ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

REGIONAL AND LOCAL DVELOPMENT STUDIES (RLDS)

# THE HOUSING CONDITION OF PUBLIC AND PRIVATE SECTOR EMPLOYEES IN ADDIS ABABA: THE CASE OF EMPLOYEES OF MINISTRY OF EDUCATION AND AWASH BANK


BY

ABRAHAM W.MICHAEL

APRIL 2007

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**A THESIS SUBMITED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY**

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## Abbreviations

| | |
|---|---|
| ABHA | Availability of Basic Housing Amenities |
| CSA | Central Statistical Authority |
| CSO | Central Statistical Office |
| GDP | Gross domestic product |
| MOE | Ministry of Education |
| MOFED | Ministry of Finance and Economic Development |
| MUDH | Ministry of Urban Development and Housing |
| MWUD | Ministry of Work and Urban Development |
| NUPI | National Urban Planning Institute |
| OPHCC | Office of the population and Housing Census Commission |
| ORAAMP | Office for the Revision of Addis Ababa Master Plan |
| PADCO | Planning and Development Collaborative International Organization |
| SPSS | Statistical Packages for Social Scientists |
| UN | United Nations |
| UNCHS | United Nations Center for Human Settlements |

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**ABSTRACT**

This study examines one of the welfare issues, housing condition in Addis Ababa. It uses the case of employees of public and private sector (employees of Ministry of education and Awash Bank to add to the body of empirical knowledge. The main objective of the paper was to assess the housing situation of employees and also to examine if an association exists between housing condition and household characteristic factors of employees. A total of 195 employees were selected using probability proportionate to size with systematic sampling techniques.

The results of the study in general revealed that the housing conditions of employees are found in poor condition (substandard) when measured in terms of physical conditions of the houses, access to basic housing amenities and facilities, and crowding. Also, majority of the employees do not have their own dwelling units.

The empirical analysis based on multiple regression analysis using stepwise method revealed that access to basic housing amenities and facilities is influenced by marital status and educational level of employees. Sex, marital status educational level and income of employees affect the type of construction materials used for a dwelling. The level of occupancy of room and ownership of a home is determined by marital status and age of employees. Providing quality housing by providing access to credit and loan facilities is an important factor for the overall development.

# Chapter 1

## 1. Introduction

The proportion of the world urban population is increasing from time to time. Recent studies indicated that by the turn of the twenty-first century it is estimated that more than one half of the world's population would reside in urban areas, which was only about ten percent at the beginning of the twentieth century (UNCHS, 2002). This indicates that the rate of urbanization is increasing rapidly. It is registered that there is high rate of urbanization, both in developing and developed countries. However, the rate is very high for developing countries. The urbanization level of developing countries was 37 percent by 1990 and it will rise to 61 percent by the year 2025 which will account for about 80 percent of the global urban population (UN, 1998).

The rapid growth of urban population has its own effect on the provision of infrastructure and service needs of cities. Shortage of housing, poor sanitation system, failure to expand water supplies and transportation to match the growing population are the main problems of high urbanization rate in developing countries. A report by UN (1987) indicated that 40 percent of developing world's urban population did not have access to proper sanitation. The same report indicated that 40 to 50 percent of the urban populations of developing world live in slum and informal settlements. The slum and informal settlements provide unsatisfactory living conditions and they are usually inadequately served with essential infrastructures. Solomon (1985) described that because of great discrepancy between housing need and housing supply, the majority of urban centers in developing countries are found congested and unsanitary.

Ethiopia, like many other developing countries is experiencing high urbanization rate. According to UN population projections, the proportion of urban population in the country will be 26 percent by the year 2010 and 34 percent by 2025 (UN, 1987:89). However, this rapid rate of urbanization in the country does not match with the provision and availability of basic urban infrastructure needs and other service needs. Housing is one of the most important basic needs that are required by urban citizenry. Housing serves as a unit where an individual becomes capable of experiencing privacy and his family sheltered and protected against disturbances. Beyond its necessity, it has also an important role in the economic development of a country.

The housing situation of many countries in the world is characterized by various level of inadequacy from which demographic as well as socio-economic factors are responsible. An investigation into the existing socio-economic and demographic characteristics of urban dwellers is necessary to promote the provision of appropriate dwelling units. Therefore, this study aims at assessing the existing housing condition and tries to list out the major socioeconomic and demographic factors that influence housing conditions in Addis Ababa with a specific reference to the experience of government and private sector employees.

**2. Statement of the Problem**

Ethiopia, as a developing country, faces housing problem mainly in its urban centers. NUPI (1985) indicated that housing production in urban Ethiopia has taken place at a very slow rate during the last two or three decades and thus the supply is incompatible with the present demand. Not only this, a significant production of the existing stock at present is found in bad condition and is steadily deteriorating. According to CSA (1998), most of the dwelling units in urban Ethiopia are aged and are

merely one room structures made of wood and mud which accommodate on the average three persons.

The accelerated growth of population coupled with slow economic growth is resulting a serious housing problem in urban Ethiopia. The situation in the capital, Addis Ababa is worse. It has been arguably stated that the population of Addis Ababa is increasing much faster than the economic capacity to support both the existing and the coming citizenry. Shelter and service provision could not correspond with its fast population growth. Lack of sufficient basic housing amenities, overcrowding and shortage of housing units are the major housing problem in Addis Ababa. Hence, a large number of people in the city live in substandard housing with minimal infrastructure services and facilities. The 1994 census indicated that over 80 percent of the housing units in Addis are made of non durable material, 90.4 percent of these houses lacked bathing facilities and about 5 persons on average are living in a single dwelling unit.

It is well known that substandard dwelling units erode the inhabitant's quality of life. Housing units that were poorly constructed and overcrowded fail to keep out the elements, fail to provide sufficient security and leads to increase interpersonal friction (Yassin, 1997). The availability of housing units and its quality will determine the satisfaction and efficiency of productivity of an individual. Mosses (1993) also indicated that housing condition has a direct impact on health, happiness and productivity, which in turn are necessary inputs towards overall development. Dwyer (1975:58) also emphasized that housing condition influence the productive capacity of man and there by play a significant role in the overall economic development of a country. In general housing affects the over all socio-economic aspects of a society. Thus, assessing housing problem is a crucial point from development aspect.

Public and private sector employees are part of the society who's living and working conditions are seriously affected by the prevailing problem of housing. A large number of people employed in government and private organizations in Addis are suffering with housing problems. Also, every year a large number of fresh graduates from various colleges and universities are unable to obtain a house due to acute housing problem. The type and quality of housing that households tend to occupy are related to and influenced by: their demographic characteristics, their socio-economic positions and the housing supply.

Some researches have been done on the magnitude of the problem in the city. However, little has been done on the prevailing socio-economic and demographic factors which affect the urban housing conditions with emphasis on government and private sector employees. This study, therefore, tries to investigate the current housing situation of government and private sector employees in Addis Ababa. It also tries to find out the relation between socio-economic and housing conditions of employees. Such investigation has an immense value in determining what factors (among household characteristics) influence housing situation and point out for remedy.

## 3. Objectives

### 3.1 General Objective

In view of the problem stated above, the main objective of the study is to explore the housing conditions of government and private sector employees in Addis Ababa.

### 3.2 Specific Objectives

- To assess the nature and magnitude of housing problem in Addis Ababa
- To examine the association between the demographic and socioeconomic characteristics of employees and their housing quality

measured by type of construction materials, availability of basic housing amenities and crowding

- To investigate the relationship between the demographic and socioeconomic characteristics of employees and the tenure status of their house

## 4. Data and Methodology

### 4.1. Data Source

In order to obtain the above stated objectives, both primary and secondary data are used. The primary data was collected through survey questionnaires that were distributed to the selected employees of government and private institutions in the study area. The secondary data was collected from various documents, books, journals, publications and the like.

### 4.2. Sampling Design and Sample Size

The study utilized multi stage sampling procedures employing both the probability and non-probability sampling methods. Purposive sampling method was employed to determine the specific study area and to select the organizations (or institutions) of which the employees to be sampled. In order to determine the ultimate sampling units, that are the respondents, a systematic sampling method was employed. Here, the lists of employees in their respective institutions serve as a sampling frame to select the respondents.

Considering the time given for the research and due to fairly large number of variables to be analyzed, a sample size of about 15 percent of the total population was taken systematically for the study. Accordingly, a proportionate sample size, 15 percent from each institution was taken from both institutions. A total of 201 employees were selected from the institutions, 48 employees from Ministry of Education and 153 employees from Awash Bank. From the total 201 questionnaires

distributed, 195 (97 percent) were successfully completed and returned. Therefore, the sample employees used for the analysis were fixed at 195.

### 4.3. Method of Data Analysis

The analysis of the data utilized both quantitative and qualitative methods. In order to describe the data, descriptive statistical tools such as percentage, mean values, and the like are employed. The analysis is made using SPSS 13 for windows.

To measure the magnitude and direction of association between the independent variables (employees' household characteristics) and the dependent variables (housing quality and tenure status), simple correlation coefficient analysis is made. Here the assessment was made on the impact of household characteristics (sex, age, marital status, education, and income) on housing quality (availability of basic housing amenities, overcrowding and type of construction materials) and tenure status. A non-parametric analysis, the chi-square test was used to measure the differences between the observed and expected frequency distributions.

Moreover, to determine the combined effects of the demographic and socio-economic characteristics of the employees on housing condition, a Stepwise Multiple Regression Model is utilized. It has an advantage over the ordinary multiple regression model in predicting the "best" explanatory variable. Here, the independent variables are entered in their importance of partial correlation coefficients in reducing the variance of the dependent variable ending to decide which independent variable to retain in the final equation.

### 4.4. Model specification

In order to explore the association of housing conditions with demographic and socioeconomic factors of the employees, a stepwise

multiple regression analysis was employed, with the dependant variables being dichotomized in to standard or substandard. According to Mwamje and Gotu (2001:162), regression analysis as a descriptive tool is used to:

- find the best linear prediction equation and evaluate its predication accuracy
- control for other confounding factors so as to evaluates the contribution of a specific variable or a set of variables; and
- find structural relations and provide explanations for rather complex multivariate relationships.

The essence of the model and data set is to establish whether there is sufficient evidence to suggest or indicate a relationship variable ($X_i$'s). This relationship is described by a regression model in the following formula.

$$Y_i = b_0+b_1X_1j+b_2X_2j+---+b_pX_{pj}+e_j \text{ where}$$

$Y_i$=is the value of the $i^{th}$ case of the dependent variable which is housing conditions

$b_j$ = the value of the $j^{th}$ coefficients, j=0, 1,...,p.

$b_0$= the Y-intercept

$X_{ij}$= is the value of the $i^{th}$ case of the $j^{th}$ predictor which are sets of explanatory variables

$e_j$= is the error in the observed value for the $i^{th}$ case

It is assumed that the equation provides an acceptable approximation of the true relationship between the dependent (y) and the explanatory variables ($X_1, X_2 \ldots X_p$), that falls with in the range of the survey data.

For the purpose of testing hypotheses about the values of model parameters, the linear regression model also assumes the following:

- The error term has a normal distribution with a mean of 0.

- The variance of the error term is constant across cases and independent of the variables in the model. An error term with non-constant variance is said to be heteroscedastic.
- The value of the error term for a given case is independent of the values of the variables in the model and of the values of the error term for other cases.

### 4.5. Definition of variables used in the model and Hypotheses

In this study, two main variables were assessed: the dependent (regressed) and the independent (repressor). The dependent variable is housing conditions (housing quality and tenure status). Availability of basic housing amenities ($Y_1$), type of construction materials used ($Y_2$) and crowdedness ($Y_3$) are used as indices of housing quality. Tenure status ($Y_4$) is another important indicator of housing condition. The independent or explanatory variables are demographic and socio-economic characteristic (household characteristics) of the employees that influence the housing conditions directly or indirectly. The variables are selected based on the literature surveyed. It is to be noted that a number of explanatory variables could influence the housing conditions directly or indirectly. However, only few variables that supposed to play dominant roles were analyzed in this study. These include sex ($X_1$), age($X_2$), marital status ($X_3$), education ($X_4$) and income ($X_5$) of the employees.

**Sex-** It refers to the sex of the employees' household head and takes a binary value, 0 for male and 1 for female. In this study, it is assumed that female employees possess better housing conditions.

**Age** It refers to the age of the employees. However, it is a continuous variable; it is dichotomized in to young and old based on the mean age. It is assigned that 0 for young and 1 for older employees. In the study, it is hypothesized that the probability of possessing better housing quality

and homeownership is higher for older ones. This is because the social, economical and cultural conditions forces (and also give chance) to possess better housing conditions as they get older.

**Marital Status** It refers to simply the marital status of the employee having a dummy variable, i.e., married (1) or never married (0). The study assumed that marriage tends to have better housing conditions.

**Education** It is the level of education the employees had. In the study, education is categorized into dummies: non-professional (0) and professional (1). The study hypothesized that education has a positive association with housing conditions such that as people gets higher level of educational attainment, they also possess better housing conditions.

**Income** This refers to the total monthly income obtained by the employee. It is represented by dummies, lower income (0) and higher income (1).Income is dichotomized into lower and higher incomes based on the mean monthly income. In the study, it is assumed that income has a significant effect on housing conditions that better income level enables to posses better housing conditions.

## 5. Significance of the study

Investigation of the housing situation is very important for a country. This is because it assures all citizens to fulfill the basic needs qualitatively and quantitatively that make a decent standard of living. Thus, assessment of housing conditions is an important factor for establishing sound housing policy and for the formulation and evaluation of housing programs. Hence this study helps to:

-Provide up-to date information on aspects of housing in Addis Ababa

-Provide information for those who are engaged in housing development

-Provide recent housing information for governmental and private institutions for appropriate remedial actions.

## 6. Organization of the Paper

This research paper is organized in six chapters. The first chapter, this section, introduces the main focus of the study and presented the objectives and methodology of the study. The next section, Chapter two deals with literature review. The section is divided as theoretical and empirical literatures. Chapter three is about housing problems in Addis Ababa. This section reviewed the general housing problems of the city. The main theme of the study, empirical findings, is presented in chapter four. This chapter presents and discussed the results of the study. The last section, Chapter 5 presents the summary, conclusion and recommendations of the study. Some tables from the survey result and regression analysis that are relevant to the study are attached as Appendices.

## 7. Limitation of the Study

One of the main problems faced during the study was to obtain a complete and accurate response related to income and age. Few employees, however, have appeared to be suspicious and were not willing to tell the exact amount of their incomes. The responses, therefore, are not hundred percent perfect. Another limitation is that analysis of housing condition would give best result if treated with Logistics regression model. However due to some constraints, the dependent variables are analyzed only using multiple regression model.

# Chapter 2 Literature Review

## 2.1. Theoretical Framework

### 2.1.1. Definition of Housing and its Role in Development

There is lack of consensus to the exact definition of housing due to its multi-dimensional nature. Different scholars define the term housing in different forms. For example, Stone (1993:1) and Donnison (1969:23) define that housing is our home, a show case for our possession, and determines our access to job, to services, and to other people in our lives. When people are housed, as Stone (1993:2) explained, they get the advantages and disadvantages of the physical structure, neighborhood, accessibility, urban services and others that are needed for their physical, mental and social well beings. The UN (1970:16) defined housing as a residential environment which includes in addition to the physical structures that man uses for shelter, all necessary services, equipments and devices needed or desired for physical, mental and social well being of the family and individuals. From the above definitions, the term housing is a wide concept that has a social, economical and cultural implication beyond the basic aspect of shelter. Hence, housing is more than physical shelter which has a considerable impact on all aspects of our existence. Also it indicates the welfare and quality of life in a society.

Housing is also important financially. World Bank (1993:11) indicated that 20 to 50 percent of the reproductive wealth of most countries is spent on housing, and as Leeuw *et al.*, (1976:18) mentioned that one fifth of a family's income is spent on an average on it. Higher incomes of a country (GDP) as well as of a person permit more spending on housing which leads to better housing conditions. As economic growth of a country proceeds, the average fraction of income spent on housing

increases and hence better housing situation will be obtained. This is because of the fact that food problems became less important as income grows.

Housing is not only a prerequisite to the survival of man; it has also an important role in overall development. According to Balahin et al. (2000), housing as a sector has proven to have great potential to boost the over all development in a country. It contributes to:

- Employment generation in housing related activities as a form of labor intensive industry.
- Higher rate of investment by attracting private savings into financial institution.
- Capital formation through capital yields in term of rent and positive changes in asset values.
- Income redistribution in the form of mass public housing investment schemes.

Housing construction is particularly a sound investment in developing countries. UNCHS (1996) argues that countries that can take advantage of the increased urban population by creating jobs and stimulating economies through housing construction will prosper from it. Housing sector is also the primary source of revenues for local governments. It plays a role in the national economic and social policies as a component of urban and general development (kennedy, 1989:39).

### 2.1.2. Housing Quality

Many writers have attempted to describe the components or measurements of housing quality. However, the component of indicators to measure housing quality varies from country to country depending on the overall level of development. UN (1976) argues that there are no internationally accepted housing quality indicators because housing

quality is a mirror reflecting the character of the social structure, the standard of living and of the technological level of population.

Different countries and scholars set criteria to measure the housing quality. According to UNCHS (1996) the widely used and accepted criteria to measure the housing quality (housing condition) are:-

1. The physical quality of dwelling unit and physical environment.
2. The quality and level of provision of municipal services and related infrastructures such as access to water, electricity supply, roads and sewerage network.
3. The quality of the neighbor hood and the community services and related facilities such as schools, health centers, police recreation.

In Ethiopia context, according to CSA (1994) the quality of housing unit is determined by its structure, type of construction materials used, number of rooms, housing facilities and amenities, tenure status and occupancy level.

The availability of community services, transportation accessibility and other facilities such as school, shopping area, recreation centers, health centers and the surrounding environment are not included in the measurement of housing quality in Ethiopia.

### 2.1.3. Housing and Health

The environment in which man lives determines his state of well being. Housing is a residential environment and as such it is a decisive factor in affecting human health. Health, as defined by World Health Organization, is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity (Colburn, 1969:209). A healthy residential environmental is essential for human

being to live and work effectively. A healthy residential environment is a dwelling unit that promotes the health of individuals as well as the community which includes the design of the dwelling unit, household services and facilities, physiological requirements and protective requirement.

On the other hand, poor housing conditions such as over crowding, inadequate housing facilities and amenities, poor drainage, poor ventilation, failure of screening against insects and the like are highly correlated with poor health. Poor housing condition causes disease and results poor life expectations. For example, the presence of adequate ventilation on a dwelling unit can control the incidence of respiratory diseases and also helps to maintain thermal comfort both in the heat and cold. A person infected with a respiratory disease, for example tuberculosis, surely lacks his working productivity, and again it is obvious that excessive warmth results in the disturbance of sleep that causes loss of efficiency on the next day. Overcrowding is another poor housing situation that results in the spread of infectious diseases, for example typhoid, and it also leads to irritation, fatigue and unproductiveness (Odongo, 1979:31). Overcrowding is usually considered as a response to housing shortage.

Substandard housing, unsafe water and poor sanitation in densely populated cities are responsible for many million deaths. According to the UNCHS global report of 1996, 10 million people will die every four year due to poor housing, unsafe water and pollution.

Lack of housing amenities and facilities also leads to poor sanitation and poor personal hygiene which in turn results epidemics such as cholera. Inadequate provision of housing facilities and amenities to the urban dwellers frustrates efforts by them to become efficient producers of goods

and services that are valued in the market. A housing that is poorly designed and constructed fails to keep the inhabitants from hostile factors that affects their privacy and health and hence reduces the productivity of individual capacity to work.

## 2.2. Empirical Evidences

### 2.2.1. Urban Housing Situation in Third World Cities

As stated in the preceding pages, housing is one of the basic necessities of human beings. However, many urban centers in the world are facing a serious problem of housing where homelessness, overcrowding and slum housing became the main features of world urban areas. The problem is world wide but it is severe in developing countries. Today many Third World Cities are unable to meet the housing needs of their inhabitants mainly due to the rapid pace of urban growth that straddles beyond their economic development. According to UNCHS (2002), the urban population of developing countries increases by more than 170,000 people every day that needs an additional 30,000 housing units. There is housing shortage in the world where the amount of dwelling units produced each year lags far behind the amount needed.

In assessing housing shortages; rapid population increase, overcrowding and slum occurrence are the conventional indicators for Third World Cities (Odongo, 1979:31, Dwyer 1979:108). According to Dwyer (1979:110), Third World cities average annual requirement was 7.9 million which was required to provide for the increased population (5.4million), replacement of obsolescence stocks (1.5 million) and elimination of existing housing shortages. Africa's requirement was a total of 0.9 million where 0.7 million was as a result of population increase (Dwyer 1979:110). Among less developing countries, cities of

Asia required high amount (5 million) of housing unit due to their high population size.

Recent studies revealed that in cities of Africa, Asia and Latin America the number of conventional housing units constructed was 3 houses on average per 1000 inhabitants (UNCHS, 1996:196). However, the recommended rate is 10 units per 1000 inhabitants. Since there is a wide gap between the demand and supply of housing units in low developing cities, there is mushrooming of slum and squatter settlements. The availability of basic urban services is also inadequate to the inhabitants. According to UN (1987:77), 40 to 50 percent of the urban populations of Third World cities live in slums and informal settlements. Slums are the physical manifestations of urban poverty and intra-city inequality.

The availability of urban services and facilities are important indicators of housing conditions and the quality of life in it. Urban service provision in most Third World Cities lags far behind the expected. Many large cities in Third World countries lack safe drinking water, sewerage system and electricity. A survey made in 1985 by World Health Organization indicated that more than 25 percent of urban dwellers in Third World cities lacked access to safe drinking water (Devas and Rakodi, 1992:12). This figure has grown to 30 percent in 1993 where Africa's urban dwellers rank the lowest in accessing safe drinking water (UNCHS, 1996:265). The same study indicated that close to half of the urban population in Africa did not have safe drinking water connection to their dwellings and more than 32 million urban African's relied on public stand pipes. In Asia and Pacific close to 15 percent of the urban population lacked safe water supply at all and one fifth of the urban population relied on public stand pipes (UNCHS, 1996:265).

Housing facilities and amenities have been supplied inadequately in Africa especially in Sub-Saharan Africa cities. In 1980, only 27 percent of the urban population in Burkina Faso served by water supply (where only 16 percent of them had house piped), and in Mali only 20 percent of the urban population had water piped to their houses (UN, 1987:123). The sewer system of low developing cities is also in poor condition that can affect the urban dwellers health and lessens their working capacity. A report by UNCHS (1996:123) indicated the situation that most cities in Africa and Asia had no sewerage system at all so that much of human excrements and wastes end up in rivers and streams. In Jakarta (Indonesia), even though there were pit latrine and other private sanitation system, the bulk of human waste goes into the city's rivers and canals since there was not sewerage system in city (Devas and Rakoid 1993:17). Hence, the accumulation of wastes in rivers and canals can cause epidemics that deteriorate public health.

The supply of electricity in Third World cities is another challenge. The scanty available documents indicated that in Dakar (Senegal) more than half of urban population lacked electricity (Dwyer 1975:109), in Cape Coast (Ghana) 25 percent lacked it (Gillbert and Gugler 1992:115) and 23 percent of the urban population in Egypt had no electric supply in 1980 (Devas and Rakodi, 1993:10).

Overcrowding (high room density) is another indication of poor housing situation in cities and towns. Room density is the number of persons in a given single room. The available data source revealed that overcrowding is common in Third World Cities. Overcrowding is associated with poverty, as the poor often do not invest enough on housing since food is by far more important than shelter. Room density increases with a decrease in per capital income in a given country (UNCHS, 1996:73).

Overcrowding is a demographic phenomenon that occurs in slums as well as in conventional houses.

Overcrowding can also be measured by the amount of floor area occupied by inhabitants. The absolute minimum acceptable floor area for a person is 7.5 square meter but the minimum desirable is 15 square meter (Macpherson, 1979:70). Despite this, the crowding matrix in cities of Third World Countries is very high. According to UNCHS (1996:197) survey, among cities in developing countries, Accra is the only city where there is a little more than 10 square meter of floor area per person and all the rest had less than this, while the corresponding figure is 30 square meter per person for developed nations. Dwyer (1975:28,109) demonstrated that in Abidjan (Nigeria) rooms which are 7.5 square meters were inhibited by an average 4.6 persons, and in Dakar (Senegal), 45 percent of the population shares a room to three or more persons. Another report for high room density is in urban India where room occupancy rates average 2.8 persons, in Pakistan it is 2.7 with around half of all dwellings have three or more occupants per room (Devas and Rakodi, 1993:9). From the above survey reports we can conclude that most cities of less developed nations have an overcrowded housing situation so that the incidence of disease that threatens the health and productive potential of inhabitants is on an edge.

The type of construction materials that the dwelling units built is another indicator of the housing condition of Third World Cities. Most of the dwelling units in Third World cities are made of non-durable materials and are old aged (UNCHS, 2001:28). For example, Valiet (1990:32) indicated that more than 50 percent of the urban housing units in Pakistan had been built with unbaked bricks and in Mexico one out of five houses had been built with mud bricks. Dwyer (1978:28)

described that in Abidjan most of the houses were built with mud and sticks that were non-durable and substandard.

From the above discussions, we see that many urban centers of developing countries face a serious housing and related problems. The problems of urban centers are more severe in Sub-Sahara African countries than other developing countries. A research conducted in some sub- Sahara cities of Africa shows that 80 percent of Addis Ababa, 75 percent of Lagos, 65 percent of Daressalam, 50 percent of Lusaka and 60 percent of Abidjan population were living in low-quality or substandard settlements (Omolambi, 2001:19).

The availability of standard housing is greatly determined by the socio-economic, demographic and related nature of the household and the community. The level of occupancy (density and ownership), quality of housing units (external appearance or form or morphology), availability of housing facilities (water, toilet, light, garbage disposal, etc), and rate of construction and maintenance are varying from individual to individual, country to country based on the level of development differences (Abrams, 1964:84; Gillbert and Gugler, 1992:128).

At individual level, income, marital status, household size, sex, age, educational level, occupation type etc, can significantly affect the quality of housing and tenure status. Of all these, income of the household is the preliminary determinant. Stone (1993:33), in his study of the poverty level in Boston, has mentioned that most of the housing problems in the town are logically or historically attributed to the problem of affordability. This is because there is a wide gap between income on one hand and the cost of housing on the other. Continuing his argument, Stone said that problems of physical conditions and space, the amount, type and location of new construction and the allocation of resources, public and

private etc are ultimately traceable to squeeze between incomes and housing costs. Similarly, Piel and Sada (1984:279) in their studies of African Urban Society also emphasized the impact of income on shelter. They have said that "access to accommodation varies with income level; those with the highest income have the best housing". This simply means that the individual's ability to pay for housing depends on income.

There is also a considerable variation in the type of housings as well as occupant characteristics. The relatively higher income households prefer to live in a high level of construction, suitable environment with good or high order infrastructures. The poorest, on the other hand live in bad dwellings with unhealthy environment either at slum or in spontaneous settlement areas in the periphery. Mbuyi (1989:162), in his study of Kinshasa revealed that the poor because of high land prices and the rise of construction cost are forced to move into neighborhoods which have been turned into slums and into squatter areas located distant away from the city with unstable localities for modern construction.

Piel and Sada (1984:287) found that crowdedness as to be affected by family size and income. The poor are usually more over crowded than those who can afford higher quality houses with sufficient rooms for their families.

Though home ownership is often the result of long planning, organizing and saving, in addition to income, it can also be influenced by sex, marital status, age and occupational characteristics of households (Kennedy, 1989:118; Piel and Sada, 1984:289). In the United States, for instance, in 1980 four fifths of all people who lived alone, and who were between the ages of fifteen and forty-four were tenants (Kennedy, 1989:180). The same author said that it takes years for most couples to save for down payment on a home. He argued that the earlier in life you

begin having children, the longer you are likely to remain a tenant- other things being equal. Therefore, it is possible to say that there is a strong connection between being married, middle-aged and home ownership. For instance, in the U.S.A. home owners accounted for almost 90 percent of all married couples in their late thirties or above (Kennedy, 1989:182).

The situation is almost the same in the developing countries. In tropical Africa as shown by Piel and Sada (1984: 296) the typical homeowners are males and over 50 years in age. They also revealed that manual workers are best able to acquire a house if they are self-employed and can do some of the buildings themselves implying that type of occupation could have the potential to affect tenure characteristic.

A study in seven Tanzanian towns (Piel and Sada, 1984:284) revealed that only a quarter of household heads aged 35 to 44 as being owner occupants compared with 42 percent of those in their 50s, and 56 percent of those over 60s. In addition to this, they have found out that plot holders are usually older, less educated, and more self-employed than tenants and lived longer in the towns. However, they emphasized that aspiration of home-ownership among tenants has been increased with income and level of education.

Home ownership has also links with sex. For instance, in the U.S.A only 48 percent of female households are homeowners while 65 percent of all the housing units are owned privately (Birch, 1990:87). Households or individuals may be unable to meet land lord's interest or they could be unable to compete in the free market. In such situation they are forced to make whatever housing arrangements they can; squatter-settlements, self-help housings, enlarging and upgrading the existing ones informally, etc are examples of such kind (Stone 1993:43). Most of these unauthorized settlers (squatters) are migrants form rural areas.

### 2.2.2. Urban Housing Situation in Ethiopia

High urbanization rate, like many developing countries is also the feature of Ethiopia. The rate is much higher than that of the national average population growth. The rate of urban population growth in Ethiopia is 4.7 percent (Tibebu, 2003:162). In the country, the rate of urban growth was not parallel with the provision of basic needs, for instance shelter. Homelessness, overcrowding, slum and squatter settlements became enduring features of cities in Ethiopia, especially in the primate city. Although the introduction of modernization in 1900s and 1910s had introduced modern construction of houses, the housing sector had not developed well. The tradition of not constructing permanent houses, the low capacity of the people to construct modern houses, the rapidly increasing of the population, inappropriate policies of successive government have been some of the obstacles to the development of housing sector in the country (Konjit, 1991:3; Andargachew, 1992:5). As a result, the gap between demand and supply of houses has been widened and also over crowdedness has been aggravated from time to time.

There is a huge housing shortage and as the same time most of the existing housing structures are impoverished and dilapidated. According to the result of 1994 census, there were 1,177,911 households and 1,482,589 housing units showing a deficit of 304678 housing units in urban Ethiopia. The physical conditions of the housing units in urban Ethiopia are too poor and far behind the conventional standards. According to the result of 1994 census report, 90.2 percent of the houses in urban Ethiopia had no bath room, 89.3 percent of the houses were built with traditional materials and 42.6 percent of the houses in urban Ethiopia were more than 20 years aged. Some studies (Solomon, 1993; Shewanesehe, 1994; Berhanu, 1995; Taddesse, 2000 and Getu, 2001) on the general urban housing situation of the country were carried out and revealed that the overall housing condition in Ethiopia was on

substandard level and the production was not meeting the demand. Some of the studies are summarized below.

Solomon (1993) studied the condition of the poor in Addis Ababa that he tried to correlate the income distribution of household heads with their housing condition. In his study, he tried to analyze housing characteristics such as crowdedness in terms of persons per room, type of construction material and access to basic housing facilities and amenities and rental situation. He found that the housing conditions of his respondents were characterized by poor housing conditions. According to his study, majority of the lower income groups of the city lived in housing units that are below standard. However, Solomon's study did not include the impact of other socio-economic factors apart from income.

Shewaneseh (1994) studied socio-economic factors that determine residential satisfaction of government housing projects. His analysis was made on the impact of socio- economic factors (income, education, occupation and age) on the component measures of residential satisfaction. According to his study except income all the rest are positively correlated with housing satisfaction of the residents. A reverse relationship was observed with income. He argued that this inverse relationship is true because people with better income tend to be more dissatisfied with rental houses than lower income groups as a result of the desire to possess their own dwellings. Shewaneseh's study focused only on government housing projects.

Another study on urban housing condition is that of by Berhanu (1995). In his study, Berhanu tried to correlate and analyze socio economic condition of households on housing characteristic such as type of constriction materials, crowdedness and availability of basic housing

facilities and amenities. He also tried to assess the impact of rental situation on housing characteristics. He found out that the majority of the dwelling units in Mekele town are below standard and the residents live in poor housing conditions which affects their health and life. However, Berhanu's study failed to show to what extent the socio-economic and demographic characteristics of households affect ownership patterns.

Other studies about the housing condition in Ethiopia are that of Yassin (1997) and Daniel (2001). Yassin (1997) tried to assess the housing condition of the poor in Addis Ababa. Like the above mentioned studies, Yassin's study also revealed that many of the housing units in Addis Ababa are below standard. According to his study, only 43.4 percent of the sampled respondents live in good conditions and the rest were poor houses which require either structural or non-structural maintenance. He also indicated that only 51.5 percent of his sample respondents were owners of a house. Yassin (1997) concluded that the majority of the poor lived in low quality or substandard housing units where their lives and health were continuously threatened. However, his study failed to see other socio economic factors other than income that affect the housing situation.

Daniel (2001) also studied the housing condition in Addis Ababa relating it with urban poverty. In his study he found that only 50.1 percent of the respondents had their own houses. He also indicated that 60 percent of the sampled households were overcrowded and 79.5 percent of the housing units were made up of wood and mud ('chika') walls which were substandard. Moreover, Daniel's study indicated that from the total sampled households, only 41.4 percent had private tap and 68.2 percent have private electric meter. A worse condition indicated by his study was that from the total sampled, those households which had no kitchen, no toilet and no bath room at all were 26.5 percent, 23 percent and 86

percent respectively. Daniel (2001) concluded that the overall housing situation in Addis Ababa was not only depicts structurally poor and overcrowded but also portrays poor sanitary conditions. However, his study only considered income but didn't consider other socio economic factors for assessing the housing conditions of the sampled households.

Taddesse (2000) also assess the urban housing conditions in Ethiopia. In his study, he used secondary sources and found that many of urban dwelling units in the country are below standard and there was a wide gap between housing demand and the actual supply in all urban centers. He identified that high rate of urbanization, low affordability, low investment and low tax supplies are the main causes for the problem. However, except income, he didn't examine other socio economic factors for poor housing condition in urban Ethiopia.

Another study that was done on the housing problems was that of Getu (2001). In his study, he found that 59 percent of the sampled respondents live in substandard dwelling units and only 49.3 percent were the owners of their houses. He also found that household characteristic had a positive correlation with the availability of basic housing facilities. He concluded that the housing units occupied by majority of government employees in Nazreth town were poorly constructed and a significant portion of them lacks basic housing facilities. However, his study failed to see private sector employees. Moreover, he used only simple correlation analysis to see the relationships.

A recent study about housing was by Tessema (2003). In his study, he tried to assess the condition of Kebele managed houses in Addis Ababa. According to his study 65 percent of his sampled households were found in poor conditions and only 19.5 percent are in good conditions.

Tessma's study, however, used only simple correlation and failed to see the combined effects of household characteristics on housing quality.

### 2.2.3. Urban Housing Policies

In the preceding pages it has been discussed that rapid urban growth in Third World Countries has not been matched with urban housing needs and demands. As a result, it has been deteriorating the housing situation of many urban areas in these countries. One reason for this problem may be lack of appropriate housing policies that deals with it.

Housing policy refers to an arrangement of activities that are jointly undertaken by government and private institutions in the provision of housing (McGuire, 1981:3). The activities include legislation of standards, land tenure, financing, subsidy and the like that are necessary in the provision of housing to those who need it. The policy should also focus on increasing the existing stocks to overcome the existing housing shortages and as the same time improve the housing quality. Moreover, it is often essential to consider urban services and infrastructure delivery in a housing policy for the general urban development.

A housing policy has socio-economic motives for initiation beyond the general housing problem. According to Adeniyi (1972:319), the principal motives that encourage governments to set up a housing policy and invest on housing is the need not to have a social and political disturbances that may arises as a result of slum and squatter development.

Despite the fact that housing has a crucial importance in the development process, most developing countries were very late in formulating housing policies and have an investment on it. This was mainly due to the traditional economic misconception that considers housing as a non-productive sector and investment on it was wastage of

resources (Solomon, 1985:22). Until 1960s most developing countries governments had an attitude that housing problem will have been swept away as the economy grows. But this conception was not right since housing problem stagnate the growth of the economy in one or another way.

In Ethiopia like many other developing countries, the formulation of housing policies has not attained emphasis by the government until recently. Little concern was given to the deteriorating urban housing conditions until 1960s. The sector started to have an emphasis after the establishment of Housing Department in the Ministry of Public Works in 1959. After the establishment of this department, the housing sector has been given a considerable attention and became part of the general development plan of the country. Thereafter, the housing sector had taken a significant part in the country's development plans and then it was incorporated in the Second (1962-67) and Third (1968-73) year development plan.

The main objective of the second five year plan was launching low cost housing projects and preparation of technical norms and standards for the low cost housings (Ethiopia's Second Five Year Development Plan, 1963:135). The Third Five Year Development plan (1968-73) also aimed at improving urban housing problems where focus was given on the provision of shelter for the middle and lower income households. Moreover, the preparation of master plans, formulation of urban land acquisition policies and the provision of zonal housing areas were centered to this plan (Ethiopia's Third Five Year Development Plan, 1968:306).

In pre-revolutionary Ethiopia, governmental intervention in the housing sector was restricted in the formulation of policies and programs. In this

period much of the activities of the housing industry were left to the private sector.

In post revolutionary Ethiopia (1974 to 1991), the housing policy was totally different than the pre revolutionary period. Due to the political ideology of socialism in the country, private lands and extra houses were nationalized by a decree in July 1975. In this period, all housing and related activities were run mainly by the government. A governmental institution called Ministry of Urban Development and Housing (MUDH) was given the duties and responsibilities to control and manage all the housing activities. The participation of private institutions in urban housing market was totally abolished.

In order to alleviate the housing problem which arises as a result of the rapidly growing urban population the then government devised four main schemes (MUDH, 1983:29-30):

1. Individual Housing. Under this scheme, individuals who want to build their own houses with private financial sources or by loan from Housing and Saving Bank were given a free plot of land and a house plan.
2. Aided Self-help housing. It was intended mainly to low income groups earning a monthly income of 100 to 200 birr. Ten percent of the total construction cost was expected in labor form individuals and the rest was covered by MUDH with a simple yearly interest of 6 percent to be paid over 15 years.
3. Cooperative Housing. Individuals with a monthly income of 200 birr and above have to be organized and form a cooperative. The MUDH provides up to 500 sq meter plots of land and the housing and saving bank provides funds at 9 percent interest rate.
4. Government Housing. Here the government undertakes the construction of low cost housing and apartments.

In the post revolutionary period of Ethiopia, the government has involved actively in the housing sector where it directs and controls the trend of housing development.

After the fall of the Marxist regime, free market economy was launched where some of the obstacles on urban housing development were lifted up. The transitional government of Ethiopia has announced urban land lease proclamation in December 1993 to encourage housing construction by private institutions. Individuals were encouraged to construct low cost housing by providing urban land free of charge on a lease basis. The residential land delivery system in urban areas is mainly administrated by Lease Offices. The office distributes plots of land of maximum threshold size (175 square meters in Addis Ababa) through a lottery system. Plots above the threshold size will be allocated by auctions where the market determines the price (PADCO et al., 1996:23). Policy concerning urban housing is theoretically under private ownership, but all the nationalized houses still remain under the government. The policy concerning land also states that all rural and urban land belongs to government; individuals can acquire land if they pay the required fees. The government is the sole supplier of land for the development of housing and other activities.

An important advancement in the housing development in this period is the involvement of the private sectors and NGOs. Housing development since 1990s in urban Ethiopia is categorized into; Individuals, Housing Cooperatives, Government, Real Estate Developers and NGOs and CBOs (NUPI: 2003).Through time the housing policy was developed and amended with the existing situation. Low cost housing projects were also started in the last few years to provide dwelling units for the citizens. The government is building condominium houses for lower and middle income groups in major urban areas of the country.

# Chapter 3 Housing Problems in Addis Ababa

## 3.1. Urbanization process of Addis Ababa

Addis Ababa was founded in 1886/87 by the then Emperor of Ethiopia, Menelik II. The city was composed of widely dispersed agglomeration of various huts, the palace, military camps, market places, churches and foreign legations at the early period of its evolution (Horvath, 1966:54). There is no as such sufficient data about the size of population when the city was established. In 1917, when the Ethio-Djibouti railway way completed, the city began to grow rapidly and also the population has showed a substantial increase (Andargachew, 1992:5).

The population of the city was around 65,000 in 1910 and grew to 100,000 in 1935 (Solomon, 1985:36). The population size continued to grow and reached 443,728 when a census record was made in 1961. In 1960s, the city had a relative large average annual growth rate which was 6.5 percent (Solomon 1985:39) due to its remarkable socio-economic and political administrative centre where it attracts many in migrants. However the average annual growth rate did not continue to increase rather it showed a declining trend starting in the 1970s as a result of political instability and socio-economic changes took place in the country. Konjit (1991:26) described that rural land proclamation that enable peasants to own their land reduced the rate of migration to Addis Ababa. On the other hand Andargachew (1992:6) explained that the declining trend of growth rate possibly due to the acute shortage of housing and containment attitudes of both peasants' and urban dwellers' associations created after the 1974 socialist revolution.

The growth rate of population continued to decline where it was 3.4 percent during 1978-1984 and today it is nearly 2.3 percent (Shewaneseh, 1994:29). Even though there was a declining trend of

average annual grow rate, the city is still experiencing a remarkable population growth. Today it is estimated that more than 2.9 million people are living in the city in an area of 530.14 square kilometer (CSA, 2005) and it is projected that by the year 2020 there will be 3.9 million urban dwellers in Addis Ababa (UNCHS, 2003:255).

The accelerated population growth in Addis Ababa, as indicated by various studies and survey censuses, was due in migration (CSA, 1984; Solomon, 1985; Tegegne, 1996). Hailu (1983) cited in Andargachew (1992:6) mentioned that 64 percent of annual growth of population that was recorded between 1970 and 1978 was a result of migration. The CSA (1984) report also revealed that nearly 48 percent of inhabitants in Addis were migrants. Tegegne (1996:18) was also indicated that the percentage of in migrants was 57.7 and 52.7 for the year 1967 and 1978 respectively. Under-employment and unemployment, drought, war, landlessness and impoverished living conditions in the rural areas were the 'push' factors and need of better services, infrastructure and employment opportunities were the pull factors for the in-migration to Addis Ababa (Solomon, 1985; Andargachew, 1992).

Like most other developing country's cities, Addis Ababa has failed to provide the basic needs (housing) and other urban services to the rapidly growing population. High population concentrations in the city have resulted in the inhabitants to live in poverty, poor health and poor housing conditions. Health problems are exacerbated by the poor quality of their housing, the site on which the house built and lack of housing facilities and amenities. The majority of the households in the city had too low monthly income which could not enable them to afford or build a suitable house. ORAAMP (2002:32) indicated that 60 percent of the city's population lives below poverty line so that they are even unable to have enough food.

The majority of the residents live in 'substandard' houses that lack basic housing facilities and amenities and made up of non durable materials. They also live in overcrowded situations. Thus more than 85 percent of the residents in Addis Ababa live in slum areas that threaten their health and lives (Devas and Rakodi, 1993:9).

### 3.2. Housing Shortage

The growth of the population in the city since late 1960s was much more rapid that showed a threefold increase in 27 years between 1967 and 1994 (CSA, 1984 and 1994). The rapid growth of population has a significant implication to the overall situation of the city. The economic growth was not paralleled with the population growth so that it failed to provide the basic urban needs. Some studies indicated that housing shortage in the city was so sever that many citizens were unable to have a suitable dwelling units and were forced to live in poor housing conditions (Yassin, 1997; Tessema, 2003; Solomon and McLeod, 2004).

Table 1 Estimates of households and housing units in Addis Ababa from 1967-2004.

| Year | Households | Housing units | Housing unit deficit | Average household size |
|---|---|---|---|---|
| 1967 | 175264 | 150338 | 24926 | 3.9 |
| 1978 | 262806 | 221,395 | 41411 | 4.4 |
| 1984 | 267769 | 259555 | 8214 | 5.3 |
| 1994 | 402888 | 374742 | 28146 | 5.1 |
| 2004 | 550000 | 413952 | 136048 | 5.1 |

Source: Computed from: CSA (1984, 1994), A. A. Master Plan Project (1986, 2004) and NUPI (1989).

Table 1 indicates that there were 150,338 housing units in 1967 and the figure rose to 221,395 in 1978 which means an increase of 71057 housing units in 11 years (only 6460 houses per year).

According to Yassin (1997:155), a housing survey that was done in 1965 indicated that 82,000 housing units were required in 1965 and some 90,000 for the year 1968 to the minimum standard. Some estimates have also been made to determine the yearly housing needs of Addis Ababa. Solomon (1985:45) indicated that there was a need of 11035 housing units yearly that have to be constructed during the period 1967-1987 where 56.6 percent of the need was to house the increasing population and the rest was for eliminating the existing shortages as well as for replacement of obsolescent. Another study by MUDH (1983) found out that there was a yearly need of 25515 dwelling units for the period 1980-1985, out of which 63.24 percent of the need was for the increasing population, 9.88 percent for replacement of the existing stock and the remaining was to eliminate existing shortage. But the productions of dwelling units were insignificant.

Housing shortage continued to be a problem in the city especially for new households established every year. The supply had not been kept in pace with the huge demand. PADCO et al (1995:99) estimated that the city would require 22320 additional housing units every year over the period 1994 to 2004. A recent study indicated that there were about 108,018 housing units shortage that have been constructed up to the year 1999 (Taddesse 2000:12). Out of this total deficit, 47 percent was required for increased population, 16 percent for ease of overcrowding and the remaining 37 percent was for replacement of obsolescent stocks.

According to MWUD (1996), the total housing units needed in Addis Ababa were 261295 for the year 1996 to 2000. Of these total housing unit deficits, 31 percent were required for the increasing population, 39 percent were to overcome the overcrowding and the rest 30 percent

were needed to replace the dilapidated housing stocks. These data represented that there was high need of housing units as a result of population increase, elimination of existing shortage and replacement of obsolescent stocks. However, the annual housing production was much less than that of required. For example, NUPI (1998) reported that between 1986 and 1996, there was an annual demand of 15,000 housing units where it was possible to provide only 3500 housing units, that is, 23.3 percent of the demand. A recent study indicated that there was 233,000 housing deficit in 2000 and there will be about 223,000 housing needs in the city for the year 2000-2010 (ORAAMP, 2002). The overall situation in the city seems that housing shortage was very high and the problem has been aggravating through time.

### 3.3. Housing Quality

The housing shortage in the city has forced many to live in overcrowded situation where there were more than one household accommodated in a single housing unit. CSA (1994:192) indicated that 5.6 percent of households in Addis were forced to share a single housing unit with other households. Overcrowding was a common feature of housing situation in the city since 1960s. The average household size was 3.5 in 1961 (NUPI, 1989:123) and has increased to 5.1 in 1994 (CSA, 1994:192) where many people has shared a single room for living. According to CSA (1994:192), 42.5 percent of the households have three or more people per a single room and on the average 5.5 persons were living in a single housing unit. The situation caused large number of people to share the limited housing facilities and amenities such as toilet and kitchen which affect the health and living conditions of the dwellers.

Lack of basic housing facilities and amenities has been one of the chronic problems in the city. Many households in the city lacked basic housing facilities and amenities. For example, among the housing units in Addis Ababa, 23.8 percent of them had no toilet at all, 25.2 percent of the households had no kitchen and 90.4 percent of them had no bathing facilities at all (CSA 1994:197,201). The same report indicated that 66 percent of the households used shared taps and the percentage of households that had private tap was only 24.8. The overall situation was so poor that households were living in poor sanitation and personal hygiene. MOFED (2002) indicated that only 35.1 percent of the housing unit had private tap and only 35.5 percent of the dwelling units had private toilets in 2000.

The type of construction material where the houses built is another indicator of the housing conditions in the city. Studies indicated that most of the housing units in the city were made of non-durable materials and as the same time the structures were old aged. CSA (1994: 180-9) revealed that 82.2 percent of the housing units were made up of the traditional material, 'chika', which is non durable. The same report indicated that 52.7 percent of the housing units had earth/mud floor, 48.2 percent of the structure had no ceilings and 61.53 percent of the structures were aged more than 30 years.

The physical condition of most of the houses is getting worse and worse overtime since no frequent or major maintenance was made on them. PADCO *et al.*, (1995:8) indicated that 36.9 percent of the housing structures in the city were in poor conditions which need a major structural maintenance and three percent were beyond repairs that need a replacement. Thus, the overall scenario of housing condition in the city is very poor that majority of the households live in overcrowded housing units, lacked housing facilities and amenities

and many of the housing units were made up of the traditional material that needs repair and/or replacement.

### 3.4. Housing Tenure

Home-ownership is one of the indicators housing situation as well as the level of well being. Many households in the city do not have their own houses. Majority of urban household dwellers are tenants of their houses. Table 2 provides the percentage distribution of each tenure category for Addis Ababa for some selected years.

Table 2 Percentage Distribution of Housing Tenure status in Addis Ababa for some selected years.

| Tenure | Year | | | |
|---|---|---|---|---|
| | 1967 | 1976 | 1984 | 1999/00 |
| Owner occupied | 28.1 | 30.9 | 33.6 | 35.3 |
| Rented | 56.9 | 62.3 | 60.7 | 57.4 |
| Other | 10.0 | 6.6 | 4.3 | 7.3 |
| Not stated | 5 | 0.2 | 1.4 | - |
| Total | 100 | 100 | 100 | 100 |

Source: - CSA (1984) for 1967, 1976, 1984 and 1994 and MOFED (2002) for 1999/2000

As Table 2 indicates that majority of the housing units are not owner occupied rather they are rented. Only 35.3 percent of the houses in the city are owner occupied in 1999. However, it can be observed from Table 2 that the proportion of owner occupied houses has slightly increased from 33.6 percent to 35.3 percent within the fifteen years period (between 1984 and 1999/00). The increase in ownership from 28.1 percent in 1967 to 33.6 percent by 1984 might be attributed to the housing cooperative movement, which has enabled many households to own house (Solomon, 1985:38; Taddesse, 2000; 9).

Literatures on the housing situation of Addis Ababa confirms that high share of renting in the city is owing to many constraints on the

city dwellers to construct affordable housing unit (PADCO et al., 1996; MWUD, 1996; Taddesse, 2000; ORAAMP, 2002). One of the main reasons for this is that the great majority of the city's population lives in poverty so that they are unable to build a house (ORAAMP, 2002:90). The estimated maximum proportion of earnings available for housing is 20 to 25 percent of the household income and on the average 51 percent of the household expenditure goes to food and in some cases; the share of food rises to 80 percent (ORAAM, 2002:90).Hence, the overwhelming majority of the city's population has an extremely low saving capacity to build housing, which meets a "minimum standard" at a "minimum cost".

In addition to this, access to mortgage finance is almost impossible. For the fact that, requirement for mortgage loans from and its predecessor had excluded a majority of the urban population. The Construction and Business Bank currently provides mortgage loans on new houses at least 17 $m^2$ in size at 16 percent interest rate over 20 years, which requires a monthly payments of Birr 156 or a monthly salary of 625 Birr, assuming that 25 percent of income is allocated to housing (Getu,2001:46). But, 72 percent of households in Addis Ababa earn less than Birr 625 a month. Therefore, almost three-quarters of the city's dwellers are simply from the service (PADCO et al., 1996; 93). A complicated and bureaucratic land supply system, the strict application of the building regulations and norms and a general lack of appropriate and consistent housing policy and strategy are also the main problems for building a house in the city (ORAAMP, 2002:95).

This clearly indicates that most households end up as renters by constraints and not choice. Consequently, there is a high demand for rental houses among the low and middle-income residents.

# CHAPTER 4 Result and Discussion

## 4.1. Demographic and Socioeconomic Features of the Employees

An analysis of the demographic and socio-economic characteristics of the population in a housing study is essential for various reasons. Investigation on household characteristics helps to understand the extent at which these features affect the housing condition. Another important reason of examining household characteristics is to understand the living standard of the study population and hence to infer the intensity of housing demand and its affordability. It also helps to envisage a housing policy and/or strategy that can address the problem. Taking this fact into consideration, the demographic and socio-economic characteristics of the employees are examined. Sex, age, martial status, educational status and income of the employees are the main household characteristics that are discussed here. In addition to this, family size, and place of birth are also analyzed.

**SEX**

The total sample population of this study is 195. Out of these, 69.2 percent are males and the rest, 30.8 percent are females. The proportion of male and female employees in the Ministry of Education is 57.4 and 42.6 percent respectively. The corresponding figures of the sampled male and female workers in the Awash Bank are 73 percent and 27 percent respectively of the total 148 cases. It is observed that both institutions have fewer amounts of female employees than male employees and the proportion of female employees is much lesser in Awash Bank. The difference in percentage distribution of employees by gender with in the employer institutions is statistically insignificant.

**AGE**

As indicated in Table 3 below, the age of the employees ranges from 21 to 65 years. The mean age is 31.6 and 42.6 years for Awash Bank and MOE

employees respectively. The mean age of the employees indicate that employees of Awash Bank are found younger than MOE employees. Table 1 show that 44.6 percent of the employees of MOE and 56.7 percent of Awash Bank employees are found below the mean age group. Hence higher amount of younger employees are found in the Awash Bank institution.

Table 3: Age of the Employees

| Age Group | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| 21-25 | 1 | 2.1 | 32 | 21.6 | 33 | 16.9 |
| 26-30 | 2 | 4.3 | 52 | 35.1 | 54 | 27.7 |
| 31-35 | 6 | 12.8 | 20 | 13.5 | 26 | 13.3 |
| 36-40 | 12 | 25.5 | 27 | 18.2 | 39 | 20.0 |
| 41-45 | 10 | 21.3 | 10 | 6.8 | 20 | 10.3 |
| 46-50 | 7 | 14.9 | 5 | 3.4 | 12 | 6.2 |
| 51-55 | 6 | 12.8 | 1 | 0.7 | 7 | 3.6 |
| 56-60 | 3 | 6.4 | - | - | 3 | 1.5 |
| 61-65 | - | - | 1 | 0.7 | 1 | .5 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

For the convenience of the study and understandable of the data, the age group is dichotomized in to two: younger and older age. The categorization is based on the mean age of the employees. Thus, those employees found below or equal to the mean age categorized as younger and those above the mean age as older. According to this categorization, 55.8 percent of the employees are in young age group. The percentage of younger age employees of Ministry of Education is 17 percent and that of Awash Bank employees is 68.2 percent. The variation in the distribution of employees by age group with in the employer institutions is statistically insignificant.

**MARITAL STATUS**

Assessing the marital status of the employees in a housing study will enables to determine the housing demand in the near futures. In a given sample, if the percentages of unmarried or single employees are too much, too many housing units will be required when these single employees are being engaged and married. This is because marriages tend to contribute to housing demand positively. On the other hand, the housing demand is also high when there is more dissolution of marriages (that is divorced, and separated).The percentage distribution of the employees by marital status is depicted in Table 4. It is clearly seen that of the total 195 cases, 46.7 percent of the employees are not married.

Table 4: Marital status of the Employees

| | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| Marital Status | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| Single | 7 | 14.9 | 84 | 56.8 | 91 | 46.7 |
| Married | 35 | 74.4 | 56 | 37.8 | 91 | 46.7 |
| Divorced | 1 | 2.1 | 5 | 3.4 | 6 | 3.1 |
| Separated | 2 | 4.3 | 2 | 1.3 | 4 | 2.1 |
| Widowed/er | 2 | 4.3 | 1 | 0.7 | 3 | 1.5 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

For ease of data analysis and comparison of the employees by institutions, the marital status of the employees is dichotomized in to two: Married and Never married/single. Thus those married, separated, widowed and divorced are grouped in to 'married' employees and the single ones as 'never married'. By this categorization, 53.3 percent of the sampled employees are in married group. 85 percent of employees of Ministry of Education and 43.2 percent of Awash Bank employees are also married showing a wide variation in the percentage distribution.

**EDUCATIONAL STATUS**

The quality of a dwelling unit of an individual is supposed to be affected by the level of education attained. It is commonly known that as an individual gets higher and higher educational level, its satisfaction level

with the housing condition will became more sensitive to housing facilities and amenities, the physical structure and other housing services. Hence educational level affects individuals' need of dwelling type.

Table 5: Educational status of the Employees

| Education Level | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| Grade 1-6 | 1 | 2.1 | - | - | 1 | .5 |
| Grade 7-8 | 3 | 6.4 | 2 | 1.3 | 5 | 2.6 |
| Grade 9-12 | 5 | 10.6 | 28 | 18.9 | 33 | 16.9 |
| 12+ Certificates | 6 | 12.8 | 22 | 14.9 | 28 | 14.4 |
| Diplomas | 19 | 40.4 | 82 | 55.4 | 101 | 51.8 |
| BA/B Sc | 10 | 21.3 | 14 | 9.5 | 24 | 12.3 |
| MA/MSc or above | 3 | 6.4 | - | - | 3 | 1.5 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

The profile of the sampled employees' educational level reveals that their educational attainment varies from elementary level to MA/MSc. As Table 5 shows, of the total employees 34.4 percent of the employees are below college level of education. More than half of the employees have a college Diploma in their education. A comparison of the targeted institution shows that the amount of employees that are below college level education is relatively smaller in the Ministry of Education than that of Awash Bank employees. The proportion of employees that have above college diploma level of education in Ministry of Education is 27.7 percent and that of Awash Bank is only 9.5 which is relatively smaller than the former. On the other hand 72.3 percent of the employees of Ministry of Education have below degree level of education while that of the Awash Bank employees who have below degree level is 90.5 percent. In general it is possible to say that the targeted government institution employees have better educational level of attainment.

In order to analyze the data and make it more understandable, the educational status of the employees is categorized in to two, as

professional and non-professional. Employees that are above diploma level of education are grouped under 'professional' and the rest grouped as 'non-professional' According to this categorization, only 13.8 percent of the employees are professionals. A comparison of the employees by employer institution shows that 27.7 percent employees of Ministry of Education and 9.5 percent of employees of Awash Bank are professional showing a wide variation between the institutions.

**Place of birth**

Having the information of the place of birth would help to know the amount of in-migrants to the given place and it will help to forecast the housing demand as a result of population increase in addition to the natural increase. When we look at the profiles of the targeted institutions, 55.9 percent of the employees are in-migrants to Addis Ababa for various reasons (Appendix 1).

Examining the profiles of employee of each institutions, 72.3 percent of Ministry of Education employee's and 50.6 percent of employees of Awash Bank are in-migrants to the city .Out of these in-migrants, 19.5 percent came in search of job, 24.6 percent came in search of better education and the rest came in search of health and other reasons (Appendix 1) .

**INCOME**

Income of the employees is one of the important factors that are supposed to have a significant effect on the housing quality. The housing condition of an individual has a direct link with her/his income level. It is generally accepted that as income of individual increase, the housing condition gets better and better with facilities and other housing services. Hence assessing the income level of the employees is important to understand the housing condition as well as to estimate the demand for housing.

Table 6: Monthly Income category of the employee

Table 6: Monthly Income category of the employee

| INCOME RANGE | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| 100-400 | 3 | 6.4 | - | - | 3 | 1.5 |
| 401-800 | 7 | 14.9 | 43 | 29.1 | 50 | 25.6 |
| 801-1200 | 2 | 4.3 | 31 | 20.9 | 33 | 16.9 |
| 1201-1600 | 6 | 12.8 | 24 | 16.2 | 30 | 15.4 |
| 1601-2000 | 12 | 25.5 | 15 | 10.1 | 27 | 13.8 |
| 2001-2600 | 8 | 17.0 | 13 | 8.8 | 21 | 10.8 |
| 2601-3200 | 2 | 4.2 | 5 | 3.4 | 7 | 3.6 |
| 3201-3800 | 1 | 2.1 | 4 | 2.7 | 5 | 2.6 |
| 3801 and above | 6 | 12.8 | 13 | 8.8 | 19 | 9.7 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

The income data of the employees is calculated from the combined family's income source. From Table 6, nearly 35.5 percent of the sampled employees have a monthly income which is less than the mean monthly income of Addis Ababa, 1059 birr (CSA, 2004). The table also shows that a considerable proportion of employees (25.6 percent) have a monthly income that fall in range 400 to 800 birr. The percentage of employees of Ministry of Education that get below 1201 Birr as monthly income is 25.6 and that of Awash Bank is 50. Hence significant portion of Awash Bank employees get less than Ministry of Education employees from the mean monthly income of the city.

Income of employees is an important socioeconomic variable in a housing study. Even though income data are continuous variable, to make the analysis of data easier and understandable; the income level of the employees is categorized into two: lower income and higher income. The

categorization of income of employees is based on the mean monthly income of Addis Ababa (1059 birr). Those employees who earn less than or equal to the mean monthly net income are labeled as low income and those who earn above the mean income are labeled as higher income.

By this categorization, 44 percent of the employees are found in the lower income group and the rest in higher income group. Similarly, 25.6 percent of employees of Ministry of education and half of employees of Awash Bank are found in lower income group. The chi-square test showed that the variation in percentage distribution is statistically insignificant.

**Household size**

Assessment of household size in a housing study will help as to know the level of density and the demand for housing. A household with more family size needs more rooms and at the same time shared the available facilities and amenities with many individuals than a smaller family size. Hence the number of persons living per a dwelling unit (or per a single room) affects the standard of a housing unit. The results of this survey as displayed in (Appendix 1) shows that the household size of the targeted employees range from 1 to 12 with a mean of 4.7 household sizes. The average household size is less than the average household size of the city which is 5.1(CSA 2005). A comparison of the two targeted institutions shows that the average household size of the employees of Ministry of Education is 4.8 and that of Awash Bank employees' is 4.7. From the total sampled employees, 48.9 percent of employees in the Ministry of education and 52 percent of employee of Awash Bank have above average family sizes (Appendix 1).

## 4.2. HOUSING CONDITIONS OF EMPLOYEES

The housing condition of the sampled employees that is going to be discussed here includes housing qualities and tenure status of the

employees. *Availability of basic housing facilities and amenities, type of construction materials used and overcrowding* are important measures of housing quality that are going to be discussed. In addition to this, the structure of the building, age of the dwelling unit and the number of rooms in the housing unit are also discussed.

### 4.2.1. AVAILABILITY OF BASIC HOUSING AMENITIES AND FACILITIES

The availability of housing amenities and facilities to a given dwelling unit is one of the indicators of a housing quality. The meaning of housing amenities and facilities include a wide range of services provided to a dwelling unit. However, this study give emphasis to only with those facility and amenities considered as very essential to maintain a health standard for the occupants and also for the residential environment. These are source of drinking water, source of energy for lighting, toilet facilities, kitchen type, bathing facilities. Table 7 below presents the profile of the availability basic housing amenities and facilities in the sampled dwelling units of employees.

**Source of Drinking Water**

From table 7, we find that 99.5 percent of the employees use tap as source of drinking water and 0.5 percent use spring well as a source of drinking water. Of the total employees that use tap water as a source, only 45.1 percent of them had it privately while the rest share the source with other households. However, the total percentage of employees that use private tap as a source is significantly greater than the percentage of households in the city which was 27 percent (CSO, 1994). The proportion of employees that share tap water with other households is 54.4 percent (Table 5 of Appendix 2). When we analyze inter institution variations by type of source of drinking water, we find insignificant variations in percentage distributions of both employees who use either private tap or

shared tap. However, the percentage of employees of Ministry of Education who use shared tap out side a compound is greater than Awash Bank employees of by 5.4 percents (Table 7).

Table 7: Percentage distribution of Housing Amenities and Facilities of the Respondents

| Type of facilities and amenities | Access type | Employees | | | |
|---|---|---|---|---|---|
| | | Ministry of Education | Awash Bank | Total | |
| | | Percent | Percent | Frequency | Percent |
| Water | Private tap inside a house | 17.0 | 11.5 | 25 | 12.8 |
| | Private tap in a compound | 27.7 | 33.8 | 63 | 32.3 |
| | Shared tap inside a compound | 46.8 | 37.8 | 78 | 40.0 |
| | Shared tap outside a compound | 2.1 | 7.4 | 12 | 6.2 |
| | Public tap/Bono/ | 6.4 | 8.8 | 16 | 8.2 |
| | Others* | - | .7 | 1 | .5 |
| | Total | 100.0 | 100.0 | 195 | 100.0 |
| Electricity | Private electric meter | 59.6 | 60.1 | 117 | 60.0 |
| | Shared eclectic meter | 40.4 | 39.9 | 78 | 40.0 |
| | Total | 100.0 | 100.0 | 195 | 100.0 |
| Toilet | Flushed (private) | 25.5 | 20.3 | 42 | 21.5 |
| | Flushed (shared) | 2.1 | 11.5 | 18 | 9.2 |
| | Dry pit (private) | 19.1 | 23.0 | 43 | 22.1 |
| | Dry pit (shared) | 51.1 | 43.2 | 88 | 45.1 |
| | No toilet | 2.1 | 2.0 | 4 | 2.1 |
| | Total | 100.0 | 100.0 | 195 | 100.0 |
| Kitchen | none | 12.8 | 15.5 | 29 | 14.9 |
| | Traditional and private kitchen | 34.1 | 42.6 | 79 | 40.5 |
| | Traditional and shared kitchen | 34.0 | 35.1 | 68 | 34.9 |
| | Modern and private kitchen | 19.1 | 6.8 | 19 | 9.7 |
| | Total | 100.0 | 100.0 | 195 | 100.0 |
| Bathing | none | 76.6 | 77 | 150 | 76.9 |
| | Private bath | 8.5 | 8.1 | 16 | 8.2 |
| | Shared bath | 8.5 | 3.4 | 9 | 4.7 |
| | Private shower | 6.4 | 10.8 | 19 | 9.7 |
| | Shared shower | - | .7 | 1 | .5 |
| | Total | 100.0 | 100.0 | 195 | 100.0 |

*spring

**Electricity**

The percentage distribution of employees by type of energy source for lighting shows that all of the sampled employees use electricity as a

source for light. Out of them, 60 percent use private electric meter and 40 percent use shared electric meter (Table 7). A comparison of the targeted institution employees by access of energy source for lighting shows that the percentage of employees of Ministry of Education who use shared electric meter is greater than that of Awash Bank employees by 0.5 percentage points. The total percentage of employees who use shared electric meter is less than the average percentage of the city which was 50.4 percent (MOFED, 2002).

**Toilet**

The availability of toilet facility is another important factor in assessing housing quality. This is because of the fact that adequate toilet facilities ensures the proper human waste disposals and prevent the occurrence and spread of transmitted diseases. The percentage distribution of the sampled employees by toilet facility as sets out in Table 7, shows that 2.1 percent of them have no toilet at all and 54.3 percent of employees share toilet with their neighborhoods. Among the employees who share toilet facilities with other households, 51 percent of them share with more than four households that can attest unhygienic conditions (Table 7 in Appendix 2). When we look at the inter institutions employees, the difference in percentage distribution of employees of each institution that use private or shared toilet is not as such wide. However, the percentage of employees of Ministry of Education who use shared dry pit type toilet is higher than that of Awash Bank employees by 7.9 percent (Table 5). On the other hand, 64 percent of employees of Ministry of Education and 50.6 percent of Awash Bank employees share the toilet facilities with more than four households (Table 7 in Appendix 2).

**Kitchen type**

The quality of a certain dwelling unit is also determined by the availability and type of cooking facility. Table 7 also indicates the type

and access of kitchen facility of the sampled employees. As indicated in the mentioned table, 14.9 percent of the total employees have no access to the facility. The percentage of employees who share the facility with other households is 34.9. Only half of the sampled employees have a private access to the facility (Table 7). When we compare the cooking facility of the two targeted institutions employees, we find that the percentage distribution of the Awash Bank employees who lacked kitchen is larger than employees of Ministry of education by 2.7 percentage points. Also, the percentage of employees that share the facility with other households is slightly higher in Awash Bank employees. On the other hand higher percentage of employees of Ministry of Education has a modern and private kitchen facility than employees of Awash Bank.

**Bathing Facility**

Bath service is an important housing facility in a given dwelling unit that helps to keep individuals as well as the family as a whole in good hygiene and sanitary condition. However, as indicated in Table 7, a considerable amount of employees (76.9 percent) lack the facility at all. The proportion of employees that have the facility privately is 17.9 percent (bath or shower). A comparison of inter-institutions percentage distributions of the targeted employees who use facility in private or sharing with others showed that the variation between them is not as such wide.

In addition to the above five basic housing facilities and amenities the study also tries to assess the waste disposal system of the employees. The results of the survey indicate that 49.7 percent the sampled employees had no any type of sewerages systems. 28.2 percent employees have an open ditch/drainage/in their residential area to dispose the sewerage and the rest, 22.1 percent have a closed ditch in their living area (Table 8 in Appendix 2). A comparison of the targeted

employees' housing unit sewerage disposal type indicates that the percentage of employees of Awash Bank that lack any type of sewerage disposal system is relatively higher than the other targeted institution.

Solid waste disposal system is another sanitary condition that was assessed during the survey. The result as indicated in (Table 6 in Appendix 2) shows that 22.6 percent of the employees have no safe place to dispose the solid waste they produce except to throw away here and there(open fields). Majority of the employees (61 percent) are served by the municipal solid waste management or grouped people who organize them selves to collect the solid waste. A comparison of the two targeted institutions employees shows that a significant portion of each institution employees are provided solid waste collection services by the municipal or organized solid waste collectors. However, a considerable amount of employees from each institution throw away their solid wastes to open fields or to the near by rivers. The relative percentage of employees of Awash Bank employees is greater than that of Ministry of Education employees that through away their solid wastes to open fields or a near by rivers.

### 4.2.2. TYPE OF CONSTRUCTION MATERIALS

Housing quality is also measured by the type of construction materials used. The building material of a dwelling unit indicates its durability. It also indicates the standard level of the house in keeping the safety, privacy, prestige and health of the occupants. This study has assessed the type of construction materials used for some of the major parts of a housing unit. These are wall type, floor type, ceiling type and presence of proper foundation.

Table 8: Percentage distribution of dwelling units of employees by type of construction material used.

Table 8: Percentage distribution of dwelling units of employees by type of construction material used.

| Structure | Type of Construction Material | Ministry of Education | Awash Bank | Total | |
|---|---|---|---|---|---|
| | | Percent | Percent | Frequency | Percent |
| Wall type | Wood and mud | 66.0 | 67.6 | 131 | 67.2 |
| | Stone and cement | 10.6 | 10.1 | 20 | 10.3 |
| | Blocket and cement | 12.8 | 18.9 | 34 | 17.4 |
| | Bricks and cement | 6.4 | 3.4 | 8 | 4.1 |
| | others | 4.2 | - | 2 | 1.0 |
| | Total | 100.0 | 100.0 | 195 | 100.0 |
| Floor type | Wooden tiles | 27.7 | 18.2 | 40 | 20.5 |
| | Cement tiles | 61.7 | 64.9 | 125 | 64.1 |
| | Earthen floor | 10.6 | 16.9 | 30 | 15.4 |
| | Total | 100.0 | 100.0 | 195 | 100.0 |
| ceiling type | No ceiling | 10.7 | 15.5 | 28 | 14.4 |
| | Chipwood/hardboard | 25.5 | 20.3 | 42 | 21.5 |
| | Wood | - | 2.7 | 4 | 2.1 |
| | Fabrics | 57.4 | 56.8 | 111 | 56.9 |
| | Others | 6.4 | 4.7 | 10 | 5.1 |
| | Total | 100.0 | 100.0 | 195 | 100.0 |
| Proper Foundatio | yes | 66.0 | 74.3 | 141 | 72.3 |
| | No | 34.0 | 25.7 | 54 | 27.7 |
| | Total | 100.0 | 100.0 | 195 | 100.0 |

**Wall type**

Of the total 195 sampled employees, more than 67 percent of them live in a housing unit made up of traditional materials so called "chika" which is wood dubbed with mud (Table 8). However this figure is less than

is built up of standard construction material which is stone, hollow blocket or bricks and cement (Table 8). An analysis of inter-institutions of the targeted employees showed some little variation in type of construction materials. The percentage of employees in Ministry of Education whose wall type is blocket and cement is 12.8 and that of Awash Bank employees is 18.9 (Table 8). In general we can say that the employees of the two institutions live in a house with wall type that is made up of more or less of similar type.

**Floor type**

Floor type is one of the indicators of the physical conditions and quality of a housing unit. The floor type of the targeted employees dwelling units is presented in Table 8. From the table we find that the majority of the employees live in a housing unit which has a cement tile of floor type. More than fifteen percent of the employees' dwelling units have an earthen floor type. This figure is much less than the average percentage of earthen floor type of dwelling units in city which is 52.7 percent (CSO, 1994).

If we make a comparison of employees by floor type, greater proportion of employees of Awash Bank live in an earthen floor type of dwelling units than employees of Ministry of Education (Table 8). In general we can say that the floor type of employees of Ministry of Education dwelling unit is relatively in better condition.

**Ceiling**

Ceiling is one of the indicators of the physical quality of a given dwelling unit. During the survey, the ceiling type of the employees housing unit was assessed. The result of the survey indicates that only 14.4 percent of the targeted employees have no ceilings which is less than the average for the city, 50.6 percent (CSO, 1994) and the rest have either standard type or traditional type of ceiling in their dwelling unit (Table 8).

If we compare the ceiling type of the dwelling units of the targeted employees, we find that there is a wide variation in percentage distribution of those who have no ceiling and chip-wood type of ceiling. Thus 5 percent of the employees of Awash Bank had no ceiling in addition to employees of Ministry of Education who do not have ceiling in their dwelling units. Moreover the percentage of employees of Awash Bank which has chip-wood ceiling type in their dwelling is less than that of employees of Ministry of education by 5.2 percentage points.

**Foundation**

The physical condition of a house is also assessed by its foundation. The presence of proper foundation (constructed with masonry) is one indicator of the physical quality of a housing unit. Out of the total sampled employees, 27.7 percent of them indicated that their housing units have no proper foundation (Table 8). A cross look of dwelling units of the targeted employees indicates that the percentage of dwelling units of employees that have no proper foundation is much larger for employees of Ministry of Education than employees of Awash Bank.

### 4.2.3. OVERCROWDING

The quality of a given dwelling unit can also be measured in terms of level of density within the housing units. The occupancy rate is measured by various criteria, such as by number of rooms per housing unit, average number of persons per room and also by average number of person per housing unit. In this study, however, number of persons per room is used as a measure of overcrowding with in a housing unit. In order to examine the level of occupancy patterns of dwelling units of the employees, the household size of employees and the number of rooms available is cross tabulated in Table 9a below.

Table 9a: Distribution of household size of employees and number of rooms in a dwelling unit

| Number of Rooms | | Household size | | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| One Room | MOE | 3 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| | AB | 18 | 7 | 6 | 8 | 3 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 45 |
| | Total | 21 | 7 | 6* | 11* | 5* | 1* | 0 | 2* | 0 | 0 | 0 | 0 | 53 |
| Two Room | MOE | 0 | 2 | 4 | 3 | 3 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 14 |
| | AB | 3 | 5 | 2 | 12 | 11 | 7 | 3 | 1 | 1 | 0 | 0 | 0 | 46 |
| | Total | 3 | 7 | 6 | 15 | 14* | 7* | 4* | 1* | 2* | 0 | 1* | 0 | 60 |
| Three Rooms | MOE | 0 | 0 | 1 | 3 | 1 | 2 | 3 | 1 | 0 | 1 | 0 | 0 | 12 |
| | AB | 0 | 0 | 3 | 0 | 2 | 8 | 5 | 3 | 2 | 1 | 0 | 0 | 24 |
| | Total | | | 4 | 3 | 3 | 10 | 8 | 4* | 2* | 2* | 0 | 0 | 36 |
| Four Rooms | MOE | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 7 |
| | AB | 1 | 0 | 1 | 1 | 4 | 4 | 3 | 2 | 1 | 1 | 0 | 0 | 18 |
| | Total | 1 | 1 | 2 | 2 | 5 | 5 | 5 | 2 | 1 | 1* | 0 | 0 | 25 |
| Five Rooms | MOE | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 4 |
| | AB | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 9 |
| | Total | 0 | 1 | 0 | 2 | 1 | 1 | 2 | 2 | 1 | 0 | 2 | 1 | 13 |
| Six Rooms | MOE | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| | AB | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | Total | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 5 |
| Seven Rooms | MOE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | AB | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| | Total | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| Group Totals | MOE | 3 | 4 | 7 | 10 | 7 | 3 | 7 | 3 | 2 | 1 | 0 | 0 | 47 |
| | AB | 22 | 12 | 14 | 23 | 23 | 22 | 12 | 10 | 4 | 2 | 0 | 1 | 148 |
| | Total | 25 | 16 | 21 | 33 | 30 | 25 | 19 | 13 | 6 | 3 | 3 | 1 | 195 |

*Overcrowded

MOE-Ministry of education

AB-Awash Bank

Accordingly, 27.1 percent of the total employees live in a house that has only one room. More than half of the total employees live in a house which has less than three rooms. As mentioned earlier, the level of occupancy pattern (or density) can be measured by examining the number of persons per room and then can be labeled as overcrowded or adequate enough to the occupants. The UN (1967) classifies housing

units as under occupied, adequately occupied and overcrowded depending on the number of persons per room. According to the UN classification, if the level of occupancy of a housing unit is less than one person per room it is considered as under occupied and if there are 1 to 2.4 person per room, it is adequately occupied. A housing unit beyond these levels of occupancy, it is termed as overcrowded. Hence we can see that from Table 9a, 32.3 percent of the sampled employees are overcrowded. This proportion is nearly the same to the finding of Getu (2001).

The UN (1973) World Housing Survey gives further classification as standard and sub standard for the occupancy of housing units based on number of persons per room. Thus, a housing unit is labeled as standard if only one person is living per room. If the number of persons per room is two or more, it is said to be sub-standard because it failure to keep the privacy and prestige of the occupants. The percentage of sampled employees who live in standard and sub-standard housing unit in terms of level of occupancy is given in Table 9b.

Table 9b: Percentage Distribution of employees by level of occupancy

| Employee | Level of occupancy | |
|---|---|---|
| | Substandard | Standard |
| Ministry of Education | 51.1 | 48.9 |
| Awash Bank | 61.5 | 38.5 |
| Total | 59 | 41 |

From the above table we can see that 59 percent of the total employees live in substandard conditions. Out of the total employees who live in substandard condition, 61.5 percent are employees of Awash Bank. The percentage of employees of Ministry of Education who live in standard level in terms of crowdedness is higher than Awash Bank employees. The variation in the percentage distribution of employees living in standard or

sub-standard condition with in the employer institutions is however statistically insignificant.

### 4.2.4. BUILDING STRUCTURE

**Physical structure of the house**

From the total of sampled employees 69 of them (35.4 percent) indicates that their housing units are non-storied and attached /which is "row" type/ with two or more dwelling units. However, the majority of the dwelling units are detached and non-storied type (Table 10 in Appendix 2).Comparing the targeted employees dwelling units, a considerable amount of dwelling units of employees of each institution live in a detached and non-storied dwelling units. However a significant amount of employees (40 percent of Ministry of Education and 33.8 for Awash Bank employees) live in a row type dwelling units (Table 10 in Appendix 2).

**Age of the housing unit**

The age of the housing unit can be an indicator of the physical quality of the dwelling unit. The age of the dwelling unit of the sampled employees is displayed in Appendix 2. The figures indicate that 33.4 percent of the houses of the employees are aged above 30 years. When we consider the age of the dwelling unit of the sampled employees, we find that 31.9 percent of the dwelling unit of employees of Ministry of Education are aged above 30 years and the percentage figure for that of Awash Bank employees is 33.7 (Table 11 in Appendix 2).

**Maintenance condition**

During the survey, the employees were also asked to rate the level of maintenance need of their dwelling units with the aim of examining the extent of dilapidation. The percentage distribution of maintenance need of the dwellings of the employees is provided in Appendix 2. From the total sampled employees, 61.5 percent respond that their dwelling units

did not get any maintenance within the last two years. Examining the employees of the two institutions separately shows that an equivalent proportion of employees of each institution respondent that their dwelling unit did not get any maintenance within the last two years.

**Accessibility by vehicles**

Accessibility of the dwelling units by vehicle is also an indicator of the physical quality of the dwelling unit as well as the residential area. Accessibility is measured by whether a main road pass by or near by dwelling unit. Regarding the sampled respondents, 29.7 percent of the dwelling unit of the employees could not be accessed by a vehicle (Table 9 in Appendix 2). A comparison of employees of the two institutions shows that 2.7 percentage points more dwelling units of Awash Bank employees could not be accessed by vehicles than that of employees of Ministry of Education.

### 4.2.5. TENURE STATUS

Owning a house (than being rented) enhances the social standing of an individual in a society. Home ownership is one of the indicators of the level of well being. Examining the tenure stats of the dwelling units of the employees is important to determine the housing needs. Table10 below shows that more than half of the employees live in a rented house. Only 17.9 percent of the respondents have their own house.

Table10: Tenure status of Employees

| Tenure arrangements | Ministry of Education | Awash Bank | Total | |
|---|---|---|---|---|
| | Percent | Percent | Frequency | Percent |
| owner | 34.0 | 13.5 | 42 | 21.5 |
| rented | 53.2 | 60.1 | 112 | 57.5 |
| Rent-free | - | 1.4 | 2 | 1.0 |
| Family's property | 12.8 | 25.0 | 42 | 22.0 |
| Total | 100.0 | 100.0 | 195 | 100.0 |

If we analyze the inter institution tenure status, we find that a variation that the percentage of employees of Ministry of Education who have their own house is greater than the percentage of employees of Awash Bank. On the other hand the percentage of employees who live in their families' house is much higher for Awash Bank employees (Table10).

## 4.3. Household characteristics and Housing conditions of employees

### 4.3.1 Household characteristic variables and Basic housing facilities and amenities

As indicated in the preceding pages, one of the measures of housing quality is availability of basic housing amenities and facilities. The percentage distribution of each of the housing amenities and facilities was discussed in section 4.2.1. In this section an attempt is done to investigate the relation between housing amenities and household characteristic variables of employees. For the convenience of the study and comparison of employees by institutions, the dwelling units of the employees are dichotomized into standard and substandard housing depending on their access to the basic housing amenities and facilities.

The status of being 'standard' is given if the basic housing amenities and facilities are available and accessed easily with out affecting their privacy, health and sanitary conditions. In other words if an employee has a very easy and safe access to all of the five mentioned basic housing amenities and facilities, it is standard. If s/he has no access to the facilities at all or shares the facilities and amenities with others, it is labeled as 'substandard'. The classification methodology of the employees housing unit into standard and sub-standard by their access to the basic housing amenities and facilities is indicated in Appendix 3.

Table 11: Percentage distribution of employees by their access to basic housing amenities and facilities

| Employees' Institutions | Availability of Basic Housing Amenities and Facilities | |
|---|---|---|
| | Substandard | Standard |
| Ministry of Education | 85.1 | 14.9 |
| Awash Bank | 83.8 | 16.2 |
| Total | 84.1 | 15.9 |

From the above table, only 15.9 percent of the total sampled employees live in standard housing units in terms of basic housing amenities and facilities. The majority (84.1percent) live in sub-standard housing units. An analysis of inter-institutions employees dwelling units shows that a higher proportion of employees of Awash Bank live in standard housing units measured in terms of basic housing amenities and facilities. However, the chi-square test revealed that the variation between employees by employer organizations is statistically insignificant.

**1. Sex and Availability of Basic Housing Amenities and Facilities**

Sex of the employees is one of the independent factors that supposed to have an influence on housing quality. In order to see whether availability of basic housing amenities varies by sex of employees or not, the percentage distribution of sex of employees and standardization of the dwelling units is depicted in a cross-tabulated form in Table 11. The assumption of such cross tabulation is that if sex of employees does not affect the tendency to be standard or substandard or vice versa, then equal proportion of both sex groups would fall in standard or substandard dwelling units.

Table 12. Percentage distribution of employees' dwelling units by gender and standardization in terms of basic housing amenities and facilities

| Employer Institution | SEX OF EMPLOYEES | | | | | |
|---|---|---|---|---|---|---|
| | Male | | | Female | | |
| | Substandard % | Standard % | Total | Substandard % | Standard % | Total No. |
| Ministry of Education | 81.5 | 18.5 | 27 | 90 | 10 | 20 |
| Awash Bank | 85.2 | 14.8 | 108 | 80 | 20 | 40 |
| Total | 84.4 | 15.6 | 135 | 83.4 | 16.6 | 60 |

A significant proportion of employees from both sex groups dwell in substandard housing units. Only 15.6 and 16.6 percent of the total male and female employees live in standard housing units in terms of

availability of basic housing amenities respectively. Table 12 also indicates the female percentage of employees of Ministry of Education that is living in substandard house is higher than that of Awash Bank employees.

The difference in proportion of employees living in the same categories of both sex groups shows that there is a relation between the variables within the institutions. However, the chi-square test shows that the relation is not statistically significant. Hence, sex has no relation with availability of housing amenities and facilities.

**2. Age and Availability of Basic Housing Amenities.**

In order to see the association between age and housing quality measured in terms of availability of basic housing amenities, percentage distribution of employees age and standardization of housing units by employer institution and for the whole employees is presented in a cross-tab form in Table 13.

Table 13: Percentage distribution of employees by Age and standardization of dwelling units in terms of basic housing amenities.

| Employer Institution | AGE OF EMPLPOYEES | | | | | |
|---|---|---|---|---|---|---|
| | Younger | | | Older | | |
| | Substandard % | Standard % | Total | Substandard % | Standard % | Total No. |
| Ministry of Education | 87.5 | 12.5 | 8 | 84.6 | 15.4 | 39 |
| Awash Bank | 8 | 18 | 101 | 87.2 | 12.8 | 47 |
| Total | 82.6 | 17.4 | 109 | 86 | 14 | 86 |

The figures in Table 13 reveal that a significant proportion of employees are residing in substandard housing units in both age groups. However, the percentage of younger employees who live in standard housing unit is relatively higher than older employees. If we examine the employees by their institutions separately, we see that the percentage of older

employees of Ministry of Education that live in substandard houses is lower than that of employees of Awash Bank.

From Table 13 above, the difference in share of employees living in the same categories of both age groups shows that there exits some sort of associations between the variables with in the institutions. However, the significance test shows that the relation is statistically insignificant.

**3. Marital status and Availability of Basic Housing Amenities and Facilities**

To examine the relation between marital status and housing quality measured by availability of basic housing amenities and facilities, a cross tabulation is made with the variables. The percentage distribution is depicted in the following table.

Table 14: Percentage distribution of employees in standard and substandard housing units by Marital Status

| Employee | Marital Status | | | | | |
|---|---|---|---|---|---|---|
| | Single | | | Married | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 87.5 | 12.5 | 7 | 71.4 | 28.6 | 40 |
| Awash Bank | 90.6 | 9.4 | 64 | 78.6 | 21.4 | 84 |
| Total | 89.5 | 10.5 | 91 | 78 | 22 | 104 |

A comparison of the sampled employees of the two institutions by the selected variables indicates that the percentage of unmarried employees who live in substandard housing units is higher in Awash Bank than Ministry of Education employees.

From table 14, we see that 22 percent of the total married employees live in standard housing units measured in terms of availability of housing amenities and facilities. The percentage of unmarried employees who live in substandard dwelling units is 89.5 and it is 78 percent for married employees. Hence, there is a wide difference in percentage distribution of

employees by marital status who live in standard housing units and substandard housing units.

**4. Educational qualification and Basic Housing Amenities and Facilities**

In order to examine the relationship between educational attainment of employees and basic housing amenities and facilities a cross tabulation is made. The percentage distribution of employees and standardization of housing is portrayed in table below.

Table 15: Percentage distribution of employees in standard and substandard by Education level

| Employee | Educational Level | | | | | |
|---|---|---|---|---|---|---|
| | Professional | | | Non Professional | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 61.5 | 38.5 | 13 | 94.1 | 5.9 | 34 |
| Awash Bank | 42.9 | 57.1 | 14 | 88.1 | 11.9 | 134 |
| Total | 51.9 | 48.1 | 27 | 89.3 | 10.7 | 168 |

As depicted is table 15 above, the percentage of non professional employees who live in substandard housing units is higher than the professionals. A higher percentage of professional employees of Awash Bank live in standard housing units than the corresponding employees of Ministry of Education. In general the percentage of professional employees who live in standard dwelling units is higher than the non professionals. The difference in percentage distribution of employees of both educational level shows that there is some sort of relation between the variables.

**5. Income and Availability of Basic Housing Amenities and Facilities**

In order to examine the relationship between income of employees and basic housing amenities and facilities, the percentage distribution of employees and standardization of housing is portrayed in cross tabs in Table 16 below.

Table 16. Percentage distribution of employees in standard and substandard housing by Income level

| Employee | INCOME | | | | | |
|---|---|---|---|---|---|---|
| | Low income | | | High income | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 91.7 | 8.3 | 12 | 82.8 | 17.2 | 35 |
| Awash Bank | 91.9 | 8.1 | 74 | 75.7 | 24.3 | 74 |
| Total | 91.9 | 8.1 | 86 | 78 | 22 | 109 |

As shown in table 16, only 8.1 percent of the total low income group employees live in standard housing units measured by availability of housing amenities and facilities. The percentage of higher income group employees who live in standard dwelling units is 22. Hence, there is a wide variation in percentage distribution of employees by income level who live in standard housing units. A comparison of the sampled employees of the two institutions by the selected variables indicates that the percentage of employees who live in substandard housing units is higher in Ministry of Education than Awash Bank employees for higher income level groups. The difference between employees by employer organization is statistically insignificant.

### 4.3.2 Household characteristics of employees and Type of Construction Materials Used

One of the measures of housing quality is the type of construction material used. The percentage distribution of each part of the dwelling units of employees by type of material used was discussed in section 4.2.2. In this section an attempt is done to investigate the relation between type of construction material used and household characteristic variables.

For the purpose of the study, the residential unit of the employees is classified into standard and substandard by the type of construction materials used. The classification is based on durability, quality and cost of the construction materials used for each of the above mentioned parts of the house. A dwelling unit is labeled as 'standard' if all the selected parts of the house are made up of standard materials by the proposed criteria. For instance a house with wall type made of wood and mud is categorized as substandard and it is standard if it is made up of either with stone and cement or bricks and cement. The classification methodology of the dwelling unit by the type of construction materials is given in Appendix 2.

Table 17: percentage distribution of employees' residents unit by type of construction materials used and standardization level.

| Employees | Type of Construction Materials Used | |
|---|---|---|
| | Substandard | Standard |
| Ministry of Education | 70.2 | 29.8 |
| Awash Bank | 72.3 | 27.7 |
| Total | 71.8 | 28.2 |

As table 17 shows, only 28.2 percent of residential unit of the sampled employees is 'standard' by the type of building material used in terms of the proposed criteria. Higher proportion of employees of both institutions lives in substandard housing units. The proportion of employees of Ministry of Education whose housing unit is standard is higher than that of employees of Awash Bank. However, the difference is not as such wide and also statistically insignificant.

**1. Sex and Type of Construction Material Used**

In order to see whether there is a relation or not between the two variables, the percentage distribution of sex of employees and standardization of the dwelling units in terms of type of construction

material used by employees is depicted in a cross-tabulated form in Table 18 below.

Table 18: Percentage distribution of employees in standard and substandard by sex

| Employee | Sex | | | | | |
|---|---|---|---|---|---|---|
| | Male | | | Female | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 75 | 25 | 27 | 66.7 | 33.3 | 20 |
| Awash Bank | 77.8 | 22.2 | 108 | 57.5 | 42.5 | 40 |
| Total | 75.6 | 24.4 | 135 | 63.3 | 36.7 | 60 |

From table 18, majority of employees in both sex groups dwell in substandard housing units measured in terms of type of construction materials used. The percentage of employees that live in standard housing unit is only 24.4 for male and 36.7 for female employees. The difference in percentage distribution of employees living in any one of the same categories between both group of sexes shows that there is an association between the two variables.

On the other hand a relatively higher percentage of female employees of Awash Bank live in standard housing units than employees of Ministry of Education. Also, the percentage of female employees of Ministry of Education that are living in substandard house is higher than that of Awash Bank. The variation in percentage distribution between employees by institutions is, however, statistically insignificant.

**2. Age and type of construction material used**

In order to see the association between age and housing quality measured in terms of type of construction material used, percentage distribution of employees by age and standardization of housing of employees is presented in a cross tabulation in Table 19. If we examine the employees by their institutions, we can see that the percentage of older employees of Ministry of Education that live in standard houses is

higher than that of employees of Awash Bank. On the other hand, the percentage of younger employees who live in standard housing unit is higher in Awash Bank.

Table 19.Percentage distribution of employees in standard and substandard by Age group

| Employee | AGE | | | | | |
|---|---|---|---|---|---|---|
| | Younger | | | Older | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 75 | 25 | 8 | 69.2 | 30.8 | 39 |
| Awash Bank | 53.6 | 46.4 | 101 | 80.9 | 19.1 | 47 |
| Total | 68.8 | 31.2 | 109 | 75.6 | 24.4 | 86 |

The figures indicate that higher proportions of employees are residing in substandard housing units in both age groups. However, the percentage of younger employees who live in standard housing unit is relatively higher than the older. The percentage distribution difference between the age groups that live in standard or substandard dwelling units indicates that there is a relation ship between the two variables.

**3. Marital status and type of construction material used**

To examine the relation between marital status and housing quality measured by type of construction material used, a cross tabulation is made with the two variables and the percentage distribution is depicted in the following table.

Table 20.Percentage distribution of employees in standard and substandard by marital status

| Employee | Marital Status | | | | | |
|---|---|---|---|---|---|---|
| | Single | | | Married | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 72 | 28 | 7 | 57.5 | 42.5 | 40 |
| Awash Bank | 75 | 25 | 84 | 70.3 | 29.7 | 64 |
| Total | 74.7 | 25.3 | 91 | 69.2 | 30.8 | 104 |

As indicated in Table 20, 25.3 percent of unmarried and 30.8 percent of the married employees live in standard housing units measured by type of construction material used. The percentage of unmarried employees who live in substandard dwelling units is higher than the married ones. Hence, there is a significance difference in percentage distribution of employees by marital status who live in standard and sub standard housing units.

On the other hand, a comparison of employees of the two institutions by the selected variables indicates that the percentage of single employees who live in substandard housing units is higher in Awash Bank than Ministry of Education employees. However, the variation is statistically insignificant.

**4. Educational qualification and type of construction material used**

In order to examine the relationship between educational attainment of employees and by type of construction material used and to see the difference in employees by their organizations, a cross tabulation is made.

Table 21. Percentage distribution of employees in Educational level by standard and substandard in terms of type of construction materials used

| Employee | Educational Level | | | | | |
|---|---|---|---|---|---|---|
| | Professional | | | Not Professional | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 38.5 | 61.5 | 13 | 82.4 | 17.6 | 34 |
| Awash Bank | 35.7 | 64.3 | 14 | 76.1 | 23.9 | 134 |
| Total | 37 | 63 | 27 | 77.4 | 22.9 | 168 |

As depicted in Table 21, the percentage of professional employees who live in standard housing units is higher than the non professionals in both institutions. The percentage of non-professional employees who live in substandard dwelling units is higher than the professionals.

On the other hand, a relatively higher percentage of professional employees of Awash Bank live in standard housing units than the corresponding employees of Ministry of Education. Similarly the percentage of non-professional employees who live in substandard housing unit is higher in Ministry of Education. The variation in percentage distribution of employees between the institutions is statistically insignificant.

**5. Income and type of construction material**

In order to examine the relationship between income of employees and the type of construction material and to see the variation in employees, the percentage distribution of employees and standardization of housing is portrayed in cross tabs in Table 22 below.

Table 22. Percentage distribution of employees in standard and substandard by Income level

| Employee | Income | | | | | |
|---|---|---|---|---|---|---|
| | Low income | | | High income | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 91.7 | 8.3 | 12 | 62.8 | 37.2 | 35 |
| Awash Bank | 85.1 | 14.9 | 74 | 59.5 | 40.5 | 74 |
| Total | 86.2 | 13.8 | 86 | 60.6 | 39.4 | 109 |

A comparison of employees of the two institutions by the selected variables indicates that the percentage of low income employees who live in substandard housing units is higher in Ministry of Education than that of employees of Awash Bank. Higher percentages of employees of Awash Bank (from both income groups) live in standard housing units than employees of MOE. From the table, we can see that only 13.8 percent of the total low income group employees live in standard housing units measured in terms of type of construction material. The percentage of higher income group employees who live in substandard dwelling units

is 60.6, which is by far less than the lower income group employees. Hence, there is a wide difference in dwelling units of employees by income level who live in substandard housing units.

### 4.3.3. Household characteristics of employees and Crowding

#### 1. Sex and Crowding

In order to see whether there is a relation or not, the percentage distribution of sex of employees and standardization of the dwelling units of employees in terms of crowding is depicted in a cross-tabulated form in Table 23 below.

Table 23. Percentage distribution of employees in standard and substandard in terms of crowdedness by sex

| Employee | SEX | | | | | |
|---|---|---|---|---|---|---|
| | Male | | | Female | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 63 | 37 | 27 | 35 | 65 | 20 |
| Awash Bank | 63 | 37 | 108 | 57.5 | 42.5 | 40 |
| Total | 63 | 37 | 135 | 50 | 50 | 60 |

Table 23 indicates that the percentage of female employees of Awash Bank that is living in substandard houses is higher than employees of Ministry of Education. A significant proportion of employees in both sex of group dwell in substandard housing units measured by level of density. Only 41 percent of the total employees live in standard housing units.

#### 2. Age and Crowding

In order to see the association between age and housing quality measured by crowding, percentage distribution of age of employees and standardization of housing by employer institution and for the whole employees is presented in a cross tab form in Table 24. If we examine the

difference between employees by institutions, we can see that the percentage of younger employees of Awash Bank that live in substandard houses is higher than that of employees of Ministry of Education. The figures indicate that higher proportions of employees are residing in substandard housing units in terms of crowding in both age groups. However, the percentage of older employees who live in substandard housing unit is significantly higher.

Table 24. Percentage distribution of employees in standard and substandard by Age group

| Employee | AGE | | | | | |
|---|---|---|---|---|---|---|
| | Younger | | | Older | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 25 | 75 | 8 | 56.4 | 43.6 | 39 |
| Awash Bank | 49.5 | 50.5 | 101 | 85.7 | 14.9 | 42 |
| Total | 47.7 | 52.3 | 109 | 71.1 | 27.9 | 86 |

If we consider the association between age of employees and crowding, there is a statistically significant relationship which is indicating the tendency of older employees to live in a substandard dwelling unit than younger ones. High percentage of substandard dwelling unit in older employees is supposed to be due to marriage and increase in household size.

**3. Marital status and Crowding**

To examine the relation between marital status and housing quality measured by crowding, a cross tabulation is made with the variables and the percentage distribution is depicted in the following table.

Table 25. Percentage distribution of employees in standard and substandard in terms of crowdedness by marital status

| Employee | Marital Status | | | | | |
|---|---|---|---|---|---|---|
| | Married | | | Single | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 57.5 | 42.5 | 40 | 14 | 85.7 | 7 |
| Awash Bank | 82.8 | 17.2 | 64 | 45.2 | 54.8 | 84 |
| Total | 73 | 26.9 | 104 | 42.8 | 57.8 | 91 |

A comparison of employees of the two institutions by the selected variables indicates that the percentage of single employees who live in substandard housing units is higher in Awash Bank than Ministry of Education employees (table 25). From the table, we can see that only 26.9 percent of the total married employees live in standard housing units measured by crowdedness. The percentage of unmarried employees who live in substandard dwelling units is 42.8 and it is 73 percent for married. Hence, there is a significance difference in percentage distribution of employees by marital status who live in standard and substandard housing units.

**4. Educational status and Crowding**

In order to examine the relationship between educational attainment of employees and crowding and as to see the difference between employees by employer organizations, the percentage distribution of employees and standardization of housing is presented in cross tabs in Table 25 below.

Table 26. Percentage distribution of employees by educational level standardization

| Employee | Educational Level | | | | | |
|---|---|---|---|---|---|---|
| | Professional | | | Not Professional | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 38.5 | 61.5 | 13 | 58.9 | 44.1 | 34 |
| Awash Bank | 50 | 50 | 14 | 62.7 | 57.3 | 134 |
| Total | 44.4 | 55.6 | 27 | 61.3 | 38.7 | 168 |

As depicted is Table 26 above, the percentage of professional employees who live in standard housing units is higher than the non professionals in both institutions. A higher percentage of professional employees of Awash Bank live in standard housing units than the corresponding employees of Ministry of Education. In general the percentage of professional employees who live in standard dwelling units (in terms of overcrowding) is higher than the non professionals. The difference in percentage distribution of employees of both educational level shows that there is a relation between the variables.

**5. Income and Crowding**

In order to examine the relationship between income of employees and crowding and as to see the difference in employer organizations, the percentage distribution of employees and standardization of housing is portrayed in cross tabs in Table 27 below.

Table 27. Percentage distribution of employees in standard and substandard dwelling unit by Income level

| Employee | Income | | | | | |
|---|---|---|---|---|---|---|
| | Low income | | | High income | | |
| | Substandard % | Standard % | Total No. | Substandard % | Standard % | Total No. |
| Ministry of Education | 50 | 50 | 12 | 51.4 | 48.6 | 35 |
| Awash Bank | 70 | 30 | 74 | 54 | 46 | 74 |
| Total | 66.3 | 33.7 | 86 | 53 | 47 | 109 |

A comparison of employees of the two institutions by the selected variables indicates that the percentage of higher income employees who live in substandard housing units is higher in Awash Bank than Ministry of Education employees (Table 27). Also, we can see that only 33.7 percent of the total low income group employees live in standard housing units measured by crowdedness.

The percentage of higher income group employees who live in substandard dwelling units is 47. Hence, there is a significant difference in percentage distribution of employees by income level who live in standard housing units.

### 4.3.4. Household characteristics of employees and Tenure status

The tenure status of house employees is also an indicator of housing conditions. The percentage distribution of employees by their tenure status was discussed in section 4.2.3. In this section an attempt is done to investigate the relation between tenure arrangement of dwelling units and household characteristic variables.

For ease of data analysis, the study population is categorized in to owner and non-owner. Owners are employees who own a house at the time this study. The non-owners are those who do not have their own dwelling unit and live in a rented or rent free house. The percentage distribution of employees by the proposed arrangement is given in Table 28.

Table 28: Percentage distribution of employees by tenure arrangement

| Employer institution | Tenure arrangement | |
|---|---|---|
| | Owner | Not owner |
| Ministry of Education | 34 | 66 |
| Awash Bank | 13.5 | 86.5 |
| Total | 21.5 | 78.5 |

From the above table we can see that the percentage of owner group of employees is very small (21.5) compared to the owners of a dwelling unit. Only 13.5 percent of employees of Awash Bank and 34 percent of employees of Ministry of Education are owners of a house. The variation in percentage distribution of employees who own a house is very wide with in the institution. However, it is not statistically significant.

**1. Sex and Tenure Arrangements**

In order to examine the relationship between sex of employees and tenure status, the percentage distribution of employees and Tenure arrangement of housing unit is portrayed in cross tab form in the following table.

Table 29. Percentage distribution of employees by sex and Tenure arrangement

| Employee | SEX | | | | | |
|---|---|---|---|---|---|---|
| | Male | | | Female | | |
| | Owner % | Non owner % | Total No. | Owner % | Non owner % | Total No. |
| Ministry of Education | 55.6 | 44.4 | 27 | 45 | 55 | 20 |
| Awash Bank | 21 | 79 | 108 | 7.5 | 92.5 | 40 |
| Total | 23 | 77 | 135 | 18.3 | 81.7 | 60 |

From Table 29, we can see that the percentage of employees of Ministry of Education who are home owners is higher for both sex groups. Higher percentage of non-owners is registered in employees of Awash Bank for both sex groups. On the other hand the percentage of employees who are home owners is higher for males than females.

The difference in the percentage of employees living in the same categories of both sex groups shows that there is a relation between the variables among the institutions.

**2. Age and Tenure Arrangements**

In order to see the association between age and tenure arrangements, percentage distribution of employees by age and tenure arrangements of employees by employer institutions is presented in a cross-tab form in Table 30.

Table 30. Percentage distribution of employees by age group and Tenure arrangement

| Employee | Age | | | | | |
|---|---|---|---|---|---|---|
| | Younger | | | Older | | |
| | Owner % | Non owner % | Total No. | Owner % | Non owner % | Total No. |
| Ministry of Education | 25 | 75 | 8 | 51.3 | 48.7 | 39 |
| Awash Bank | 9 | 91 | 101 | 34 | 66 | 47 |
| Total | 9.1 | 90.8 | 109 | 37.3 | 62.7 | 86 |

If we compare employees of the selected institutions, we see that the percentage of employees of Ministry of Education who own a house privately is higher than Awash Bank employees for both age groups. From Table 30, the figures reveal that higher proportions of employees are non-owners of a house. The percentage of older employees who have home ownership is relatively higher than younger employees. Only 9.1 percent of the younger age group employees have their own house.

The difference in percentage distribution of employees with age group by tenure status shows that there is an association between the variables. Hence, as people get older and older, the probability of being home owner is higher.

**3. Marital status and Tenure Arrangements**

To examine the relation between marital status and tenure arrangements of employees, a cross tabulation is made with the variables and the percentage distribution is depicted in Table 31 below.

A comparison of employees of the two institutions by the selected variables indicates that the percentage of unmarried employees who are non owner of a dwelling unit is higher in Awash Bank than Ministry of Education employees (Table 31).

Table 31. Percentage distribution of employees by marital status and Tenure arrangement

| Employee | Marital status | | | | | |
|---|---|---|---|---|---|---|
| | Married | | | Single | | |
| | Owner % | Not owner % | Total No. | Owner % | Not owner % | Total No. |
| Ministry of Education | 37 | 63 | 40 | 50 | 50 | 7 |
| Awash Bank | 30 | 70 | 64 | 6 | 94 | 84 |
| Total | 32 | 68 | 104 | 9.9 | 90.1 | 91 |

From Table 31, we can see that 32 percent of the total married employees' posses their own housing units. The percentage of unmarried employees who are owners of a dwelling unit is 9.9. Thus, there is a wide variation in percentage distribution of employees by marital status who own and who do not own a housing unit privately. Thus higher proportion of home ownership is registered for married employees.

Examining the association between the variables for the whole employees shows that there is a statistically significant relationship. That is, married employees tend to be more home owners than unmarried employees.

**4. Educational level and Tenure arrangement**

In order to examine the relationship between educational qualification of employees and tenure status and to see the difference with in employees by employer organizations, the percentage distribution of employees and tenure arrangement housing is presented in cross tabulation in Table 32 below.

Table 32. Percentage distribution of employees by level of education and Tenure arrangement

| Employee | Educational status | | | | | |
|---|---|---|---|---|---|---|
| | Not professional | | | Professional | | |
| | Owner % | Not owner % | Total No. | Owner % | Not owner % | Total No. |
| Ministry of Education | 15 | 85 | 34 | 44 | 56 | 13 |
| Awash Bank | 23 | 77 | 134 | 17.7 | 82.3 | 14 |
| Total | 21 | 79 | 168 | 24.5 | 75.5 | 27 |

As depicted is Table 32 above, 79 percent of professional employees are non owner of a housing units. The percentage of employees who are owner and professionals is 17.7 which is less than the non professionals. A higher proportion of professional employees of Ministry of Education are owners of a housing unit than Awash Bank.

**5. Income Level and Tenure Arrangement**

To examine the relation between income level and tenure arrangements of employees, a cross tabulation is made with the variables and the percentage distribution is depicted in table 33 below.

Table 33: Percentage distribution of employees by level of income and Tenure arrangement

| Employee | Income | | | | | |
|---|---|---|---|---|---|---|
| | Lower income | | | Higher income | | |
| | Owner % | Not owner % | Total No. | Owner % | Not owner % | Total No. |
| Ministry of Education | 23 | 77 | 12 | 44 | 56 | 35 |
| Awash Bank | 16 | 84 | 74 | 21 | 79 | 74 |
| Total | 16.4 | 83.6 | 86 | 28.9 | 71.2 | 109 |

Table 33 shows that a considerable proportion of employees from both income groups do not have their own home. However, the percentage of lower income employees who are not owners is higher than the corresponding lower income group f employees. Regarding the sampled employees, higher proportion of employees of Awash Bank are not owners of a private house. The percentage of home owners is also lower in Awash Bank than Ministry of Education for both income categories.

### 4.3. Association between Household Characteristics and housing Conditions of Employees

A cross tabulation was done in the previous section to see if any relation exist between the dependent and independent variables. In this section, simple correlation analysis is done to examine the strength of association between housing conditions and socio-economic as well as demographic characteristics of employees (household characteristics).

#### 4.3.1. Household characteristic variables and Availability of basic housing amenities

To see the degree and direction of association between each of independent variables and basic housing amenities and facilities, a correlation analysis was made.

Table 34: Result of correlation analysis between each independent variable and basic housing amenities

| | | sex | age | Marital status | Education status | Income |
|---|---|---|---|---|---|---|
| Basic housing amenities | Pearson correlation | .043 | -.121 | .208 | 0.293 | 0.183 |
| | Sig.(2 tailed) | .551 | .093 | .004 | .000 | .011 |

As the results sets out in Table 34, the association between housing facilities and each of these independent variables is so weak. A relatively strong association is observed with educational status (r=.293) among the other independent variables. A negative association is observed with

age. This is to mean that younger age people live in standard housing than older ones.

A significant association is observed between marital status, education and income of employees. This is because married employees would prefer to live in a standard housing; they allocate a relatively higher amount of money to posses the facilities. Also the combined income of the couples is relatively high than unmarried.

Regarding education, as people educated more the probability of obtaining better income is high and as the same time educated people give priority to basic housing amenities.

### 4.3.2. Household characteristic and Availability of basic housing amenities

In order to asses the degree and direction of association between the selected variables and also to test the hypotheses, a bivariate correlation analysis is done.

Table 35: Result of correlation analysis between each independent variable and type of construction materials

| | | sex | age | Marital status | Education status | Income |
|---|---|---|---|---|---|---|
| Type of construction material | Pearson correlation | .094 | -.074 | .090 | .205 | .274 |
| | Sig.(2 tailed) | .193 | .303 | .212 | .000 | .000 |

As the results sets out in table 35, the association between type of construction materials used and each of independent variables is so weak. A relatively strong association is observed with income of employees (r=.274).

Education and income are the only socioeconomic variables that have a significant association with type of construction materials used.

### 4.3.3. Household characteristic and Overcrowding

To see the degree and direction of association between each of the independent variables with crowding, a bivariate correlation analysis was run and the results are depicted in the following table.

Table 36: Result of correlation analysis between each independent variable and overcrowding

| | | sex | age | Marital status | Education status | Income |
|---|---|---|---|---|---|---|
| Overcrowding | Pearson correlation | .122 | -.237 | .307 | .118 | .132 |
| | Sig.(2 tailed) | .090 | .000 | .000 | .099 | .066 |

As the results sets out in table 36, the association between overcrowding and each of independent variables is so weak. A relatively strong association is observed with marital status (r=.307). Others show weak association. A negative association is observed with age.

The association is significant with age and marital status of employees. As age increases the employees become more responsible in social life so that they support a relatively extended family. Also as they get older they became married and have children. Therefore, more household size would exist in their house than younger ones. The same is true for marriage.

### 4.3.4. Household characteristic and Tenure

To see the degree and direction of association of each of the independent variables with tenure arrangements, a bivariate correlation analysis was run and the results are depicted in the following table.

Table 37: Result of correlation analysis between each independent variable and tenure status

| | | sex | age | Marital status | Education status | Income |
|---|---|---|---|---|---|---|
| tenure | Pearson correlation | .059 | .349 | .286 | .039 | .156 |
| | Sig.(2 tailed) | .409 | .000 | .004 | .596 | .029 |

As the results sets out in table 37, the association between type of construction materials used and each of independent variables is so weak. A relatively strong association is observed with age (r=.349).

Tenure shows significant association with age, marital status and income.

## 4.5. Regression analysis for aggregate data.

The main analytical body of this part of the paper attempts to identify the best predictors of housing conditions in addition to explaining the relation between the variables. The regression analysis was made to see the relation between housing conditions (housing quality and tenure status) and household characteristic factors affecting the housing conditions of the employees.

A total of four regressions were run to see the relation of the dependent and independent variables. Each of the three components measures of housing quality-availability of housing amenities and facilities ($Y_1$),type of construction materials ($Y_2$) and crowdedness ($Y_3$) are regressed against the same combination of explanatory variables-Sex ($X_1$), Age ($X_2$), Marital status ($X_3$), Educational status ($X_4$) and Income ($X_5$) of the employees. A similar combination of regression analysis is done with Tenure status ($Y_4$) and household characteristic factors of the employees.

Before starting the stepwise regression analysis, an attempt is done to check the interdependence between the explanatory variables themselves (multicolinearity). Very weak correlation coefficients were observed. The result of the correlation matrix coefficient is presented in appendix 4. The multiple regression analysis using stepwise method is then made in order to select the optimal contribution of independent variables which represent the maximum level of prediction.

### 4.5.1. Regression result of the explanatory variables Regressed against availability of basic housing amenities and facilities

The stepwise multiple regression analysis of the variables indicated that availability of basic housing amenities and facilities is significantly correlated with two of the independent variables-income, and marital status of the employees. All the variables are correlated positively.

The regression coefficient, B and the standardized coefficients that indicate the rate of change in availability of basic housing amenities and facilities as per change in the independent variable is presented in table 38. The coefficients table indicated that the highest rate of change in availability of basic housing amenities and facilities is due to income (B=0.350).

Table 38 Regression coefficients results of the availability of basic housing amenities and facilities and explanatory variables.

| Explanatory Variables | Unstandardized coefficients | | standardized coefficients Beta | t | Sig. |
|---|---|---|---|---|---|
| | B | Standard error | | | |
| constant | 0.137 | 0.105 | | 2.066 | 0.039 |
| Income($X_5$) | 0.350 | 0.045 | 0.244 | 7.760 | 0.000 |
| Marital Status($X_3$) | 0.110 | 0.331 | 0.111 | 3.589 | 0.000 |

Regression Equation: $Y_1=0.137 + 0.350X_5 + 0.110X_3$

The highest proportion of variance in the variable is explained by income. That is 6.6 percent of the variation, $R^2$, in availability of basic housing amenities and facilities is due to income (Table 39).The second explanatory variable that contributes to the variation is marital status.

Table 39: Multiple Regression result ABHA and the two significant explanatory variables.

| Explanatory variable | R | R squared | Adjusted R squared | Standard error of the estimate |
|---|---|---|---|---|
| Income($X_5$) | 0.257 | 0.066 | 0.064 | 0.483 |
| Marital Status($X_3$) | 0.231 | 0.053 | 0.052 | 0.480 |

### 4.5.2 Regression result of the explanatory variables Regressed against type of construction materials used.

The multiple regression analysis of the variables using a stepwise method indicated that the type of construction materials used is significantly associated with only income of the employees. The variable is correlated in the same direction.

The regression coefficient, B and the standardized coefficients, beta that indicate the rate of change in type of construction materials used as per change in the independent variable is presented in table 40. The coefficients table indicated that the highest rate of change in availability of basic housing amenities and facilities due to income is B=0.257.

Table 40 Regression coefficients results of the type of construction materials and explanatory variables.

| Explanatory Variables | Unstandardized coefficients | | standardized coefficients Beta | t | Sig. |
|---|---|---|---|---|---|
| | B | Standard error | | | |
| Constant | -.082 | .106 | | -0.775 | .439 |
| Income($X_5$) | .257 | .065 | .274 | 3.954 | .000 |

Regression Equation: $Y_2 = -0.082 + 0.257X_5$

The highest proportion of variance in the variable is explained by income. That is 7.5 percent of the variation, $R^2$, in type of construction materials used is due to income (Table 41).

Table 41: Multiple Regression result type of construction materials used and income

| Explanatory variable | R | R squared | Adjusted R squared | Standard error of the estimate |
|---|---|---|---|---|
| Income($X_5$) | .274 | .075 | .070 | .450 |

### 4.5.3. Regression result of the explanatory variables Regressed against Crowdedness

The stepwise multiple regression analysis of the variables indicated that crowdedness is significantly correlated with two of the dependent variables- marital status and age of the employees.

The regression coefficient, B and the standardized coefficients that indicate the rate of change in crowdedness as per change in the independent variable is presented in table 42. The coefficients table indicated that the highest rate of change in crowdedness is due to marital status (B=0.308).

Table 42 Regression coefficients results of the crowdedness and explanatory variables.

| Explanatory Variables | Unstandardized coefficients | | standardized coefficients Beta | t | Sig. |
|---|---|---|---|---|---|
| | B | Standard error | | | |
| constant | -0.263 | .150 | | -1.752 | .081 |
| Marital Status ($X_3$) | 0.308 | .667 | .312 | 4.592 | .040 |
| Age($X_2$) | 0.143 | .067 | .144 | 2.119 | .035 |

Regression Equation: $Y_3=-0.263+0.308\ X_3+0.143\ X_2$

Marital status of the employees accounted for the highest proportion of variance in the variable. That is, 11.5 percent of the variation, $R^2$, in

crowdedness is due to income (Table 43). The second explanatory variable that contributes to the variation is marital status.

Table 43: Multiple Regression result of crowding and the two significant explanatory variables.

| Explanatory variable | R | R squared | Adjusted R squared | Standard error of the estimate |
|---|---|---|---|---|
| Marital Status ($X_3$) | 0.339 | 0.115 | 0.105 | 0.466 |
| Age ($X_2$) | 0.307 | 0.094 | 0.089 | 0.429 |

### 4.5.4. Regression result of the explanatory variables Regressed against Tenure

The multiple regression analysis of the variables using a stepwise method indicated that tenure status used with two of the independent variables- age and marital status of the employees.

The regression coefficient, B and the standardized coefficients, beta that indicates the rate of change in tenure status as per change in the independent variable is presented in Table 44. The coefficients table indicated that the highest rate of change in tenure status is due to age (B=0.271).

Table 44: Regression coefficients results of tenure status and explanatory variables.

| Explanatory Variables | Unstandardized coefficients | | standardized coefficients Beta | t | Sig. |
|---|---|---|---|---|---|
| | B | Standard error | | | |
| Constant | -0.388 | 0.133 | | -3.442 | 0.001 |
| Age ($X_2$) | 0.271 | 0.052 | 0.346 | 5.189 | 0.000 |
| Marital Status($X_3$) | 0.117 | 0.051 | 0.150 | 2.243 | 0.026 |

Regression Equation: $Y_4 = -0.388 + 0.271X_2 + 0.117X_3$

The highest proportion of variance in the variable is explained by age. That is, 14.4 percent of the variation in crowdedness is due to age of the

employees (Table 45).The second explanatory variable that contributes to the variation is marital status.

Table 45: Multiple Regression result of tenure status and the two significant explanatory variables.

| Explanatory variable | R | R squared | Adjusted R squared | Standard error of the estimate |
|---|---|---|---|---|
| Age ($X_5$) | 0.380 | 0.144 | 0.136 | 0.362 |
| Marital Status ($X_3$) | 0.349 | 0.122 | 0.117 | 0.355 |

To sum up the regression result discussions, the multiple correlation coefficients, R, appeared small in most cases. Despite weak association of the variables, income appeared to have a significant relation in most measures of housing conditions. Thus except for crowding, income is one of the most important predictor of housing conditions of the employees. Next to income, the marital status of employees is appeared to be an important predictor to access to housing amenities and facilities and overcrowding.

# CHAPTER 5 Summary, Conclusion and Recommendations

## 5.1. Summary

The general objective of this paper was to assess the housing situation of employees and also examine if an association exist between housing condition and household characteristic factors of the employees. Both primary and secondary data sources were used to carryout the study. A total of 195 employees were selected purposefully from Ministry of Education and Awash Bank. A proportionate systematic sampling was used to select the respondents. In the study, both cross-tabulation of percentage frequencies and simple correlations were used to identify the relationship between any independent and dependent variables in terms of non-parametric and parametric tests respectively.

Housing quality measured by availability of basic housing amenities, type of construction materials used and crowdedness and tenure status were the main indicators of housing conditions used to assess the dwelling units of employees. The demographic and socio-economic character variables: sex, age, marital status, education status and income of the employees were also explored and also hypothesized that they influence the housing conditions of employees. A multiple regression analysis using stepwise method was also employed to indicate the combined and independent influence of the predictive variables on the independent variables.

One of the basic needs of human being is shelter. In Ethiopia many people were unable to meet this need as much as needed. The dwelling units in Addis Ababa found in poor conditions. Most of the houses in the primate city are over crowded, dilapidated and lack the basic housing facilities and amenities. In general, majority of housing units in the city are not suitable for living.

Source of drinking water, source of energy lighting, type of toilet, type of kitchen and bathing facilities were the main housing amenities and facilities that were assessed. It was found that more than 83 percent of the employees were living in sub-standard housing units in terms of availability of basic housing amenities and facilities. An equivalent proportion of employee of both institutions lack basic housing amenities. In general, majority of employees' live in dwelling units that lacks access to basic housing amenities and facilities.

The type of construction material used to build the house was another criteria used to measure the housing quality of the employees. In this respect, wall, floor, ceiling and foundations of the dwelling units were assessed. It was found that only 28.7 percent of the total employees were living in a housing unit that was made up of the conventional standard construction material type. Majority of the sampled employees live in substandard housing units in terms of type of construction materials used. 72.3 percent of employees of Awash Bank and 74.5 percent of employees of Ministry of Education are living in housing units that were made up of non durable materials. The variation by institution in terms of type of construction material used was tested by chi-square test and showed that the variation was statistically insignificant.

Crowding was also used as criteria to measure the physical quality of the housing unit. The number of persons per room was used to measure crowding (or level of occupancy) of employees' dwelling units. A significant number of employees of Ministry of Education and Awash Bank live in over crowded situation. According to this study, 51.1 percent of employees of Ministry of Education and 61.5 percent of employees of Awash Bank live in overcrowded (substandard) housing units. The variation between employees by employer institution regarding overcrowding situation was provided to be statistically insignificant.

The number of rooms used by the targeted employees is found to be inadequate. Most of the employees use a single room for multi-service purposes: as cooking room, dinning room, bed room and bathroom. This possibly have a negative impact on them especially on their health condition.

The tenure arrangement of employees is also assessed. According to the study, majority of the sampled employees live in a rented house. Only 21.5 percent of the employees had their own houses. The results of the study also revealed that 53.2 percent of Ministry of Education and 60.1 percent of Awash Bank employees were living in a rented house. This condition may reduce their freedom. The variation by institution in terms of tenure status was tested by chi-square test and showed that it was statistically insignificant.

A bivariate correlation analysis showed that there is an association between the proposed explanatory variables (household characteristics) and the dependent variables (housing characteristics). A closer examination of each dependent variable and its association with household characteristics showed that there is a variation in degree and direction of association. The result of the study revealed that availability of basic housing amenities has a positive correlation with all of the household characteristics in both targeted institutions employees. Availability of basic housing amenities and facilities shows a significant association with marital status, education and income of employees.

The type of construction material used shows a statistically significant association with educational status and income of employees. Employees with better educational attainment and income level live in a standard house in terms of type of construction materials used.

The correlation analysis is also used to asses the degree and direction of relation between household characteristic factor variables and

crowdedness. The result indicates that crowdedness shows a statistically significant association with age and marital status. . As people get married and got aged, there are more families in their houses-children, house maid and other relatives that are dependant on them.

The status of tenure of employees is also correlated with their socio-economic and demographic arrangements. The result obtained is that tenure arrangement has a significant association with age, marital status of employees' and income.

### 5.2. Conclusion and recommendations

Housing is one of a welfare issue that has a significant impact on human beings. A quality dwelling unit is essential for healthy life and efficient performance of work. The study identified that majority of the employees from both institutions live in poor housing conditions (substandard level). Many of the employees lack access to basic housing amenities and facilities live in overcrowded situation and live in a housing unit made up of non durable materials. This situation has a considerable impact on the living and health condition of employees and their family.

The regression analysis showed that employees with better income and married ones had a better access to basic housing amenities and facilities. Income is logically accepted that those with better income had better access to the facilities. The marital status is the fact that the combined income of the couples is higher than the unmarried ones. Moreover when people get married, they give a serious consideration to the amenities since there may be child bearings and more family size under their responsibilities. Income also has an impact on the type of construction material used. Crowding is affected by the marital status an age of the employees. The same is true for tenure status of the house.

A comparative analysis of the employees showed that employees of MOE live in better housing conditions than employees of Awash Bank. This is mainly due to the fact most of the socioeconomic factors that affect the housing conditions found better for the employees of MOE.

In general there is a wide gap between housing demand and supply in the city and the housing condition of the employees is poor. Improving the situation of the dwelling units has an immense value to the overall development process. Examining the factors that have influence on housing conditions does this. The following ideas are suggested to improve the existing situation based on the results of the study.

Income of the employees is one of the prominent factors that have a significant relation with housing quality. Means of improving the income of households will allow them to save and invest some amounts on housing. Developing Income generating activates apart their regular time job is forwarded.

The studies revealed that majority of the houses are poor quality and made up of traditional materials. Developing new techniques that allow to enhance the quality of the building materials is essential.

Employer organization should seek funds to secure houses for their employees that can be repaid in long terms so that the employees will enable to build suitable houses. Providing housing credit and loan facilities to employees with low interest rate is an important measure to alleviate the problem. Saving and Credit associations (micro credit schemes) should be expanded to outreach the poor.

Government should developing housing programs especially low cost housing to reduce the housing shortage in the city. Providing site and

services for those who build is an important measure. Also NGO's would have to take part in providing basic urban services related to housing since housing is one of a welfare issue.

The government should also give more attention not only developing secondary and other cities but also provide and build basic urban infrastructures. This will enable to reduce the migration to the capital so that high pressure for housing will be reduced.

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# Addis Ababa University Department of Regional and Local Development Studies (RLDS) a Questionnaire Prepared for Employees in Addis Ababa

Date of questionnaire filled_____

Instruction: The purpose of this questionnaire is to collect information on Housing Situation of Employees for a thesis as a partial fulfillment of MA in RLDS. In our research, we ask employees to tell us about their housing and problems related with it. This study is valuable both for planning and as a scientific research. The information from respondents will be kept confidential and will not affect any body in any way. Your name will be in no way connected to the findings of this important study.

So, you are kindly requested to give your honest opinion to the best of your ability on each questionnaire. Your frank and sincere response will be appreciated.

Thank you in Advance.

## I. Socio Economic and Demographic Aspects

1.1. Zone / Sub City _____

1.2. Woreda _____

1.3. Kebele _____

1.4. House Number _____

1.5. Sex _____

1.6. Age _____

1.7. Marital Status:

1. Single 2. Married 3. Divorced
4. Separated 5. Widowed /widower

1.8. Education Status

1. Read and write 2. Grade 1-6 3. Grade 7-8
4. Grade 9-12 5.12+ Certificates 6. Diplomas
7. BA/B.Sc 8. MA/MSc or above

1.9. Type of Occupation

1. Manual 2. Secretarial and Clerical 3. Crafts
4. Sub-professional 5. Administrative and Management 6. Professional

1.10. Job experience _____years

1.11. Place of Birth

1. Addis Ababa 2.Other urban area 3. Rural Area

1.12. If your birth place in not in Addis Ababa why did you come?

1. Looking for a job 2. Looking for a better education
3. Looking for a better health 4. Other (Specify) _____

1.13. Duration of residence in Addis Ababa (in years) _____

1.14. Household size (including you) _____

## II. Housing Conditions (physical)

(Please choose one answer and circle it)

### 2.1. Physical Structure

1. Attached and non-storied 2.Detached and non-storied
3. Attached and storied 4.Detached and storied 5.Other (specify) _____

**2.2 Type of construction material**

2.2.1. Wall: 1.Wood and mud 2. Stone and cement

3. Hollow blocket and cement 4. Bricks and cement

5. Others (specify) _____

2.2.3 Floor of the Housing unit

1. Wooden tiles 2. Cement tiles 3. Earthen floor

4. Others(Specify) _____

2.2.4 Ceiling type: 1. No ceiling 2. Chip wood / hardboard 3. Wood

4. Fabrics 5.Others (specify) _____

2.2.5 Does the house have proper foundation? 1. Yes 2. No

2.2.6. Age of the housing unit (If you are not the owner estimate) _____

2.2.7. Total number of rooms (excluding kitchen, bath, shower and toilet) in your housing unit _____.

## III. Hosing facilities and amenities

3.1. Source of drinking water

1. Private tap inside a house 3. Shared tap inside a compound.

2. Private tap in a compound 4.Shared tap outside a compound

5. Public Bono 6.Other (Specify) _____

3.2. If the water tap is communal, number of households that share the tap is_____

3.3. Source of light: 1.Private electric meter 2.Shared eclectic meter

3. Others (specify) _____

3.4. Toilet facilites : 1. Flushed (private) 2. Flushed (shared) 3. Dry pit (private)

4. Dry pit (shared) 5. No toilet

3.5 If the toilet is communal, what is the number of households that share the toilet?__

3.6. Kitchen type 1. No kitchen 3. Traditional and shared kitchen

2. Traditional and private kitchen 4.Modern and private kitchen

5. Modern and shared kitchen

3.7. Bathing type

1. None 2. Private bath 3. Shared bath

4. Private shower 5. Shared shower

3.8. What is the sewerage disposal system type in your housing?

1. No sewerage system 2.Open ditch 3.Closed/coverd sewerage system

3.9. What is your solid waste disposal system?

1. Burning 2. Open field/space 3. Pit
4. Municipal solid west collection
5. Other (Specify) _____

3.10. Can your home accessed by a vehicle? 1. Yes 2. No

## IV. House Tenure and Rent Situation

4.1. Occupancy condition of the housing unit you live in

1. Owner 2. Rented 3. Rent-free 4. Family's property
5. Other (Specify) _____

4.2. Currently you are living in:

1. a house you rented privately 3.a house you built privately
2. your parents house 4. Sharing a house with other households
5. Other (specify) _____

4.3. If you are renter, from whom did you rent?

1. Kebele 2. Agency for administration of rental houses 3.Private individual
4. Other (Specify) _____

4.4. Is there any prior agreement concerning access to shared facilities such as electricity, water, toilet and kitchen with the owner? 1. Yes 2. No

4.5. Has the price of rent increased with out any notice? 1. Yes 2. No

4.6. How many times have you changed a house within the last two years? ____

4.7. Have you attempted to build or buy your own house? 1. Yes 2. No

## V. Concerning Private house

5.1. Have you built / buy your own house? 1. Yes 2. No

5.2. If you have bought or built a house, what was your main reason to build/buy a house?

1. High price of rent 2.Marriage and childbirth 3.Privacy and prestige
4.Other (Specify) _____

## VI. Maintenance condition of the housing unit

6.1. Did the house get maintenance within the last two years?

1. Yes 2. No

6.2. If yes, what kind of maintenance?

1. Painting 2. Roof maintenance 3. Floor maintenance

4. Other (specify) _____

6.3. What is the condition of the house? Please make a **"√"**mark in the table.

| | Wall | Roof | Wall plaster | Floor |
|---|---|---|---|---|
| In need of major repair | | | | |
| In need of minor repair | | | | |
| Not needing minor repair | | | | |

## VII. About Income

7.1. Please indicate your income category in the table below. Also, indicate if there is additional income in your household other than you.

| | Your income | Your wife's/husband's income(if any) | Another income (if any) |
|---|---|---|---|
| 100-400 | | | |
| 401-800 | | | |
| 801-1200 | | | |
| 1201-1600 | | | |
| 1601-2000 | | | |
| 2001-2600 | | | |
| 2601-3200 | | | |
| 3201-3800 | | | |
| 3801 and above | | | |

## Appendices

### Appendix 1 Household characteristic factor variables

Table 1: Household size of the Employees

| No. of households | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| 1 | 3 | 6.4 | 22 | 14.9 | 25 | 12.8 |
| 2 | 4 | 8.5 | 12 | 8.1 | 16 | 8.2 |
| 3 | 7 | 14.9 | 14 | 9.5 | 21 | 10.8 |
| 4 | 10 | 21.3 | 23 | 15.5 | 33 | 16.9 |
| 5 | 7 | 14.9 | 23 | 15.5 | 30 | 15.4 |
| 6 | 3 | 6.4 | 22 | 14.9 | 25 | 12.8 |
| 7 | 7 | 14.9 | 12 | 8.1 | 19 | 9.7 |
| 8 | 3 | 6.4 | 10 | 6.8 | 13 | 6.7 |
| 9 | 2 | 4.3 | 4 | 2.7 | 6 | 3.1 |
| 10 | 1 | 2.1 | 2 | 1.4 | 3 | 1.5 |
| 11 | - | - | 3 | 2.0 | 3 | 1.5 |
| 12 | - | - | 1 | .7 | 1 | .5 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

Table 2: Place of Birth of employees

| | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| Addis Ababa | 13 | 27.7 | 73 | 49.3 | 86 | 44.1 |
| Other urban | 18 | 38.3 | 19 | 12.8 | 37 | 19.0 |
| Rural | 16 | 34.0 | 56 | 37.8 | 72 | 36.9 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

Table 3: Reason to come to Addis Ababa

| | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| Not applicable | 13 | 27.7 | 73 | 49.3 | 86 | 44.1 |
| Looking for Job | 13 | 27.7 | 25 | 16.9 | 38 | 19.5 |
| for job and education | 1 | 2.1 | 4 | 2.7 | 5 | 2.6 |
| Looking for better Education | 13 | 27.7 | 35 | 23.6 | 48 | 24.6 |
| for educ.and heath | - | - | 1 | .7 | 1 | .5 |
| Looking better Health | - | - | 1 | .7 | 1 | .5 |
| Others* | 7 | 14.9 | 9 | 6.1 | 16 | 8.2 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

*include job transfer and family as a whole

Table 4. Job experience of the employees in year

| years | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| 1 to 5 | 1 | 2.1 | 58 | 39.2 | 59 | 30.3 |
| 6 to 10 | 5 | 10.6 | 55 | 37.2 | 60 | 30.8 |
| 11to 15 | 8 | 17.0 | 16 | 10.8 | 24 | 12.3 |
| 16 to 20 | 13 | 27.7 | 9 | 6.1 | 22 | 11.3 |
| 21 to 25 | 8 | 17.0 | 6 | 4.1 | 14 | 7.2 |
| 26 to 30 | 7 | 14.9 | 2 | 1.4 | 9 | 4.6 |
| 30 + | 5 | 10.6 | 2 | 1.4 | 7 | 3.6 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

**Appendix 2 Housing conditions**

Table 5: Number of Households (HHs) Share a tap water

| No. of HHs shared | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| not applicable | 24 | 51.1 | 67 | 45.3 | 104 | 53.3 |
| With 1 another HH | | | 2 | 1.4 | | |
| with 2 HHs | 4 | 8.5 | 10 | 6.8 | 12 | 6.2 |
| with 3 HHs | 5 | 10.6 | 15 | 10.1 | 19 | 9.7 |
| wih 4 HHs | 3 | 6.4 | 13 | 8.8 | 12 | 6.2 |
| with 5 HHs | 4 | 8.5 | 16 | 10.8 | 16 | 8.2 |
| with 6 HHs | 4 | 8.5 | 8 | 5.4 | 12 | 6.2 |
| With 7 HHs | | | 3 | 2.0 | 3 | 1.5 |
| with 8 HHs | 2 | 4.3 | 6 | 4.1 | 11 | 5.6 |
| With 9 HHs | | | 1 | .7 | | |
| with 10 HHs | 1 | 2.1 | 6 | 4.1 | 5 | 2.6 |
| With 15 HHs | - | - | 1 | .7 | 1 | .5 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

Table 6: Solid Waste Disposal System

| Method of disposal system | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| Burning | 9 | 19.1 | 9 | 6.1 | 18 | 9.2 |
| Open field/space | 9 | 19.1 | 35 | 23.6 | 44 | 22.6 |
| Pit | 1 | 2.1 | 13 | 8.8 | 14 | 7.2 |
| Municipal /grouped people collection | 28 | 59.6 | 91 | 61.5 | 119 | 61.0 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

Table 7: Number of HH share toilet

| No. of HHs shared | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| not applicable | 21 | 44.7 | 67 | 45.3 | 88 | 45.1 |
| with 1 another HHs | - | - | 2 | 1.4 | 2 | 1.0 |
| with 2 HHS | 3 | 6.4 | 10 | 6.8 | 13 | 6.7 |
| with 3 HHS | 5 | 10.6 | 15 | 10.1 | 20 | 10.3 |
| with 4 HHS | 4 | 8.5 | 13 | 8.8 | 17 | 8.7 |
| with 5 HHS | 7 | 14.9 | 16 | 10.8 | 23 | 11.8 |
| with 6 HHS | 5 | 10.6 | 8 | 5.4 | 13 | 6.7 |
| with 7 HHS | - | - | 3 | 2.0 | 3 | 1.5 |
| with 8 HHS | - | - | 6 | 4.1 | 6 | 3.1 |
| with 9 HHS | - | - | 1 | .7 | 1 | .5 |
| with 10 HHS | 2 | 4.3 | 6 | 4.1 | 8 | 4.1 |
| with 15 HHS | - | - | 1 | .7 | 1 | .5 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

Table 8: Sewerage system

| Type of sewerage system | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| No sewerage system | 21 | 44.7 | 76 | 51.4 | 97 | 49.7 |
| Open ditch | 14 | 29.8 | 41 | 27.7 | 55 | 28.2 |
| Closed/covered ditch | 12 | 25.5 | 31 | 20.9 | 43 | 22.1 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

Table 9: Accessibility by vehicle

| | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| yes | 34 | 72.3 | 103 | 69.6 | 137 | 70.3 |
| no | 13 | 27.7 | 45 | 30.4 | 58 | 29.7 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

Table 10: Type of building Structure

| Type of structure | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| Attached and non-storied | 19 | 40.4 | 50 | 33.8 | 69 | 35.4 |
| Detached and non-storied | 24 | 51.1 | 95 | 64.2 | 119 | 61.0 |
| Attached and storied | 3 | 6.4 | 3 | 2.0 | 6 | 3.1 |
| Detached and Storied | 1 | 2.1 | - | - | 1 | .5 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

Table 11: Age of the house of the employees

| Age of the house | Ministry of Education | | Awash Bank | | Total | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| 1 to 10 years | 4 | 8.5 | 22 | 14.9 | 26 | 13.3 |
| 11 to 20 years | 11 | 23.4 | 37 | 25.0 | 48 | 24.6 |
| 21 to 30 years | 17 | 36.2 | 39 | 26.4 | 56 | 28.7 |
| 31 to 40 years | 8 | 17.0 | 37 | 25 | 45 | 23.1 |
| 41 to 50 years | 4 | 8.5 | 12 | 8.1 | 16 | 8.2 |
| 51 + | 3 | 6.4 | 1 | .7 | 4 | 2.1 |
| Total | 47 | 100.0 | 148 | 100.0 | 195 | 100.0 |

Table 12: Maintenance condition in the last two years

| Maintenance condition | Employee | | |
|---|---|---|---|
| | Ministry of Education | Awash Bank | Total |
| | Percent | Percent | Percent |
| Maintained | 41 | 39.5 | 38.5 |
| Not Maintained | 59 | 60.5 | 61.5 |
| Total | 100 | 100 | 195 |

**Appendix 3: Methodological classification of Households living in standard and sub-standard Dwelling units**

1. Methodological classification of Households living in standard and sub-standard dwelling units in terms of Availability of Basic Housing Amenities

A. Source of water for domestic use (including for drinking):

- **Sub-standard**

- well, river, spring, and the like
- shared tap water (inside or outside the compound)

- **Standard**

- Private tap water inside the house or compound

B. Source of light:

- **Sub-standard**

  - Shared electric meter, kerosene, firewood

- **Standard**

  - Private electric meter

C. Availability and type of Toilet:

- **Sub-standard**

-open filed, public toilet, elsewhere in hotels; bars; and the like etc.
-flash in the compound shared or private)
-dry pit in the compound shared or private)

- **Standard**

-flash in the compound (private)
-dry pit in the compound (private)

D. Availability and type of kitchen:

- **Sub-standard**

-no kitchen in the housing unit
- shared kitchen (traditional or modern)

- **Standard**

- Private kitchen (traditional or modern)

E. Availability and type of bathing facilities:

- **Sub-standard**

- no bath or shower in the housing unit
- shared shower or bath elsewhere
- shared shower inside the compound

- **Standard**

- Private bath or shower inside the compound

2. Methodological classification of households living in standard and sub-standard dwelling units in terms of the type of construction materials used.

A. wall type:

- **Sub-standard**
  - Corrugated iron sheet
  - mud ("chika")
- **Standard**
  - Block/brick and cement
  - Stone and cement
  - Concrete and cement

B. Floor type

- **Sub-standard**
  - Dirt
  - Plastic tiles
- **Standard**
  - Wooden tiles
  - Cement tiles
  - Concrete

C. Ceiling condition

- **Standard**
  - No ceiling
- **Standard**
  - Wooden
  - Chip wood
  - Fabrics

D. Foundation

- **Substandard**
  -No foundation
- **Standard**
  -With foundation

## Appendix 4

Correlation result of Independent Variables

| | | gender | age of total employees | marital status | educational level | Income total |
|---|---|---|---|---|---|---|
| gender | Pearson Correlation | 1 | -.145 | .022 | -.171 | .145 |
| | Sig. (2-tailed) | | .044 | .757 | .017 | .044 |
| age of total | Pearson Correlation | -.145 | 1 | -.582 | .182 | .019 |
| | Sig. (2-tailed) | .044 | | .000 | .011 | .789 |
| marital status | Pearson Correlation | .022 | -.582 | 1 | -.018 | -.039 |
| | Sig. (2-tailed) | .757 | .000 | | .804 | .592 |
| Educational | Pearson Correlation | -.171 | .182 | -.018 | 1 | .356) |
| | Sig. (2-tailed) | .017 | .011 | .804 | | .000 |
| income | Pearson Correlation | .145 | .019 | -.039 | .356 | 1 |
| | Sig. (2-tailed) | .044 | .789 | .592 | .000 | |

## Declaration

I, the undersigned declare that this thesis is my original work and has not been presented for a degree in any other university. All the sources of material used for this thesis has been dully acknowledged.

Name Abraham W. Michael

Signature

Date 30 April 2007