria. Also, this study has contributed to the body of literature of housing research in developing countries such as Nigeria.

Residents

It is interesting to note that properly developed public housing programs could contribute to greater satisfaction with various housing characteristics, fewer environmental problems, less conflict among residents in houses with shared facilities, greater social interaction, and a higher quality of life.

The housing condition is a reflection of the quality of housing and environment in which various groups live. The residents living in the one/two room units lack space, fight over shared facilities, and have limited

access to safe drinking water or proper drainage. Such living conditions pose a threat to human life.

The study revealed that residents were dissatisfied with most of the housing characteristics. Dissatisfaction could directly affect the well-being of the residents. A high level of dissatisfaction could lead to stress for the adults, mental strain for the children, maladjustment, and pathological conditions.

Housing Management

The information derived from this study can assist in developing effective management policies to alleviate maintenance problems. Such policies should focus on quality and productive housing management which provides training for skilled workers, especially with regards to necessary repairs. If the policies are successfully implemented, dissatisfaction with individual aspects of management could be reduced considerably, and in turn increase residents' satisfaction with public housing. Also, the results of the study could assist in establishing a logical rationale for allocating public housing to tenants based on preferences, aspirations, and residents' needs.

Residents expressed dissatisfaction with distance to recreational facilities in the five districts. The absence of open space creates environmental problems and distorts the Master Plan. As an example, parking lots haven been converted to play areas by children. This dual use creates hazards for children.

The data base provided from this study can assist FCDA management in improving the quality of public housing and developing standards based on objective and subjective criteria.

Housing Policy

This study found that most residents were senior officers of the federal ministries. Thus, the junior officers are not being adequately housed. The government stated its commitment to provide housing for all by the year 2000 (Federal Republic of Nigeria, 1991). Currently, the available housing in Abuja is dominated by senior officers. Government policy should now aim at providing adequate and satisfactory housing for the junior officers in the civil service.

The findings provided information that most households had four or more persons per housing unit. The housing policy which encouraged the construction of one-bedroom (bungalows and multifamily apartments) and room-units in a cultural system where extended families is an acceptable norm should be reviewed with the intention of formulating realistic housing policies based on research studies such as this.

Future Development

The results of this study can be useful to planners, architects, construction engineers, policy-makers, and others concerned with providing and improving public housing.

By analyzing housing satisfaction, the factors associated with it, and the factors which regulate its degree, it is anticipated that the residents' values toward housing can be better understood. Thus, identifying and understanding what attributes of dwelling units contribute to housing satisfaction would be important for policy-makers, designers, planners, and others responsible for housing delivery in Nigeria.

Moreover, policy-makers and designers should see this study as a post-occupancy evaluation which offers the most reliable method of assessing residents' housing satisfaction and suggesting measures for improving existing public housing and future development.

The results of this study offer information which could be used in formulating design guidelines for planning and designing different structure types based on the established relationships between these structure types and housing satisfaction. In future housing developments, designers should provide an adequate number of bedrooms and properly create space to allow for privacy. Interior and exterior materials should be durable to stand the test of time. Enough space for children to study and play, and storage for the occupants must be provided. Attention needs to be paid to areas where greater design consideration should be given. For example, some buildings have attachments on their windows which act as weather protectors. If proper consideration had been given at the design stage, an attachment would have been provided to protect residents from rain.

Both subjective and objective criteria as well as the aspirations and values of different socioeconomic groups should be considered. The subjective criteria would focus on the users' needs and preferences by participatory design process which includes the users. Objective criteria would carefully address and incorporate approved standards and codes which enhance the livability of the housing environments.

Also, planners should resist any attempt to convert open spaces and green belt areas to building lots. They should continue to enforce the rules

and regulations of the development and discourage illegal structures which destroy the fabric of the City.

Recommendations

The following recommendations are made for further research on determining the factors which affect residents' satisfaction with public housing, management, and housing policy. The recommendations are based on the limitations and delimitations of this study.

Satisfaction with Public Housing

1. Further studies to determine if there are differences in the level of satisfaction across the districts.

The study utilized respondents from five districts so it would be important to determine if differences in level of satisfaction occurred among the residents and if so, why?

2. Studies to identify additional housing characteristics that should be given consideration in public housing programs.

A weakness of this study was that the non-applicable features were high. This suggests that those features (space for study, wardrobes, and dining room) were not considered as important elements of dwelling units at the design stage.

3. Replication of the study to include more single-family structure types than in the present study.

This study suggests that single-family housing is most related to housing satisfaction, but the number of single-family houses was low compared to

other structure types. Replication with more single-family houses would confirm or reject the results of this study.

4. Replication of the study which attempt to use independent research assistants rather than FCDA inspectors.

The use of the FCDA estate inspectors might have positively or negatively influenced the pattern of response. The estate inspectors had in the past been responsible for investigating the eligibility of the occupants of public housing. Also, the estate inspectors have the power to evict illegal tenants. Thus, it is most likely that some respondents would be comfortable or uncomfortable with their presence during the data collection.

5. Replication of the study utilizing other survey methods (e.g., mail questionnaires).

The collection of data via mail questionnaires could reduce expense as well as create awareness of such research techniques among Nigerians.

6. Further studies to determine how important housing characteristics are to the residents in public housing, in Abuja, Nigeria.

Research has found that satisfaction with public housing largely depends on how important various aspects of the housing characteristics are to the residents. This study did not investigate the importance of the various housing characteristics to the residents.

7. Further study to find out why residents living in the single-family structure types preferred them to other types.

This study did not show any significant difference between single-family houses and the other structure types except the room units, but the residents

living in the single-family houses recorded the highest mean score satisfaction among the residents.

8. New study to examine the desires and needs of the residents in public housing.

This is important in view of the widespread dissatisfaction with various housing characteristics (management, building features, housing conditions, room units). The study would note what the residents in public housing actually need and appreciate rather than designing and developing housing programs without consideration for the ultimate users.

9. Further study to investigate housing mobility in Abuja.

Residents in Abuja City have been living in their houses for three or more years. They may be living in these houses because they do not have any other housing choices available to them, especially in Abuja where the housing market is characterized by a severe shortage of housing. Thus, there is a need to investigate housing mobility in Abuja.

10. Further studies to compare residents' satisfaction with their previous and their present housing.

Previous housing experience has been noted as a determinant of satisfaction especially when a move occurs, as in the case of Abuja. Moreover, most residents moved into Abuja from urban areas where infrastructures are limited, so their past experience could have influenced their present level of satisfaction.

11. More empirical testing is needed to adequately determine the relative effect of demographic/socioeconomic characteristics on housing satisfaction.

Further analysis to determine the direct and indirect relationships between variables such as income, gender, household size, and length of stay, and housing satisfaction.

12. New study to investigate the degree of crowding and its effect on housing satisfaction.

The study found that most households had four or more persons. Household size is a significant determinant of satisfaction (Crull, Bode, & Morris, 1991).

13. Further studies on the impact of Nigerian government housing policy on people's satisfaction with the urban environment.

This study not only provides the data base, but also bridges the gap in literature on housing satisfaction in Nigeria. Since there are other urban areas where public housing has been used in providing shelter, it is necessary to access the level of satisfaction of the occupants in these shelters as well as the success of the policy that created them.

Housing Management

1. Further studies to examine the relationships between the allocation process of the FCDA housing management and housing satisfaction.

This study suggested that the allocation process was based on the availability of space rather than the residents' rank in civil service or space needs. Additional information from the residents' comments suggested that some residents were allocated to housing units based on who they knew in the FCDA housing management. It is important to determine the effects of the allocation process on housing satisfaction, and appropriate procedures for distributing public housing in Nigeria.

2. New study to investigate methods of improving the FCDA housing management.

The results of this study have noted that management was a major attribute to dissatisfaction among the residents. Also, the study noted the poor maintenance culture of the FCDA housing management, and their inability to respond to general maintenance requests. It is important to determine the techniques of improving the FCDA's management skills and capabilities.

Housing Policy

1. New study to examine the effects of housing policy about tenure on residents' satisfaction.

The residents in their written comments (Appendix F) noted that owning the housing units would give them more responsibility towards the housing. It is important to conduct a demonstration study to determine whether owning the public housing by the residents would affect their housing satisfaction.

2. New study to examine the effects of housing policy about one-bedroom multifamily housing and room units on residents' satisfaction.

The findings indicated that most of the residents were dissatisfied with the one-bedroom apartments and room units. It might be appropriate to conduct a study that would address the relationships between housing policy and number of rooms in a typical structure type.

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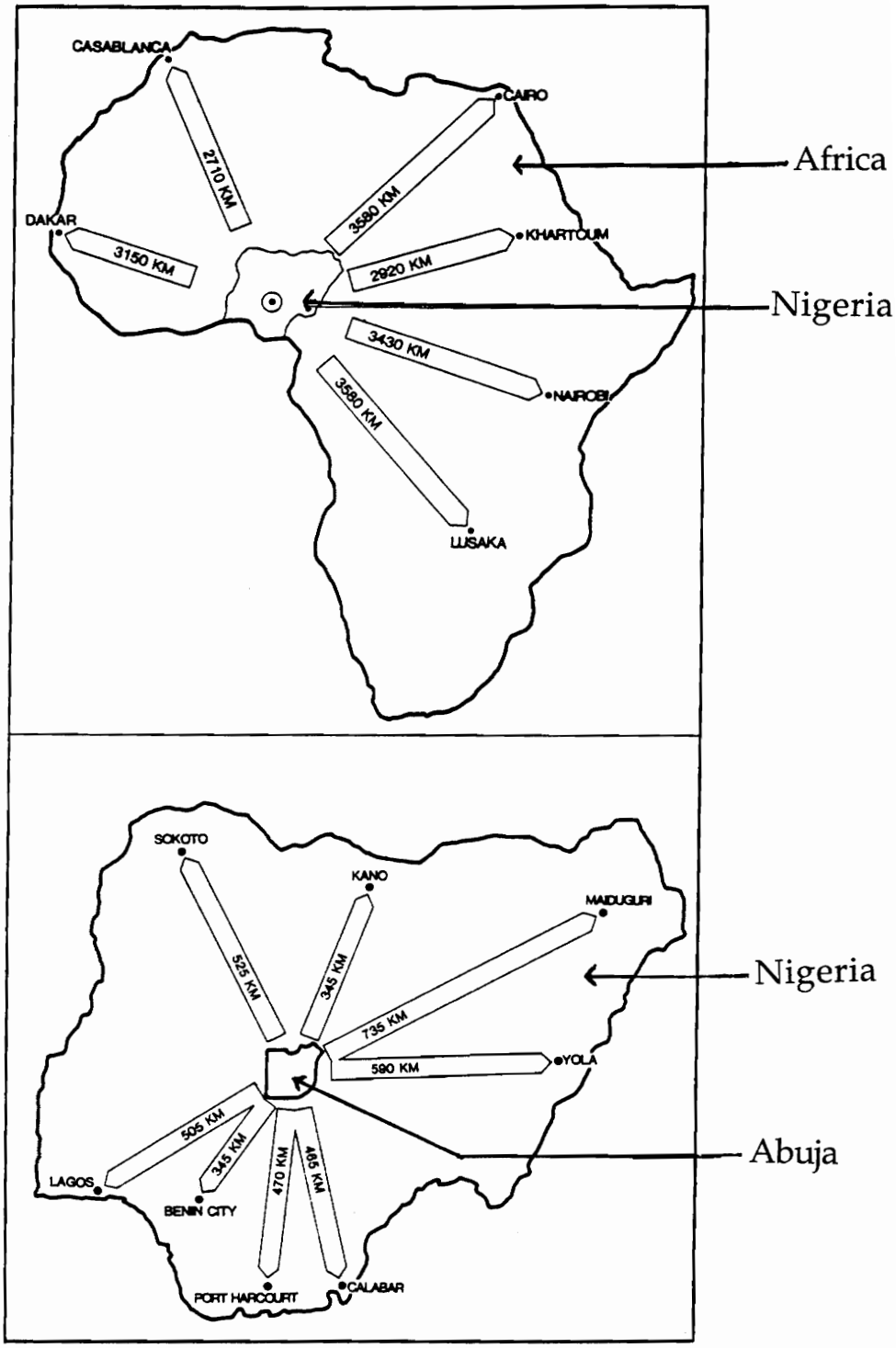
APPENDICES

APPENDIX A

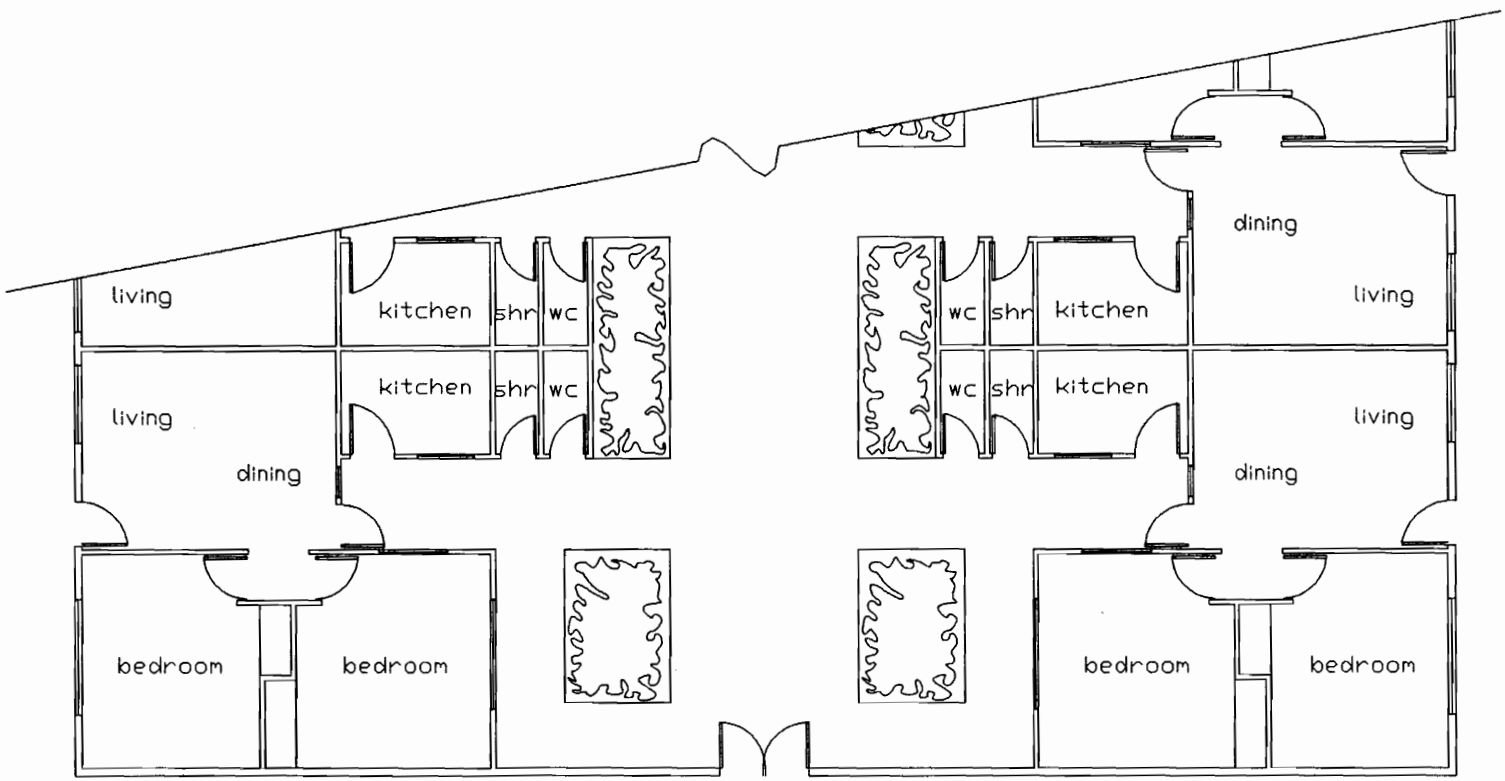
Location Map of Abuja



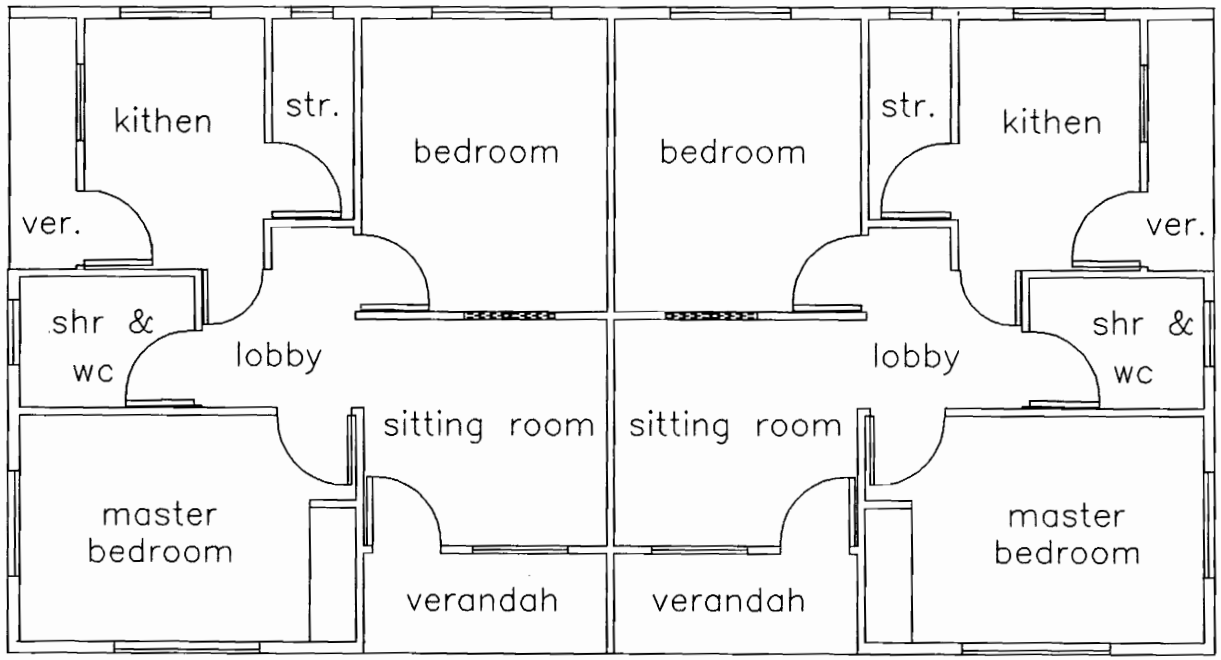
Location Map Showing the Centrality of Abuja

APPENDIX B

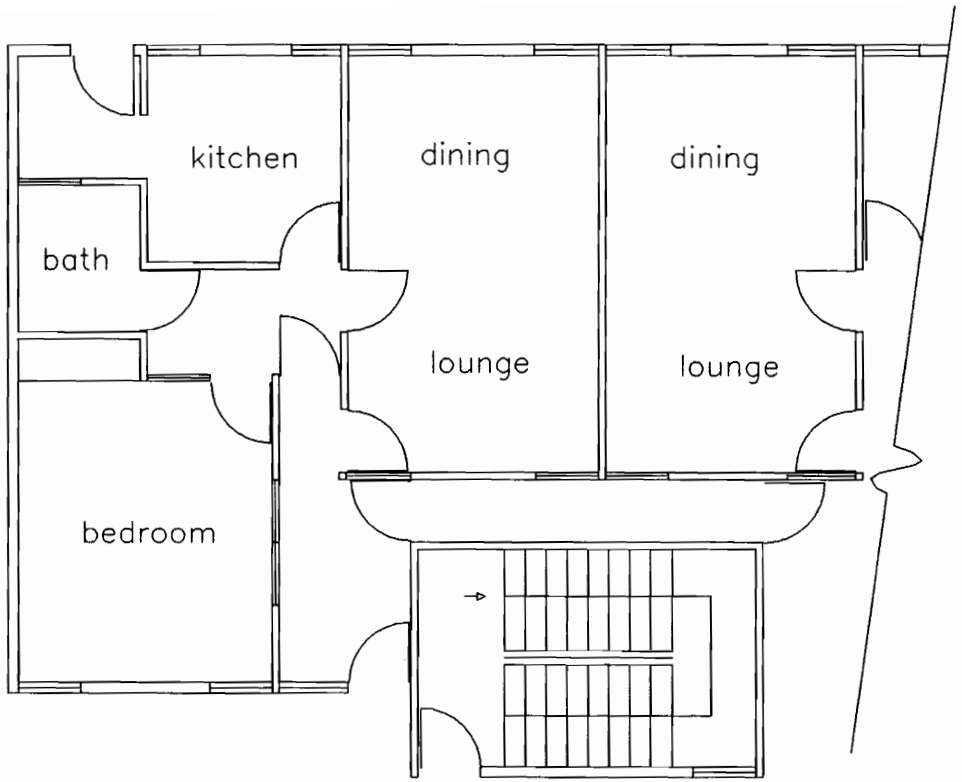
Floor Plans of Structure Type



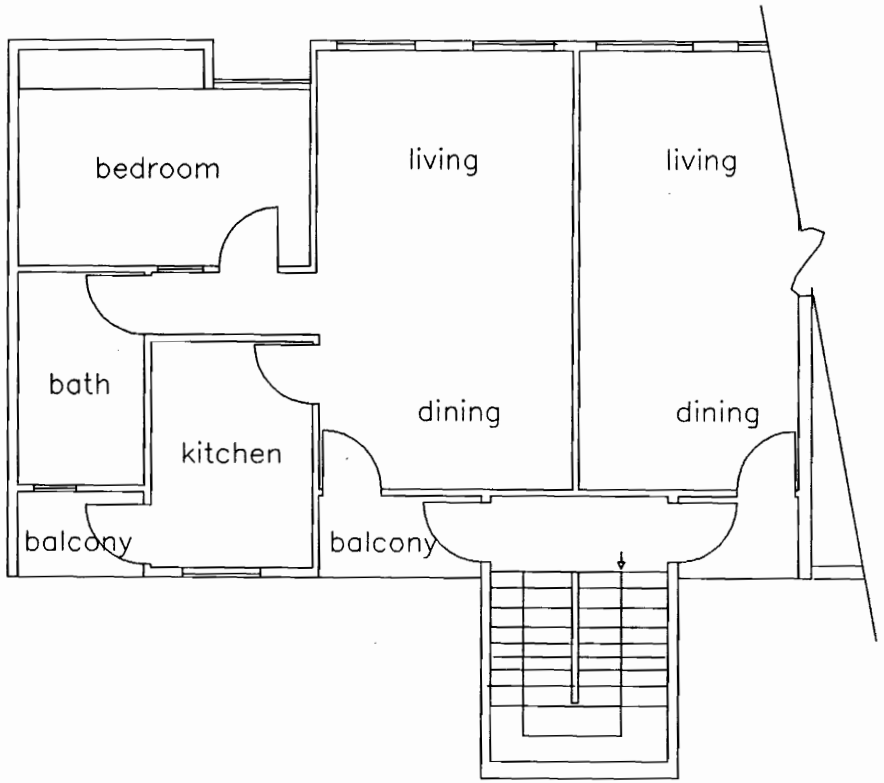
BUNGALOW (ROW HOUSE)
TWO BEDROOM, AT KARU



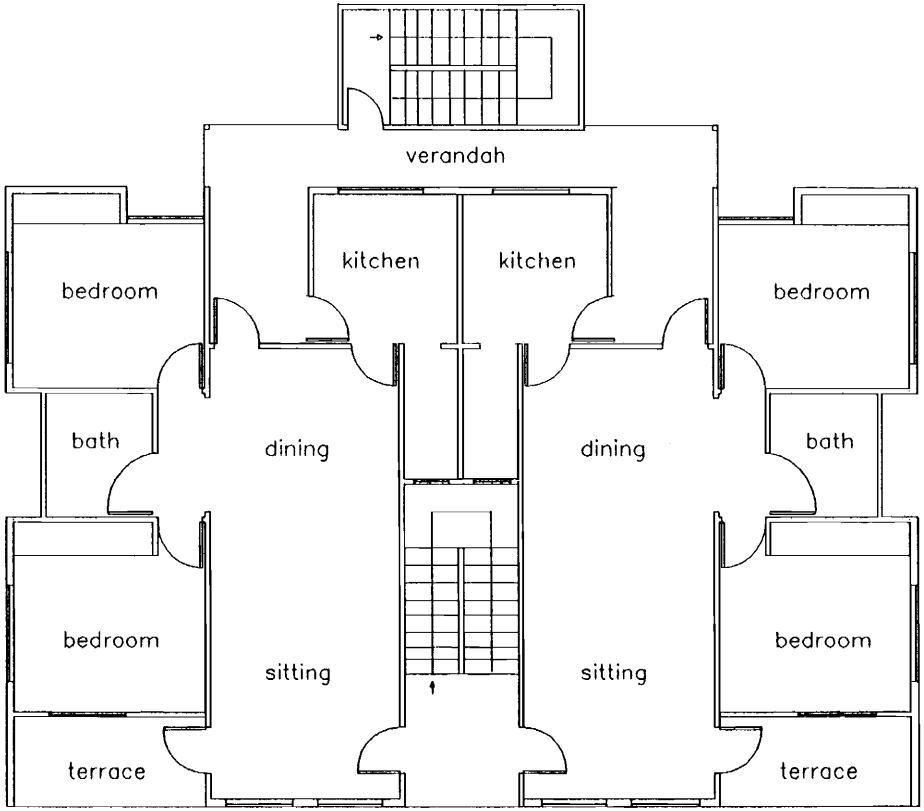
BUNGALOW (SEMI-DETATCHED)
TWO BEDROOM, AT KARU



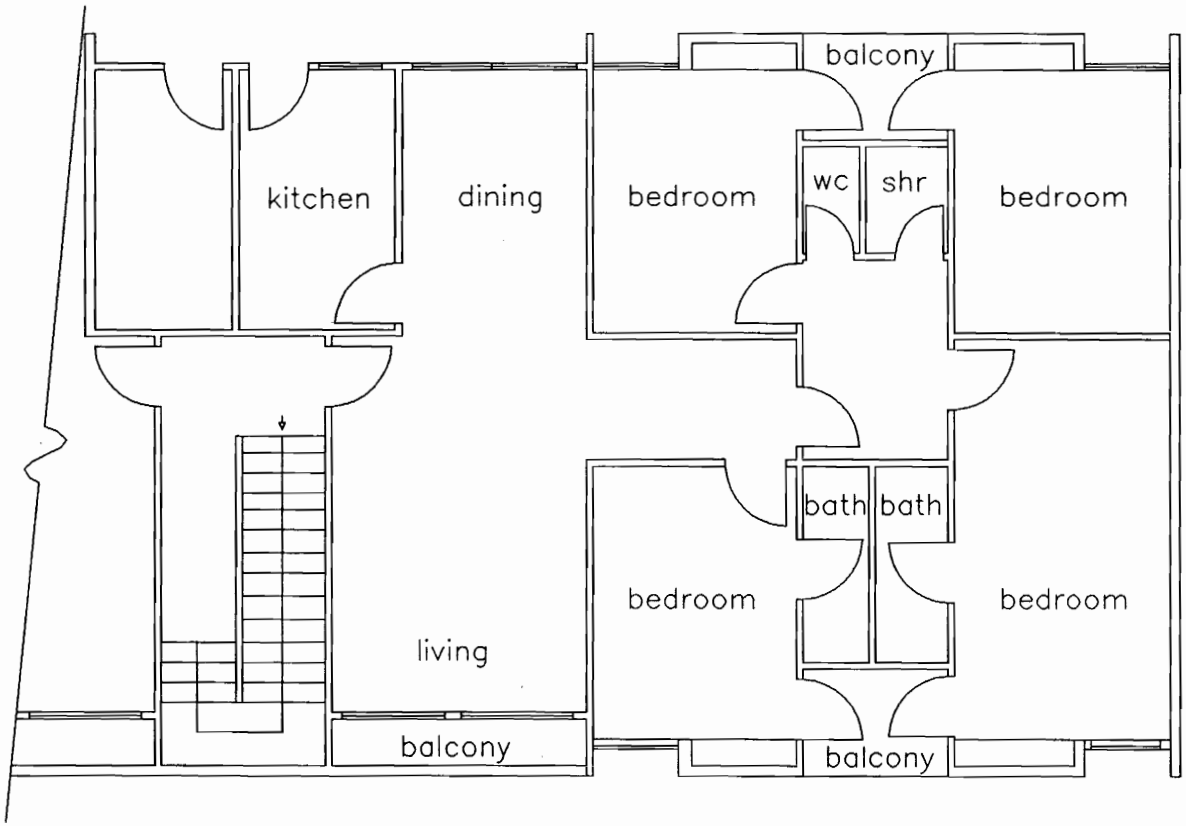
MULTIFAMILY APARTMENT
ONE BEDROOM, AT GARKI



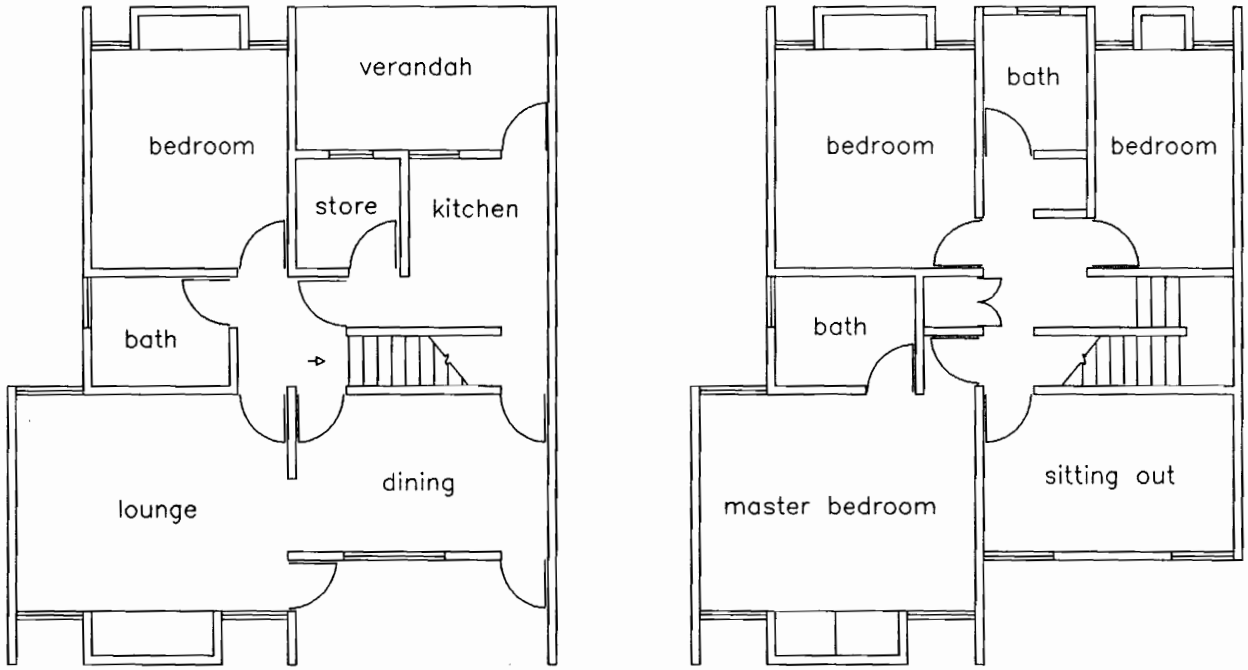
MULTIFAMILY APARTMENT
ONE BEDROOM, AT WUSE



MULTIFAMILY APARTMENT
TWO BEDROOM, AT KARU



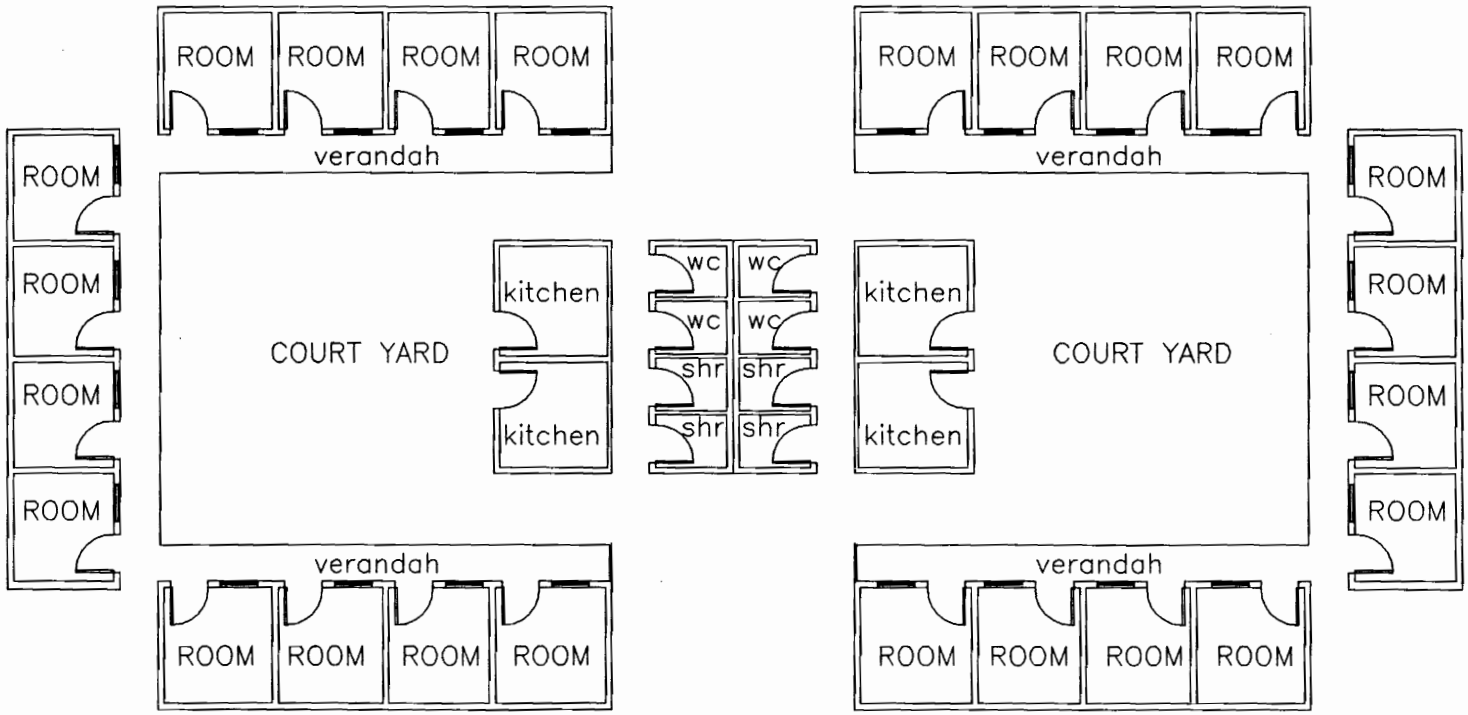
MULTIFAMILY APARTMENT
FOUR BEDROOM, AT WUSE



GROUND FLOOR PLAN

FIRST FLOOR PLAN

SINGLE FAMILY HOUSE (SEMI–DETATCHED)
FOUR BEDROOM AT GARKI, WUSE, & KARU



ROOM UNITS AT NYANYA

APPENDIX C

Photographs of the Public Housing, at Abuja

Rear View of One Bedroom Bungalow at Garki District.

Front View of Three Bedroom Bungalow (Detached) at Wuse District.

Front View of Two Bedroom Bungalow (Semi-detached) at Wuse District.

Front View of Two Bedroom Townhouse at Garki District.

Front View of Three Bedroom Townhouse at Garki District.

Rear View of Two Bedroom Townhouse at Garki.

Front View of Four Bedroom Multifamily Apartment at Wuse.

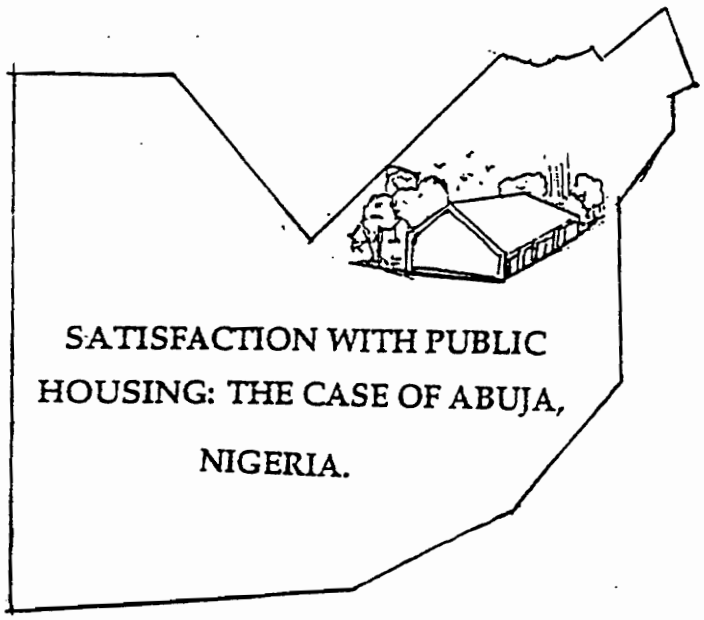
Front View of One Bedroom Multifamily Apartment at Garki.

Rear View of Two Bedroom Multifamily Apartment at Wuse.

Front View of Four Bedroom Single-family house at Wuse.

APPENDIX D

Questionnaire



SATISFACTION WITH PUBLIC HOUSING: THE CASE OF ABUJA, NIGERIA.

IDENTIFICATION # _____

DATE OF INTERVIEW _____

LOCALITY_____

We are conducting a study on satisfaction with public housing programs in Abuja, and you have been selected to participate in the study. The purpose of the study is to determine factors which influence your housing and neighborhood satisfaction. Your participation is important to us especially when the results would serve as guidelines to the FCDA in future public housing development. Information provided in the questionnaire will be regarded as confidential and never to be released to anyone. Please, take a few minutes to answer the following questions

Structure type

Please read the following statements and select the most appropriate answer by circling one.

1. What type of house do you live in?
    1. BUNGALOW
    2. MULTIFAMILY APARTMENT (3/4-STORY WALKUP)
    3. TOWNHOUSE
    4. SINGLE-FAMILY HOUSE
    5. ROOM UNITS

2. Please circle the number that best represents your feeling about the type of house you live in.

Very dissatisfied				Very satisfied.
1	2	3	4	5

3. What is your living arrangement?
    1. OWNER
    2. RENTER
    3. OTHER (SPECIFY) _____

4. How many bedrooms are in your house?
    1. ONE
    2. TWO
    3. THREE
    4. FOUR
    5. OTHER (SPECIFY) _____

Building features

The following are some statements about the features of your house. Please circle the number that best reflects your opinion about the specific features of your home. Circle "9" if not applicable.

	Very dissatisfied				Very Satisfied	
5. Size of the bedrooms ----------	1	2	3	4	5	
6. Size of the living room ----------	1	2	3	4	5	
7. Size of the dining room ----------	1	2	3	4	5	
8. Size of wardrobes or closets ----------	1	2	3	4	5	
9. Size of the kitchen ----------	1	2	3	4	5	
10. Location of living room ----------	1	2	3	4	5	
11. Location of dining room ----------	1	2	3	4	5	
12. Location of kitchen ----------	1	2	3	4	5	
13. Location of stairs, if any, in your house ----------	1	2	3	4	5	9
14. Number of bedrooms ----------	1	2	3	4	5	
15. Number of wardrobes or closets --------	1	2	3	4	5	
16. Space for children to study----------	1	2	3	4	5	9
17. Space for children to play inside the house ----------	1	2	3	4	5	9
18. The privacy within your house ---------	1	2	3	4	5	

19. Please circle the number that best represents the way you feel overall about the features of your house.

Very dissatisfied				Very satisfied.
1	2	3	4	5

Housing conditions

The following are some statements about the conditions of housing. Please circle the number that best reflects your opinion about specific conditions of your house.

	Very dissatisfied				Very satisfied	
20. The quality of exterior construction -------	1	2	3	4	5	
21. The quality of interior construction -------	1	2	3	4	5	
22. The quality of the floors ----------	1	2	3	4	5	
23. The quality of the walls ----------	1	2	3	4	5	
24. The quality of the windows ----------	1	2	3	4	5	
25. The quality of the doors ----------	1	2	3	4	5	
26. The quality of the exterior painting---------	1	2	3	4	5	
27. The quality of the interior painting ----------	1	2	3	4	5	
28. The functioning of the plumbing fixtures-	1	2	3	4	5	
29. The water pressure-- ----------	1	2	3	4	5	
30. The lighting of the stairwell----------	1	2	3	4	5	9

31. What is your overall opinion about your housing conditions? Please circle the number that represents how you feel about the conditions of your house.

Very dissatisfied				Very satisfied.
1	2	3	4	5

Neighborhood facilities

The following are statements related to neighborhood conditions. Circle the number that best reflects your opinion about the specific conditions in your neighborhood. Circle "9" if not applicable.

	Very dissatisfied				Very satisfied	
32. Location of your house	1	2	3	4	5	
33. Closeness to work	1	2	3	4	5	
34. Closeness to shops/markets	1	2	3	4	5	
35. Closeness to schools	1	2	3	4	5	9
36. Closeness to hospitals/clinics	1	2	3	4	5	
37. Closeness to recreational facilities for your household	1	2	3	4	5	
38. Closeness to friends and relatives	1	2	3	4	5	
39. Parking facilities for people living here	1	2	3	4	5	9
40. Public transportation facilities and services in the neighborhood	1	2	3	4	5	
41. The physical condition and appearance of the neighborhood	1	2	3	4	5	
42. Police protection	1	2	3	4	5	
43. Incidence of burglary activities	1	2	3	4	5	
44. The landscape of the neighborhood	1	2	3	4	5	
45. General cleanliness of the neighborhood	1	2	3	4	5	
46. Your neighbors	1	2	3	4	5	

47. What is your overall opinion about your neighborhood? Please circle the number that best reflects how you feel about your neighborhood.

Very dissatisfied				Very satisfied.
1	2	3	4	5

Management

The following are some statements about the FCDA management. Circle the number that best reflects your opinion about the management of your housing. Circle "9" if not applicable.

	Very dissatisfied				Very satisfied	
48. The way the management responds to necessary repairs with your house	1	2	3	4	5	9
49. The rent compared with what people pay in comparable but privately owned houses	1	2	3	4	5	9
50. The amount of rent paid	1	2	3	4	5	9
51. The furnishing provided by the management	1	2	3	4	5	9
52. The garbage collection system	1	2	3	4	5	9
53. The rules and regulations of the development	1	2	3	4	5	
54. The way rules are enforced here	1	2	3	4	5	
55. The way FCDA handles complaints of residents	1	2	3	4	5	9
56. The way the officials of the FCDA treat residents when they visit your house	1	2	3	4	5	9

57. What is your overall opinion about the management? Please circle the number that best represents how you feel about the management.

Very dissatisfied				Very satisfied
1	2	3	4	5

Overall Opinion

58. What is your overall opinion about your housing situation? Please circle the number that best represents your feeling.

Very dissatisfied				Very satisfied
1	2	3	4	5

Demographic characteristics

The next set of questions pertain to personal data. Please read the statements and circle the number of your answer.

59. What is your gender?
    1. MALE
    2. FEMALE

60. How old are you?
    1. UNDER 25
    2. 26 -- 30
    3. 31 -- 35
    4. 36 -- 40
    5. 41 -- 45
    6. 46 -- 50
    7. 51 -- 55
    8. 56 -- 60
    9. OVER 60

61. Which is the highest education level that you have completed?
    1. FIRST SCHOOL LEAVING CERTIFICATE
    2. SOME HIGH SCHOOL
    3. HIGH SCHOOL CERTIFICATE
    4. DIPLOMA/NATIONAL CERTIFICATE OF EDUCATION (NCE)
    5. UNIVERSITY DEGREE
    6. POST-GRADUATE DEGREE
    7. OTHER (SPECIFY) ----------

62. Are you a civil servant?
    1. YES
    2. NO

63. If yes, what is your rank?
    1. JUNIOR OFFICER
    2. SENIOR OFFICER
    3. DIRECTOR

64. Which of the following best describes your family income per year?
    1. N10,000 -- N15,999
    2. N16,000 -- N20,999
    3. N21,000 -- N30,999
    4. N31,000 -- N40,999
    5. N41,000 -- N50,999
    6. OVER N50,999

65. How long have you lived in your house?
    1. LESS THAN 1 YEAR
    2. 1 ------- 2 YEARS
    3. 3 ------- 5 YEARS
    4. 6 ------- 8 YEARS
    5. 9 -------10 YEARS
    6. OVER 10 YEARS

66. How many people live in this house?
    1. ONE
    2. TWO
    3. THREE
    4. FOUR
    5. MORE THAN FOUR

67. Why were you assigned to this unit?
    1. AVAILABILITY OF SPACE
    2. SOCIO-ECONOMICS STATUS
    3. FAMILY SIZE
    4. OTHER (SPECIFY) _____

68. Circle the number that represent the household members that live in this house other than yourself?
    1. SPOUSE
    2. CHILDREN
    3. PARENTS
    4. BROTHERS
    5. SISTERS
    6. RELATIVES
    7. NON RELATIVES

69. Do you have any comments about your housing situation or living environment? Please write them below.

APPENDIX E

Letter to the Residents

Virginia Tech
VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY

Department of Housing, Interior Design and Resource Management

College of Human Resources
Blacksburg, Virginia 24061-0424
(703) 231-6163 Fax: (703) 231-3250

November 15th, 1994.

Dear Resident,

The federal government has embarked on public housing programs for providing shelter to most Nigerians by the year 2000. This will involve building more public housing. There is a need to determine whether the current residents are satisfied with their housing or not and how it could be improved if they are not. The only way to ascertain the information is to ask the residents. As a graduate student in Housing, I am conducting this survey to better understand residents' opinions about public housing.

You have been randomly selected to participate in this study. Your response will help to obtain findings which will represent the opinions of all those living in public housing in Abuja. Your participation in the study is necessary since there is a possibility of sharing the results with the federal capital development authority (FCDA) which could use them in future housing development.

It is important that the head of household or another adult in the house completes the self-administered questionnaire. Any information provided in the questionnaire will be regarded as confidential and names will never be released to anyone. The questionnaire has an identification number so that your name is not required.

In a few days a research assistant will be calling at your home in the evening. They will give you the questionnaire to answer and will return to pick it up in about an hour. Please complete the questionnaires as soon as you receive them. If you have specific questions the research assistant will answer them. If you would like a summary of the result, write your contact address at the back of the questionnaire.

Thank you very much for your cooperation.

Sincerely,

Onyekwere M. Ukoha
Investigator

Thank you for helping in the study.

Julia O. Beamish, Ph.D.
Associate Professor of Housing

APPENDIX F

Selected Comments Written by Respondents

Selected Comments Written by Respondents

The questionnaire contained one open-ended question in which the respondent was asked to comment on the housing situation or living environment. A large proportion (86%) of the respondents pointed out their problems and offered suggestions which could be helpful in improving their living environment.

The most frequently mentioned problems were lack of maintenance, privacy, security; recreational facilities, poor environment, location in relation to place of work, and the allocation process. The respondents expressed desire to live in the public housing as owner-occupiers. The comments were typed as written in the questionnaires. An identification number was given to each respondent. The first digit represents district ("1" for Garik, "2" for Wuse, "3" for Nyanya, "4" for Karu, and "5" for Kubwa). The following three digits represent the number of the respondent, and the last digit represents the subdistricts (Areas and Zones). For example,

"1" represents Area "1" in Garik, and so on to Area "11";

"2" reprsents Zone "2" in Wuse, and so on to Zone "6";

"1" represents Area "A" in Nyanya, and so on to "5" for Area "E";

"1" represents the whole Karu site; and

"1" represents Phase 1, Site 1, in Kubwa and "2" for Phase 2, Site 1.

Misspelled words were corrected, but nothing was edited. The selected comments were categorized into the following:

Housing management and maintenance

Identification #	Comments
1019 6	"There is no drainage. The roofing is leaking seriously. No security light, no recreational center for children. The electrical work is not properly fix."
1046 7	"Maintenance of public housing should be taken into consideration by the government. Building without proper maintenance can sink the economy. The government needs more houses to accommodate public servants that are suffering because there are no houses for them to live in."
1103 1	"There is generally poor maintenance culture by government."
4120 1	"First and foremost I observe since I came to this house that there is electric wiring problem so that most of the provisions are not being used. Secondly, it's like FCDA is not active in finding out from time to time the condition of the houses that are suppose to be in their care. There is also the problem of refuse disposal whereby a whole block of eight flats has just two dust bins which are normally filled up within two or three days and which may not be parked away until after two weeks. Finally, I wish to suggest that the maintenance of these houses by FCDA be improved and stricter condition on the use of the houses be enforced."
4140 1	"The block in general requires renovation both externally and internally. The plumbing system is faulty, hence the walls in the flats are soaked while the paints peel off at intervals. The general environment is dirty and filthy. The open space in the front of the building could be better utilized for other economic purposes such as shopping centers, etc., which may yield the FCDA some income through renters. Alternatively, recreational

facilities can be provided for residents as a way of easing oneself at leisure instead of wasting time spent at odd places or in the house without gainful use."

5061 3 "The houses are good, but are not wide. The authorities too are not willing to carry out repairs. Plumbing and wiring also are always faulty. They should try and always improve on all this areas."

5105 3 "I need this house to be properly maintained by the FCDA otherwise let it be given to individuals allottees as owner-occupier."

5189 2 "The house is alright but the problem is maintenance and distance to working place. Fuel is very costly now and one pays through his nose to fill in his car only to be consumed on the long distance to the office. The landscaping is bad. No parking space for us here. Let them provide fencing around our blocks for the safety of our cars."

2014 2 "The house needs proper roofing maintenance and there are some serious crack on the walls."

2094 5 "Apart from physical deficiency in the house like lack of wardrobes, stores, closets, kitchen cabinet, etc., the FCDA has a lack-lustre attitude as regards complaints from the residents. The security of the residential accommodation ensure a perpetual scramble for the few available spaces. The management therefore believe it has done us enough favor by providing the residential accommodation. Also, the areas earmarked as parks and playgrounds for children of the neighborhood have been allocated to private individuals for the construction of privately owned houses. The location of the window allows rain water into the house, etc.

3142 4 "I am satisfied with the house but the management should improve in their maintenance work."

5066 3 "The house is good structurally but the FCDA management should be maintaining them because the maintenance is none existence. Plumbing is too poor in my house. Please FCDA should intensify effort so the people will enjoy the house."

3159 5 "The house owned by government should be properly maintained. Within my vicinity there is no proper drainage and refuse disposal. This area should be looked into."

2088 5 "Management must always respond to maintenance of the house or rather houses be reverted for owner occupier.

Allocation process and rent

5186 2 "The house is not equal to my rank (Grade level 9), still government deduct all the rent allowance due to me (N1700) for two-bedrooms. The house is the verge of collapsing . The house is not maintained and not furnished. The plumbing facility is not good and the blown safety tank not yet repaired. The Abuja Environmental Protection Board is not serious in waste collection. The distance from here to working place is far and as result a lot of money is spent on transportation to the tune of N1200 a month."

1126 1 "Very poor housing situation because the method of housing allocation in Nigeria is not based on rank but relations or otherwise Godfathers. For instance, some staff are living in two bedroom flats while those qualified are left in under housed apartment. Also, renovation of houses here depends on how highly placed an officer is or those with Godfathers. This body has to play advisory role to FCDA. I am in one-bedroom while I have ten people with me. Do you think we are healthy?"

2130 6 "The house is well built. I really commend the good efforts of the FCDA for making Abuja a reality and comfortable for poor workers like myself. I have worked for almost 28 years as a civil servant I can boast of a single house in my life. But as I got to Abuja, I was given this my house to live in with my family of nine. I am grateful to FCDA.

Sharing of facilities (mainly in room units)

4001 1 "The house is too small for a family of five. The toilets are too bad. We share toilet and is not good health wise. This even bring quarrel everyday. We have linkages all over. The kitchen is too small to be shared. The water does not flow well which makes the environment to pollute. The sock away is bad. The electrical fittings are bad. It shocks and off at times.

4178 1 "The occupants are from different ethnic group with different culture. Our life condition does not agree."

Building features

1074 10 "The bedroom should be bigger. Provision of store. The kitchen should be bigger."

1196 4 "There is need to abolish one-bedroom units and construct building with minimum of two-bedroom."

2083 5 "You need to improve the housing program for staff satisfaction, i.e., increase the number of bed-rooms, the minimum of two-bedrooms for junior workers, and the lowest of four-bedrooms for senior officers. The minimum of seven-bedrooms for directors and boy's quarters, etc."

Design and housing conditions

1006 5 "The condition of the house is not all that bad but it is lacking most of the things to enjoy like wardrobes, water heater, electric cooker, painting, and good floor tiles.

1080 10 "Design should take cognizance of Nigerian situation by improving on the size of the bedrooms. Ceiling fans instead of air conditioners should be provided. Bedrooms should be concealed to ensure privacy."

2031 3 "The two-bedroom accommodation is grossly inadequate for a family of seven. The plumbing systems have broken down and require constant repair due to poor quality of construction."

2149 6 "Well, we live at the top most floor which is dangerous for children to play. They should be children's playground, please."

2170 6 "The bedrooms are so small and there are no wardrobes provided. The plumbing passes through one of the bedrooms and when there is problem one whole room gets water logged. The parking space is not safe for cars. The electrical wiring from the pole is risky because of children playing outside. The environment is not safe for children due to the high way.

3055 2 "The entire plot is dilapidating every day, hence an immense threat to our lives. The architectural design is an entire mess, no privacy. The absence of drainage system in the environment makes the situation worse for living."

3068 3 "The house is very bad for a human being to live in."

4002 1 "The windows are bad, toilets broken, the bathroom shower spoilt, the walls very bad. There are leakages everywhere during rainy season. The doors are bad. All the house needs renovation."

4156 1 "There is need for boy's (house help) quarter." No garage for car parking, no dining room, no hospital, market/shops, fire station,

and telephone around this area. Television reception and satellite reception very poor and not available respectively."

5142 2 "The size of the living room and kitchen are small. It does not correspond at all to the amount of money being deducted as the rent. The bushy environment leads to continuos disturbance by the thieves. The window in between partitioning wall of the living room and bedroom gives the house no privacy at all. And the bath and toilet joined together seem too poor."

3155 5 "For better healthy conditions it will be good if the government will start looking into the renovation of these types of housing system or change to another type of housing structure other than this one-room apartment.

3027 1 "The living condition of the people living in this area should be given a serious consideration. Besides civil servants should be provided accommodation according to their status. It is too poor for a senior staff to be living in a one-room apartment."

Environment

2186 6 "The building is not landscaped especially rain water passes through the windows, and some other associated environmental problems."

3002 1 "Please Nyanya is a dirty environment. Some houses have no toilets, no recreational center, no children's' recreational center. Staff are poorly managed. No progress."

3110 3 "Poor sanitary condition of the environment. Poor quality work on the construction of the house."

3200 5 "The living environment is in a very poor state. Most workers staying around are like second class citizens in the city. The

construction works are poorly done and the kitchen is no go area during the rains. Allocation should be done according to family size and not as is been done now."

Security

1036 7 "There should be more security. Task force should be more human in dealing with people. Repairs in the house especially during rainy season. House rent should be more reasonable."

2216 6 "There is no space for children to study and play. Incidence of burglary very high and no security."

3158 5 "The house is not spacious to contain my family and it offers no sufficient privacy and security."

4048 1 As per my status I am okay with the apartment allocated but the only problem I face here is that (1) the house is built in such a way that there is no security. 2) No proper maintenance of the house. 3) The FCDA should do something as regard task force because the rate at which they disturb tenant in the city like Abuja is embarrassing and uncall for."

Crowding

2012 2 "I am experiencing overcrowding and will like a bigger accommodation according to my status."

3031 1 "We are five staying in one-bedroom apartment which I feel is not good health wise. The authority should look into our problem."

2064 5 "I would advice that one-bedroom apartment is not convenient for a man of family of four who also have relatives that could pay occasional visits."

Ownership

2006 2 Government response to the growing housing needs of the federal capital territory is not commensurate with the demand More houses should be built for civil servants and should be allocated on owner/occupier bases."

2108 5 "I would prefer house is given out on owner-occupier basis. This will help government generate more funds to build more houses; give civil servants easy opportunity to own houses while government is not involved in the maintenance."

3039 1 "I am dissatisfied with the general condition of my house. I suggest that the FCDA hand over ownership of these houses to individual s to enhance proper maintenance of the houses."

5111 3 "The house should be owner-occupier before the year 2000."

1052 8 "As a matter of fact this houses are supposed to be given to individual allottees as owner occupier as was done in Festival Town to lessen accommodation problems by the year 2000."

APPENDIX G

Output of Analysis of Variance and Regression Analysis

Output of Analysis of Variance for Hypotheis #1
Residents' Responses by Structure Types and Mean Satisfaction Level

- - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	4	215.7116	53.9279	36.3190	.0000
WITHIN GROUPS	1078	1600.6559	1.4848		
TOTAL	1082	1816.3675			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 1	396	2.9242	1.2943	.0650	2.7964 TO 3.0521
Grp 2	313	2.8850	1.2376	.0700	2.7473 TO 3.0226
Grp 3	69	3.0725	1.2165	1465	2.7802 TO 3.3647
Grp 4	34	3.2941	1.3602	.2333	2.8195 TO 3.7687
Grp 5	271	1.9225	1.0530	.0640	1.7966 TO 2.0484
TOTAL	1083	2.6833	1.2957	.0394	2.6060 TO 2.7605

Output of Regression Analysis of Individual Building Features on the Single-item Measure of Satisfaction with Building Features for Hypothesis #2

**** MULTIPLE REGRESSION ****

Equation Number 1 Dependent Variable.. BF19

Variable(s) Entered on Step Number
7.. BF16

Multiple R	.82720
R Square	.68427
Adjusted R Square	.67349
Standard Error	.71808

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	7	229.09152	32.72736
Residual	205	105.70660	.51564

F = 63.46915 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
BF18	.265627	.045345	.290220	5.858	.0000
BF9	.159754	.049484	.161983	3.228	.0014
BF6	.235539	.048836	.229933	4.823	.0000
BF15	.124819	.045180	.135929	2.763	.0063
BF14	.149834	.045797	.158954	3.272	.0013
BF12	.141729	.052081	.133955	2.721	.0071
BF16	.131040	.049419	.116344	2.652	.0086
(Constant)	-.517934	.193834		-2.672	.0081

---------- Variables not in the Equation ----------

Variable	Beta In	Partial	Min Toler	T	Sig T
BF5	.046035	.059581	.527369	.852	.3949
BF7	.083261	.114289	.594892	1.643	.1019
BF8	.059262	.072708	.475266	1.041	.2990
BF10	.009769	.013058	.564195	.187	.8522
BF11	.038061	.054310	.590549	.777	.4381
BF13	-.019796	-.029958	.586731	-.428	.6690
BF17	.020162	.024984	.484836	.357	.7215

End Block Number 1 PIN = .050 Limits reached.

Note: Variable number as they appeared in the questionnaire.

Output of Regression Analysis of Selected Individual Building Features on the Single-item Measure of Satisfaction with Building Features for Hypothesis #2

**** MULTIPLE REGRESSION ****

Equation Number 1 Dependent Variable.. BF19

Variable(s) Entered on Step Number
6.. BF12

Multiple R .83379
R Square .69520
Adjusted R Square .69336
Standard Error .72928

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	6	1204.54892	200.75815
Residual	993	528.12121	.53184

F = 377.47555 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
BF6	.242734	.026428	.253529	9.185	.0000
BF18	.253453	.019786	.273788	12.810	.0000
BF14	.191508	.020827	.201082	9.195	.0000
BF9	.152784	.024072	.160460	6.347	.0000
BF5	.106860	.025282	.109940	4.227	.0000
BF12	.084577	.023144	.086324	3.654	.0003
(Constant)	-.081380	.068587		-1.187	.2357

---------- Variables not in the Equation ----------

Variable	Beta In	Partial	Min Toler	T	Sig T
BF10	.045697	.057905	.383582	1.827	.0680

Note: Variable number as they appear on the questionnaire

Output of Regression Analysis of Individual Housing Conditions on the Single-item Measure of Satisfaction with Housing Conditions for Hypothesis #3

**** MULTIPLE REGRESSION ****

Equation Number 1 Dependent Variable.. HC31

Variable(s) Entered on Step Number
9.. HC24

Multiple R .77887
R Square .60664
Adjusted R Square .60331
Standard Error .81300

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	9	1083.57616	120.39735
Residual	1063	702.60617	.66097

F = 182.15380 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
HC21	.242711	.029811	.255660	8.142	.0000
HC26	.169972	.023553	.177783	7.217	.0000
HC28	.132309	.021889	.130842	6.045	.0000
HC25	.104437	.023983	.108296	4.355	.0000
HC23	.090189	.027610	.095149	3.267	.0011
HC29	.079557	.020237	.081193	3.931	.0001
HC20	.097700	.028602	.104702	3.416	.0007
HC22	.073740	.024988	.079082	2.951	.0032
HC24	.060898	.024568	.063632	2.479	.0133
(Constant)	-.109894	.088281		-1.245	.2135

---------- Variables not in the Equation ----------

Variable	Beta In	Partial	Min Toler	T	Sig T
HC27	.009176	.008370	.327276	.273	.7851

Note: Variable number as they appeared in the questionnaire

Output of Regression Analysis of Individual Neighborhood Facilities on the Single-item Measure of Satisfaction with Neighborhood Facilities for Hypothesis #4

**** MULTIPLE REGRESSION ****

Equation Number 1 Dependent Variable.. NF47

Variable(s) Entered on Step Number
12.. NF43

Multiple R .76455
R Square .58453
Adjusted R Square .57969
Standard Error .79413

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	12	912.99630	76.08302
Residual	1029	648.93042	.63064

F = 120.64380 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
NF33	.115691	.022856	.136050	5.062	.0000
NF45	.158005	.025811	.161301	6.122	.0000
NF34	.119963	.025285	.133380	4.744	.0000
NF44	.121722	.021376	.134142	5.694	.0000
NF42	.081202	.021351	.091286	3.803	.0002
NF46	.154099	.026635	.126614	5.786	.0000
NF32	.105448	.024330	.103783	4.334	.0000
NF40	.080162	.020921	.093771	3.832	.0001
NF38	.090925	.021733	.093065	4.184	.0000
NF41	.097583	.024870	.100928	3.924	.0001
NF36	.074283	.024423	.080026	3.042	.0024
NF43	.061659	.022064	.066560	2.795	.0053
(Constant)	-.702105	.129405		-5.426	.0000

---------- Variables not in the Equation ----------

Variable	Beta In	Partial	Min Toler	T	Sig T
NF35	.050190	.054483	.461791	1.749	.0805

Output of Regression Analysis of Management Items on Single-item Measure of Satisfaction with Management for Hypothesis #5

**** MULTIPLE REGRESSION ****

Equation Number 1 Dependent Variable.. M57

Variable(s) Entered on Step Number
8.. M49

Multiple R .77300
R Square .59754
Adjusted R Square .59412
Standard Error .77262

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	8	834.86495	104.35812
Residual	942	562.31544	.59694

F = 174.82243 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
M54	.157486	.027339	.166298	5.761	.0000
M50	.165036	.031740	.196730	5.200	.0000
M56	.222402	.020470	.257047	10.865	.0000
M55	.144123	.028634	.129777	5.033	.0000
M53	.165161	.026420	.175850	6.251	.0000
M52	.114077	.019666	.127934	5.801	.0000
M48	.105777	.029925	.086803	3.535	.0004
M49	.068948	.031276	.083241	2.204	.0277
(Constant)	-.473364	.089168		-5.309	.0000

Note: Variable number as they appeared in the questionnaire

Output of Regression Analysis of Single-item Measures and Demographic/ Socioeconomic Characteristics on the Overall Housing Satisfaction (Empirical Model) for Hypothesis #6_a and #6_b..

Block1

**** MULTIPLE REGRESSION ****

Equation Number 1 Dependent Variable.. OVER

Variable(s) Entered on Step Number
3.. ED

Multiple R .25945
R Square .06731
Adjusted R Square .06470
Standard Error 1.18466

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	108.47819	36.15940
Residual	1071	1503.05509	1.40341

F = 25.76533 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
SPACE	-.509459	.072767	-.207185	-7.001	.0000
AGE	.106110	.027133	.116193	3.911	.0001
ED	.080250	.027083	.087980	2.963	.0031
(Constant)	2.387133	.140106		17.038	.0000

---------- Variables not in the Equation ----------

Variable	Beta In	Partial	Min Toler	T	Sig T
MALE	.002004	.002001	.919491	.065	.9478
EMPLOY	.020247	.020923	.984271	.685	.4938
RANK	.021531	.016555	.551369	.542	.5882
INCOME	.004979	.005020	.938406	.164	.8696
LONG	.025286	.025407	.939875	.831	.4060
PEOPLE	.010071	.009991	.911660	.327	.7439
SOCIO	.029215	.013932	.212100	.456	.6486
FAMSIZE	.052706	.053832	.970278	1.763	.0781
SATH	.508369	.512954	.949585	19.547	.0000
BF19	.561182	.562982	.938680	22.282	.0000
HC31	.520461	.532008	.974533	20.552	.0000
NF47	.440893	.447530	.960979	16.370	.0000
M57	.527927	.537449	.966632	20.847	.0000

End Block Number 1 PIN = .050 Limits reached.

(output continues)

(Output Continued)

Block 2

**** MULTIPLE REGRESSION ****

Equation Number 1 Dependent Variable.. OVER

Variable(s) Entered on Step Number
8.. SATH

Multiple R .76910
R Square .59152
Adjusted R Square .58845
Standard Error .78583

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	8	953.24640	119.15580
Residual	1066	658.28689	.61753

F = 192.95551 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
SPACE	-.145161	.049540	-.059034	-2.930	.0035
AGE	.007106	.018240	.007781	.390	.6969
ED	.008927	.018177	.009787	.491	.6235
BF19	.215623	.024895	.231821	8.661	.0000
M57	.305439	.022207	.302393	13.754	.0000
HC31	.215782	.022022	.227386	9.798	.0000
NF47	.157221	.022178	.157217	7.089	.0000
SATH	.128922	.024543	.136363	5.253	.0000
(Constant)	-.078293	.118513		-.661	.5090

---------- Variables not in the Equation ----------

Variable	Beta In	Partial	Min Toler	T	Sig T
MALE	-.042177	-.063221	.531621	-2.067	.0389
EMPLOY	.035040	.054669	.534889	1.787	.0743
RANK	-.026132	-.030264	.533681	-.988	.3233
INCOME	-.012035	-.018262	.531431	-.596	.5512
LONG	-.014282	-.021541	.534873	-.703	.4821
PEOPLE	.001719	.002573	.534299	.084	.9331
SOCIO	.006458	.004619	.207762	.151	.8802
FAMSIZE	.006610	.010164	.534558	.332	.7402

End Block Number 2 All requested variables entered.

Vita

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Onyekwere Ukoha

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