IN-DEPTH STUDIES FROM THE 1994 POPULATION AND HOUSING CENSUS IN ETHIOPIA
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HOUSING CONDITIONS AND DEMAND FOR HOUSING IN URBAN ETHIOPIA

by

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CHAPTER 1
INTRODUCTION

1.1 Introduction

According to the second national population and housing census, the population of Ethiopia was estimated to be 53,477,265 in October 1994[1]. The census also revealed that 86.3 percent of the population reside in the rural areas, while 13.7 percent were urban dwellers. The country is among the high fertility nations with a total fertility rate of 6.9 children per woman. Over 45 percent of the population are below age 15, indicating that there is a large potential of women in the childbearing age. Because of this potential population momentum, what ever intervention measures are to be taken to reduce fertility, the growth of the population will show a fast increase for a couple of years to come. In fact, assuming the growth rate will decline from the current 2.9 percent per annum to below 2.0 percent by 2030, the Central Statistical Authority of Ethiopia projected the country's population to be over 106 million by 2020 and nearly 130 million by 2030 (CSA,1999). The World Bank projected the country's population to be over 122 million by 2020 and over 158 million by 2030 (WB, 1994/5). This implies that the population will double in less than a quarter of a century and may triple well before 2050.

Ethiopia is rated at the 4th place from the last in the list of countries by the human development index and at the last place in the list of countries by the Adjusted real GDP per capita (UNDP, 1995). The nation has a large concentration of poverty. About 45 percent of the total population is estimated to live in absolute poverty i.e unable to lead a life fulfilling the minimum livelihood standard. The absolute poverty situation showes that 33.2 percent of the urban population is absolutely poor (MEDaC, 1999). The country is exercising an agrarian economy in which over 85 percent of its population make their living on agriculture. The farming system is backward and labor intensive. According to the ministry of finance the economy grew by only 6 percent during the five years (1992/3 – 1997/8). Population increase outstripping the economic growth will result, among other things, in pronounced shortage of housing, food insecurity and poor health.

1.2 Back Ground

Urbanization being twentieth century demographic phenomena, more and more people are changing residence from rural to urban areas. Studies have shown that increasing proportion of

[1] The second national population and hosing census was carried out in october 1994.

the population prefer large cities, big towns and a nearby administrative capitals. The growth of an urban center can take place in different forms: by growth of the existing urban localities, by classification of cities (from rural to urban) and annexations of new territory to existing cities. The other main factor which determines the growth of an urban center is the demographic change i.e. natural increase (difference between crude birth rate and crude death rate) and migration effect. Some of the urban centers in Ethiopia have already faced and others eventually will face one of these types of growth or a combination of them.

In 1984 the urban population of Ethiopia contributed only 11.2 percent to the total population of the country (CSA, 1984). Over the ten years between the two census, the proportion grew to 13.7 percent (CSA, 1999).

In one of the world watch publication: *Beyond Malthus* it is clearly stated that "During the early stages of industrialization, urbanization was largely in response to the pull of employment opportunities in cities. More recently, however, the movement from countryside to city has been more the result of rural push than of urban pull. It is a reflection of the lack of opportunity in the countryside as already small plots of land are divided and then divided again with each passing generation, until they become so small that people can no longer make a living from them (World Watch, 1998).

Because of the backwardness of the agricultural practice and diminishing return of productivity of the arable land, population in the rural areas are on the verge of being pushed out of their rural niche. This and the above mentioned factors will trigger faster urbanization in Ethiopia as in any developing country. In fact, according to the United Nations population projection the proportions of urban population in the country will be 26 percent by the year 2015 and 34 percent by 2025.(UN, 1987).

This unprecedented urbanization, unparalleled with the growth of the economy needs some intervention to harmonize the difference. Be it through natural increase or migration effect or area expansion, growth of an urban center definitely demands infrastructural developments. This includes roads, schools, hospitals, health centers, housing, water supply, sanitation, waste disposal, light…etc. In Ethiopia, especially in urban areas, shortage of housing is one of the major problems that call for immediate action.

The majority of houses in Ethiopia are below qualitative standard and lack adequate space. The extent of provision for water supply, electricity, and drainage is very minimal. The lives and health of people living in housing of such poor quality and with such inadequate provision for

water, sanitation, and drainage are under continuous threat. However, in the developing world in general and in least developed countries like Ethiopia in particular the number of people living in such conditions is increasing every year. Studies have shown that without major improvements in housing markets and in the expansion and improved provision of infrastructure and service, it is inevitable that the population living in such environmental expand very rapidly (Engelman Lovert, 1997).

1.3 Significance of the Study

Housing has become an important public issue in almost all societies. Housing condition of a nation manifests the country's socio-economic development level. It also bears upon the maintenance of privacy, health and the development of normal family living conditions. On the other hand it influences fertility by encouraging or discouraging family formation and affects mortality through health problems.

Statistics on housing are useful indicators of housing situation. Assessment of present housing condition and reliable estimates of housing needs are important factors in establishing housing policy and for the formation and evaluation of housing programs. Advance planning in housing is very important, especially in urban areas. Preparation and evaluation of such plans or programmes needs an adequate statistical data on housing quality and quantity and population growth. In the absence a workable urban planning urban growth will result in slum areas. In other words, the ultimate manifestation of population growth outstripping the supply of housing is homelessness.

Information on housing is also important for those engaged in construction industry as well as financing institutions. Manufacturers of housing fixtures and equipment and household appliances need to assess the possible demand for housing and to visualise the scope of their activities within the over-all program.

Appropriate remedial actions that are to be taken either by government or private institutions require knowledge of the magnitude of the problem. That is, the prevailing housing conditions and accesses to amenities have to be assessed and future need has to be estimated. To bring about a major improvement an appropriate intervention plan is indispensable. This plan obviously requires a reliable statistics on housing and housing services.

The other importance of this study is that based on the findings of the study old regional capitals may revise and update their master plans, if the have any. Those without master plans will benefit from designing one, based on reliable housing and population data.

1.4 Objectives

The study was made targeting the following specific objectives:-

1. To make a descriptive analysis of residential houses at national, regional and selected towns level.
2. To review the structural characteristics and availability of housing facilities.
3. To obtain indicators of housing conditions in which the population live.
4. To project future requirement for housing based on households.
5. To draw an appropriate recommendation that could contribute towards a solution of housing problem.

1.5 Organization of the Paper

This paper is organized into six chapters. The following chapter deals with the source of the data, definitions and methodology. The third chapter is devoted to main findings of the census related to housing conditions i.e. number of rooms, construction materials of walls, roofs and floor; structure and type of buildings in which the housing units are located. Age of housing units, main housing facilities such as water, toilet and light, and an important topic: the crowding matrix are also thoroughly discussed in this chapter. Demand for housing in urban Ethiopia makes chapter four. While the estimates of the building capacity in urban Ethiopia is discussed in chapter five. Finally chapter six presents the conclusion and recommendation.

CHAPTER 2
SOURCE OF DATA AND METHODOLOGY

2.1 Source of Data

The core source of data for the study is the 1994 population and housing census. However, for comparison purposes the results of the 1984 census at country level and Addis Ababa are utilized. In both the censuses a detailed data on population characteristics such as age, sex, marital status. educational attainment…etc were collected. Similarly, housing conditions such as type of building, material used in the construction of the wall, the roof and the floor of the housing unit; safe drinking water, toilet and light were also addressed to the respondents.

2.2 Definitions

In order to have an appropriate approach to the housing question, we should first solve a knotty problem: the definition of housing need and housing demand. The concept of housing demand stems from economics, and it concerns not only the wish to own a good, but also the capacity to pay the price. The concept of needs is a social concept that refers to the inherent duality of a dwelling, that is, both an economic good, subject to the market laws, as well as a good or social service whose fulfillment depends on the support of the public operator and his resources. In this second meaning it seems plausible to reason in terms of need.

The type of housing units was grouped according to whether they are permanent, improvised, or mobile or any other. Consistent with the definitions of the United Nations Principles and Recommendations (UN 1969) these terms were defined in the census as follows:-

Permanent housing unit as “a structure that may be expected to maintain its stability for ten years or more and have been constructed with materials such as cement, blockets and bricks or any other building materials”. Improvised housing unit as “an independent makeshift shelter or structure built of waste materials and being utilized as living quarter at the time of the census”. And Mobile housing unit as “any type of living accommodation which has been made to be transported and occupied as living quarter at the time of census.”

In the census a Room was defined as “a space enclosed by walls reaching from the floor to the ceiling or roof at least to a height of two meters and has a size large enough to hold a bed for an

adult. Except for bathrooms, toilets and passage ways, other rooms found in the housing unit were considered as rooms." An Urban center was defined as a locality with 2000 or more inhabitants or administration capital (region, zone or wereda) and localities in which urban dweller's associations are established irrespective of the population size.

2.3 Methodology

In this study the analysis is made for total urban areas at national and regional level and for 13 specific towns. The selection of the towns was based on two criteria: Towns with population over 55 thousand in 1994 and towns, which serve as regional capitals. Towns like Addis Ababa, Awassa, Bahir Dar, Dire Dawa, Harar, Jijiga, Mekelle and Nazareth are not only regional capitals but also have a population well above 55 thousand. The other towns: Debrezeit, Dessies, Gondar and Jimma are selected because of their population size. Gambella town is selected because it is the capital of Gambella region (population is 18,263). Although, Assosa town is the capital of Benishangul Gumuz region, it is not selected for analysis, because the data obtained for this town was not adequate for analytical purposes.

Based on the data for these towns and the total urban centers for the country as a whole and regional urban total, a descriptive analysis on the stock of housing and access to housing amenities is carried out. Cross-sectional comparison among regions and towns and time series comparison at country level and Addis Ababa (1984 and 1994) makes the major part of the study.

Comparison of regional findings with the 1984 data was not possible because the country had undergone reclassification of regional boundaries after the first census. The former Ethiopia included Eritrea and Assab regions. Therefore, comparison at country level was done by subtracting the values for these regions from the 1984 census results.

Studies have shown that housing requirement depends on dynamic factors like family life cycle (Marriage, child bearing, departure of children from the parental household, marital dissolution …etc) and economic resources of individuals, families and the country as whole (Dowel Myers, et al 1990). The assessment in this report stems from studying changes that occurred between 1984 and 1994 censuses concerning household formation and accordingly future housing needs are estimated.

CHAPTER 3
MAIN FINDINGS

3.1 Structural Type of Housing Units

In both the 1984 and 1994 census the query of the type of living quarters in which households lived was part of the housing questionnaire. The enumerator, being helped by the enumeration map prepared by the census cartography, identified housing units in which households resided during the census.

According to the United Nations Principles and Recommendations of Housing Census (UN, 1961) structural types of buildings in which the housing units were found was classified into three groups: Permanent, Improvised and Mobile housing units. The definition is given as follows:

- A permanent housing unit as a structure that may be expected to maintain its stability for ten years or more.
- Improvised housing unit as an independent makeshift shelter or structure built of waste materials and with out a predetermined plan for habitation but being used as a living quarter at the time of the census.
- Mobile housing unit as any type of living accommodation which has been made to be transported (such as a tent) or which is a moving unit, occupied as a living quarter at the time of the census.

Based on these definitions the two censuses provided the total number of housing units in the country for two points in time: May 1984 and October 1994.

Country Level

According to the 1994 census the total number of housing units in urban Ethiopia, was estimated to be 1,482,580. Table 3.1 shows that out of these housings units 96 percent were identified to be permanent and nearly three percent improvised. Mobile and other types of housing units contributed for less than one percent of the total housing units.

Table 3.1 Percentage Distribution of Number of Persons Per Urban Housing Unit Cross-classified by Type of Housing Unit, Ethiopia: 1994

Type of Housing		Number of Persons							Total
		1	2	3	4	5	6+	N/S	
Permanent		94.67	94.95	95.97	95.85	96.48	96.30	33.68	95.80
Improvised		4.29	4.22	3.13	2.71	2.46	2.15	1.15	2.93
Mobile		0.41	0.39	0.47	0.78	0.65	1.10	-	0.74
Others		0.14	0.07	0.06	0.37	0.09	0.07	-	0.12
N/S		0.49	0.36	0.37	0.29	0.33	0.38	65.17	0.41
Total	Percent	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	Number	178,373	196,721	207,498	204,555	179,467	515,099	867	1,482,580

The corresponding proportion for housing units in permanent buildings was 98.7 percent in 1984. In percentage values this might seem that more people lived in permanent houses then than in 1994. However, there is no other concrete evidence, which supports this conclusion. The absolute difference between 1994 and 1984 is nearly half a million in favor of 1994. In other words the number of housing units has increased by about 66 percent over the ten years between the two censuses. The other reason, which erodes this superficial difference, is the subjectiveness of the definitions. Housing units constructed or erected with locally available crude materials may last a few months to ten years. As we may see later in this paper walls and roofs of most housing units are built of wood and have mud walls and thatched roofs. Some enumerators may categorize a housing unit as permanent while it should have been in the improvised or vise versa. Therefore, "permanent" housing units need or require a cautious approach.

Distribution of the housing units by number of persons does not show that crowdedness and type of housing have any influence on each other. The variability from one group to the next is minimal. However, the improvised housing units appear less crowded than the permanent ones.

Regional Level

The data in Table 3.2 shows that here is some variability at regional level concerning type of housing. The highest percentage of permanent housing units is found in Addis Ababa (97.4 percent). Except in Dire Dawa., Somali and Gambella in the other regions over 95 percent of housing units are of the permanent type. The lowest percentage is observed in the Somali Region (78 percent); also Gambella Region with its 88.3 percent, diverges from the national average.

Table 3.2 Percentage Distribution of Urban Housing Units Cross-Classified By Regions and Type of Housing, Ethiopia: 1994

REGION	Type of Housing					Total	
	Permanent	Improvised	Mobile	Others	N/S	%	Number
TIGRAY	95.30	3.83	0.17	0.06	0.64	100.00	115,421
AFFAR	96.95	2.15	0.44	-	0.46	100.00	20,160
AMHARA	96.79	2.51	0.12	0.13	0.45	100.00	285,203
OROMIYA	96.93	2.45	0.12	0.12	0.38	100.00	406,159
SOMALI	77.98	7.75	13.09	0.09	1.09	100.00	70,087
BENISHANGUL – GUMUZ	95.80	2.85	-	0.06	1.29	100.00	8,499
SNNP	96.49	2.93	0.17	0.09	0.32	100.00	142,212
GAMBELLA	88.29	10.23	0.08	-	1.40	100.00	6,268
HARARI	95.22	3.88	0.20	0.17	0.52	100.00	17,445
ADDIS ABABA	97.42	2.21	0.08	0.15	0.14	100.00	374,743
DIRE DAWA	92.96	5.72	0.11	0.17	1.04	100.00	36,382
COUNTRY LEVEL	95.80	2.93	0.74	0.12	0.41	100.00	1,482,579

In Gambella Region the percentage of improvised housing units is three times as high (10.2 percent), while in Somali Region it is more than twice the national average (7.7 percent). The Somali Region also stands out for its high proportion of mobile housing units: 13.1 percent of the total housing units compared to an urban Ethiopian average of 0.7 percent. The obvious explanation for this is its pastoral economy, based on a nomadic way of life.

Similar to the country total overcrowding is not an important influence within regions. This is confirmed in all regions except for Somali, where the last two categories (5, 6 or more people per housing unit) show a higher than national average percentage (Annex Table 3.1).

Towns Level

Among the 13 towns that were chosen for a more thorough analysis, Addis Ababa, Debrezeit, Dessie and Jimma showed an above national average i.e. over 97 percent, for permanent housing units. Jijiga has the lowest percentage (88.8 percent) of permanent housing units (see Table 3.3). On the other hand, in Jijiga one in ten housing units are of an improvised type and in Bahir Dar, Gondar and Mekele towns the figure is about five percent. And this is larger than the national average (three percent). As can observed from the Annex Table 3.2, even among towns crowdedness is not a problem.

Table 3.3 Percentage Distribution of Housing Units Cross-Classified by Towns and Type of Housing, Ethiopia: 1994

TOWN	Type of Housing					Total	
	Permanent	Improvised	Mobile	Others	N/S	%	Number
ADDIS ABABA	97.42	2.21	0.08	0.15	0.14	100.00	374,743
AWASSA	95.68	3.18	0.96	0.04	0.14	100.00	13,851
BAHIR DAR	94.91	4.74	0.05	0.16	0.15	100.00	19,808
DEBREZEIT	97.80	1.67	0.10	0.15	0.28	100.00	15,112
DESSIE	96.82	2.35	0.13	0.32	0.39	100.00	17,426
DIRE DAWA	92.90	5.83	0.10	0.18	0.98	100.00	34,680
GAMBELLA	95.36	1.17	3.48	-	-	100.00	11,413
GONDAR	94.66	4.62	0.09	0.24	0.39	100.00	21,694
HARAR	95.22	3.88	0.20	0.17	0.52	100.00	17,445
JIJIGA	88.76	9.31	-	0.12	1.80	100.00	4,112
JIMMA	96.94	2.80	0.05	0.03	0.18	100.00	17,078
MEKELLE	94.41	4.81	0.18	0.09	0.51	100.00	21,609
NAZARETH	95.25	3.80	0.04	0.25	0.66	100.00	25,011
COUNTRY LEVEL	95.80	2.93	0.74	0.12	0.41	100.00	1,482,579

3.2. Housing Units by Type of Building and Number of Rooms

The census has gathered information regarding the type of building in which a housing unit is located and the number of rooms it consisted of. It is possible to elaborate this information with a series of cross tabulations. However, in order to avoid excessive dispersion of the data, we have simplified the layout of the Tables by dividing the types of buildings into four categories: non-storied detached, non-storied attached, multi storied detached and multi storied attached.

Country Level

The census revealed that, 98.3 percent of Ethiopia's urban housing stock consists of non-storied buildings, and only 1.7 percent is found in multi-storied buildings (Table 3.4). In the Ethiopian context it is not possible to distinguish between "traditional" and "modern" buildings. Considering housing units in non-storied buildings as traditional and those in the multi-storied buildings as modern will be erroneous. Of course, multi-storied buildings can be considered "modern" because they require more durable construction materials and sophisticated systems of construction. However, in Ethiopia this does not necessarily mean that non-storied housing units are built precariously and with bad quality materials. This is because single family or multi-family housing units in non-storied buildings which are built by the well-to-do are made up of modern and durable materials like bricks, hollow blocks, cement…etc.

Table 3.4 shows that overall 72.4 percent of all housing units have one or two rooms of which, 42 percent are single roomed and 30 percent have two rooms. The proportion for housing

Table 3.4 Percentage Distribution of Number of Rooms Per Urban Housing Unit Cross-Classified by Type of Building, Ethiopia: 1994

Type of Building	Number of Persons							Total		
	1	2	3	4	5	6+	N/S	percent	percent	Number
Non storied detached	45.81	26.06	13.99	6.62	3.06	3.20	1.26	100.00	54.70	804,903
Non storied attached	37.22	36.60	14.77	5.72	2.51	2.42	0.78	100.00	43.64	642,163
Multi-storied detached	35.71	25.81	11.00	8.31	5.07	12.88	1.22	100.00	0.65	9,595
Multi-storied attached	30.59	22.39	15.36	11.54	6.76	12.54	0.81	100.00	1.01	14,902
Total	41.84	30.62	14.33	6.29	2.87	3.01	1.04	100.00	100.00	1,471,563

units with one or two rooms for the country was reported to be 68 percent in 1984, of which 37 percent were single roomed and 31 percent had two rooms.

The proportion for housing units with one or two rooms goes down to 61.5 percent for multi-storied detached housing units, and only 53 percent for the multi-storied attached. However, the data of the multi-storied attached type of buildings constitute only 1.01 percent of the total housing units, hence has little effect on the general average.

The cross-tabulation of the number of rooms per housing unit by type of building shows that throughout urban Ethiopia the housing units located in multi-storied type of buildings have a higher average of rooms than those in non-storied buildings.

Regional Level

In all the regions but Harari (95.6 percent), over 97 percent of the buildings are non-storied type. Breaking down the data of the non-storied buildings into detached and attached reveals that, except in Addis Ababa (39 percent), over 50 percent of the housing units in the other regions urban centers are of a detached type. For instance, in Somali, Benishangul and Gambella regions, seven out of ten non-storied buildings are detached types (Table 3.5).

Table 3.5 Percentage Distribution of Urban Housing Units Cross-Classified by Regions and Type of Building, Ethiopia: 1994

REGION	Type of Building				Total	
	Non storied		Multi-storied			
	Detached	attached	detached	attached	%	Number
TIGRAY	58.51	38.68	1.45	1.35	100.00	114,689
AFFAR	52.54	46.80	0.55	0.12	100.00	20,066
AMHARA	53.97	43.54	1.34	1.15	100.00	283,511
OROMIYA	59.88	39.55	0.18	0.40	100.00	402,806
SOMALI	72.08	27.75	0.06	0.11	100.00	67,762
BENISHANGUL – GUMUZ	74.60	25.05	0.18	0.17	100.00	8,402
SNNP	67.55	32.11	0.14	0.21	100.00	141,077
GAMBELLA	69.81	29.88	0.23	0.08	100.00	6,074
HARARI	52.79	42.87	2.32	2.02	100.00	17,311
ADDIS ABABA	39.09	58.26	0.67	1.99	100.00	374,019
DIRE DAWA	64.33	34.45	0.44	0.79	100.00	35,855
COUNTRY LEVEL	54.70	43.64	0.65	1.01	100.00	1,471,572

At a regional level there is a marked variability concerning number of rooms. Not including Oromiya and SNNP Regions, which showed a similar proportion to the national average, all the other regions reported housing units with 1 or 2 rooms more than the national average (up

Table 3.6 Percentage Distribution of Number of Rooms Per Urban Housing Unit Cross-Classified by Regions, Ethiopia: 1994

REGION	Number of Rooms							Total	
	1	2	3	4	5	6+	N/S	Percent	Number
TIGRAY	72.22	17.59	4.76	2.07	0.99	1.13	1.23	100.00	114,689
AFFAR	42.20	42.75	8.56	2.47	0.98	1.90	1.15	100.00	20,066
AMHARA	46.42	29.33	14.37	5.53	1.72	1.38	1.24	100.00	283,511
OROMIYA	33.30	38.58	15.60	6.22	2.59	2.39	1.31	100.00	402,806
SOMALI	72.20	20.70	3.80	0.94	0.65	0.84	0.86	100.00	67,763
BENISHANGUL-GUMUZ	41.24	35.42	13.35	4.48	1.69	1.94	1.88	100.00	8,402
SNNP	37.55	33.77	16.11	6.40	2.27	2.09	1.81	100.00	141,077
GAMBELLA	68.32	18.67	4.96	2.19	0.86	1.40	3.61	100.00	6,074
HARARI	52.98	25.78	11.03	4.28	2.39	2.22	1.32	100.00	17,311
ADDIS ABABA	30.65	28.52	18.60	9.92	5.57	6.55	0.18	100.00	374,018
DIRE DAWA	70.62	17.73	5.10	2.49	1.32	1.41	1.33	100.00	35,855
COUNTRY LEVEL	41.84	30.62	14.33	6.29	2.87	3.01	1.04	100.00	1,471,563

to 89.8 percent in Tigray and 92.9 percent in Somali). Addis Ababa, with 59.2 percent of its housing units consisting of up-to two rooms, brings the national average down (Table 3.6).

Leaving out insignificant cases (Affar, Somali, Gambella, Benishangul-Gumuz), in the remaining seven regions, the proportion of multi-storied buildings with 1 to 2 rooms is less than non-storied type of buildings (Annex Table 3.3). However, the percentage of housing unit in multi-storied attached buildings is not always inferior to that of the multi-storied detached buildings. In Harari and Tigray the diminution is particularly marked. In fact, in Tigray the percentage of housing units made up of 1 or 2 rooms goes down from 80.2 percent of the multi-storied detached (much higher than the urban Ethiopia average 61.5 percent) to 50.3 percent in multi-storied attached. In Harari the number of housing units with 1 or 2 rooms decreases from 69.6 percent to 35.1 percent.

In three regions (Oromiya, SNNP, and Addis Ababa) the percentage of housing units with 1 or 2 rooms is higher in multi-storied attached buildings than in multi-storied detached buildings. In fact, in Oromiya this percentage rises from 58.2 percent to 65.2 percent; figures which are respectively higher and lower than the Ethiopia's urban average. In SNNP Region the percentage rises from 62.7 percent to 69.9 percent - both these figures are higher than urban Ethiopia. Addis Ababa shows an increase from 35.7 percent to 46 percent; and both percentages are much lower than the national average.

Towns Level

Consistent with the findings for country total, except for Dessie and Harar towns the others exhibited over 97 percent of the housing units to be in non-storied type of buildings, Harar and Dessie towns showed a percentage below the national average, 93.8 and 95.6 percent, respectively (Table 3.7). Gambella town is singled out, as all of the residential buildings in the town are non-storied.

Table 3.7 Percentage Distribution of Housing Units Cross-Classified by Towns and Type of Building, Ethiopia: 1994

TOWN	Type of Building				Total	
	Non storied		Multi-storied			
	Detached	attached	detached	attached	%	Number
ADDIS ABABA	39.09	58.26	0.67	1.99	100.00	374,018
AWASSA	59.19	40.39	0.17	0.25	100.00	13,802
BAHIR DAR	44.97	54.19	0.21	0.62	100.00	19,745
DEBREZEIT	55.16	43.95	0.18	0.71	100.00	15,016
DESSIE	41.13	52.63	2.47	3.77	100.00	17,282
DIRE DAWA	63.36	35.37	0.45	0.82	100.00	34,273
GAMBELLA	37.20	62.80	-	-	100.00	11,413
GONDAR	42.09	55.28	1.11	1.53	100.00	21,551
HARAR	52.79	42.87	2.32	2.02	100.00	17,311
JIJIGA	68.13	31.39	0.35	0.13	100.00	3,954
JIMMA	54.33	44.42	0.18	1.06	100.00	17,018
MEKELLE	46.37	51.66	0.77	1.20	100.00	21,493
NAZARETH	49.58	49.70	0.19	0.53	100.00	24,839
COUNTRY LEVEL	54.70	43.64	0.65	1.01	100.00	1,471,563

A close examination of the data further shows that among the non-storied buildings six of the towns namely: Addis Ababa, Bahir Dar, Dessie, Gambella, Gondar and Mekelle have over 52 percent of the housing units in the non-storied attached type of building.

Variations with regard to number of rooms are notable among towns with Mekele and Dire Dawa towns having the highest (88 percent) percentage of housing units with one or two rooms. It is also interesting to note from Table 3.8 that there is a group similarity when the number of rooms is confined to one or two. In fact, the towns make roughly three groups**.** The first group comprised of Awassa, Debreziet, Jimma, Dessie and Nazareth. In these towns two in three housing units have one or two rooms which is below the national average. The second group includes Bahir Dar, Gondar and Harar, in which nearly three in four housing units have one or two rooms. The third one is the group of Dire Dawa and Gondar towns, where housing units with one or two rooms make 88 percent of the total. As can be observed the second and the third group have proportions more than the national average (72 percent).

The cross-tabulation of building type with number of rooms is presented in Annex Table 3.5. The data reveals varying results: it's not possible to identify a condition common to all the towns (. It has already been noted that the percentage of housing units with 1 or 2 rooms in Addis Ababa (59.2 percent) is more than ten points below the average of urban Ethiopia.

Table 3.8 Percentage Distribution of Number of Rooms Per Housing Units Cross-Classified by Towns, Ethiopia: 1994

TOWN	Number of Rooms							Total	
	1	2	3	4	5	6+	N/S	Percent	Number
ADDIS ABABA	30.65	28.52	18.60	9.92	5.57	6.55	0.18	100.00	374,018
AWASSA	41.07	25.03	18.83	7.96	3.17	2.25	1.69	100.00	13,802
BAHIR DAR	54.85	19.09	13.49	7.20	2.51	2.83	0.03	100.00	19,745
DEBREZEIT	30.72	34.47	16.19	7.84	4.92	4.46	1.39	100.00	15,016
DESSIE	31.73	35.20	16.99	9.21	3.69	2.04	1.13	100.00	17,282
DIRE DAWA	70.64	17.43	5.24	2.61	1.32	1.45	1.31	100.00	34,273
GAMBELLA	56.96	27.92	10.46	1.17	1.17	2.33	0.00	100.00	11,413
GONDAR	52.86	24.52	12.62	5.42	1.90	1.20	1.49	100.00	21,551
HARAR	52.98	25.78	11.03	4.28	2.39	2.22	1.32	100.00	17,311
JIJIGA	70.61	15.45	4.78	2.58	1.32	1.24	4.02	100.00	3,954
JIMMA	33.01	34.19	16.41	8.17	3.68	3.64	0.90	100.00	17,018
MEKELLE	71.47	16.83	5.46	2.55	1.45	1.27	0.96	100.00	21,493
NAZARETH	32.75	34.93	16.06	7.36	3.66	4.07	1.18	100.00	24,839
COUNTRY LEVEL	41.84	30.62	14.33	6.29	2.87	3.01	1.04	100.00	1,471,563

Considering the housing units in multi-storied building, Debrezeit (85 percent) and Gondar (80 percent) towns showed a higher percentage. Bahir Dar closely follows with 78 percent of the housing units in multi storied detached building having one or two rooms. Nazareth (29 percent) and Addis Ababa with 36 percent make the lowest percentage.

With regard to multi-storied attached buildings Awassa town is the forerunner. More than eight in ten housing units have one or two rooms. In Debrezeit, Dessie, Gondar and Nazareth towns over 64 percent of the housing units in multi-storied attached buildings have one or two rooms.

In Bahir Dar, Dire Dawa and Mekele towns half of the housing units in the attached multi-storied buildings have one or two rooms. The data from Gambella and Jijiga do not consent a comparative analysis.

3.3 Housing Units by Major Construction Materials

Type of construction material of housing units is of vital importance in housing statistics. Together with the type of building it will help to assess the durability and permanency of construction, demand for construction material… etc. It will also serve as an indicator of the quality of a housing unit.

Three questions were devoted to identify the type of material used in the construction of the outer wall, the roof and the floor of a housing unit. Here we will discuss about construction materials of the wall and the subsequent section will deal with the roof and the floor respectively.

In both the 1984 and 1994 census, enumerators were trained to consider the predominant material for the construction of the wall, if they come across walls made up of one or more construction materials. The list of the responses consisted of wood and bamboo, wood and thatch, reed and bamboo, stone and mud, stone and cement, blockets and cement and bricks. For the sake of simplicity these are regrouped into two: Traditional (wood and mud, wood and thatch, reed and bamboo) and modern (stone and cement, blockets and cement and bricks).

3.3.1. Construction Material of Wall

Country Level

At country level, out of 1,482,580 urban housing units, almost 90 percent (89.3 percent) are built with " traditional" materials, that is wood and mud (locally known as Chika house), wood and thatch, stone and mud, reed and bamboo. Only 6.6 percent of all urban housing units are made

up of "Modern" materials, that is stone and cement, blocks and bricks while the remaining 3.1 percent are made up of other materials (Table 3.9). The 1984 proportion for the construction of walls for the same regrouping was 84.9 percent traditional and 9 percent modern.

Table 3.9 Percentage Distribution of Type of Building Cross-Classified by Major Construction Material of Wall, Urban Ethiopia: 1994

CONSTRUCTION MATERIAL OF WALL		Type of Building				Total
		Non storied		Multi-storied		
		detached	attached	detached	attached	
Traditional materials		91.02	88.58	74.03	56.70	89.49
Modern materials		4.97	7.70	23.03	39.71	6.63
other		3.16	3.13	1.92	2.85	3.14
N/S		0.86	0.59	1.02	0.74	0.74
Total	Percent	100.00	100.00	100.00	100.00	100.00
	Number	804903	642163	9595	14902	1,471,563

The cross-tabulation between the type of building in which the housing unit is located, and the main material used for the construction of walls provides useful information to describe housing conditions. It confirms the hypothesis of a hierarchy of modernisation that goes from non-storied detached to non-storied attached, to multi-storied detached, to multi-storied attached buildings.

The same Table shows how the use of traditional materials in wall construction of housing units declines inversely to the rise in that hierarchy from 91 percent to 57 percent. On the other hand the use of modern building materials increases 5 percent to 40 percent.

Regional Level

Comparison of regions by type of construction materials of wall shows that the highest percentage of housing units with walls erected using traditional materials is observed in the SNNP (95.5 percent) region. Amhara (94.6 percent) and Oromiya (94.5 percent) regions closely follow. Benishangul-Gumuz (91.5 percent) and Tigray (89.6 percent) regions also have a higher than national average rate. The other regions showed a relatively lower than national average rates. However the proportions for Dire Dawa region is exceptionally low, 48.23 percent (Table 3.10).

Housing units in Dire Dawa showed a relatively high proportion of walls built from modern materials (48.2 percent). Addis Ababa with 11.3 percent and Harari with 10.3 percent follow at a distance. A negligible percentage of modern material is used in the construction of walls of housing units in the larger regions: in Oromiya (3.2 percent), in Amhara (2.9 percent), and in SNNP (1.97 percent). For four regions: Somali, Affar, Benishangul-Gumuz, and Gambella the

data is not adequate to make any remark.

Table 3.10 Percentage Distribution of Urban Housing Units Cross-Classified by Major Construction Material of Wall and Region, Ethiopia: 1994

REGION	Construction Material of wall				Total	
	Traditional	Modern	other	N/S	Percent	Number
TIGRAY	89.56	7.06	2.14	1.24	100.00	115,421
AFFAR	82.96	7.08	9.03	0.93	100.00	20,161
AMHARA	94.60	2.90	1.43	1.06	100.00	285,203
OROMIYA	94.49	3.15	1.37	0.99	100.00	406,159
SOMALI	82.17	7.14	9.55	1.14	100.00	70,088
BENISHANGUL-GUMUZ	91.47	4.00	2.35	2.18	100.00	8,499
SNNP	95.48	1.96	1.41	1.15	100.00	142,212
GAMBELLA	82.31	9.57	5.14	2.98	100.00	6,268
HARARI	86.16	10.28	2.01	1.55	100.00	17,445
ADDIS ABABA	83.17	11.37	5.13	0.33	100.00	374,743
DIRE DAWA	48.23	38.97	11.26	1.53	100.00	36,382
COUNTRY LEVEL	89.49	6.63	3.14	0.74	100.00	1,471,563

The cross-tabulation between type of building and major material for the construction of walls revealed some variation both among building types and regions (Annex Table 3.5). In seven of the regions there is a consistent reduction in the use of traditional materials as we pass from housing units located in non-storied detached to multi-storied attached type of buildings. For example, in Tigray it goes from 91.4 percent down to 78.4 percent while the use of modern building material increases markedly from 5.1 percent to 20.4 percent.

A marked decline in percentage of using traditional materials for the construction of walls is observed for Addis Ababa and Dire Dawa. What stands out in the case of Addis Ababa is the quick decrease in percentage of housing units constructed with traditional materials, passing from housing units in non storied detached (83.8 percent), to housing units in multi-storied attached type of buildings (33.2 percent). Along with this descent there is an increase in housing units whose walls have been built using modern materials, up from 11 percent in the case of housing units in non-storied detached buildings to 62.5 percent in housing units in multi-storied attached type of buildings.

Another interesting observation is that housing units in the multi-storied buildings of Addis Ababa and Dire Dawa showed a different trend than all the other regions. In Addis Ababa, the percentage of housing units in multi-storied detached type of buildings, which have walls, made of

modern materials (57.4 percent), is much higher than those using traditional materials (37.7 percent). This difference is even greater (33.2 percent against 62.5 percent) for housing units in multi storied attached type of buildings.

In the case of Dire Dawa 66 percent of the walls of the housing units in the multi-storied detached are made up of modern materials compared to 27 percent of traditional materials. The gap even widens (76 percent against 15 percent) when we consider multi storied attached buildings. Dire Dawa is the only region where housing units in non-storied attached type of buildings using modern materials exceed those using traditional materials (48 percent against 42.7 percent).

Towns Level

Except for Awassa, Bahir Dar, Debrezeit and Dessie town, where over 91 percent of housing units have walls built from traditional materials, the other towns showed a considerably lower than average proportion of urban Ethiopia (89.5). Awassa being the capital of the SNNP Region showed the highest percentage (93.5 percent) as expected. Similarly, Bahir Dar (91.1 percent), the capital of Amhara Region and Dessie (91.2 percent) a zonal capital of the same region showed the highest proportion of walls erected from traditional materials consistent with the findings of their respective regions. The proportions observed for Jimma (89.5 percent) and Bahir Dar (91.1 percent) are similar to the national average, 89.5 percent (Table 3.11).

Table 3.11 Percentage Distribution of Housing Units Cross- Classified by Type of Construction Material of Wall and Towns, Ethiopia: 1994

TOWN	Construction Material of Wall				Total	
	Traditional	Modern	Other	N/S	Percent	Number
ADDIS ABABA	83.23	11.37	5.13	0.27	100.00	374,743
AWASSA	93.49	4.82	0.88	0.81	100.00	13,851
BAHIR DAR	91.13	6.17	2.41	0.29	100.00	19,808
DEBREZEIT	90.98	6.74	1.28	1.00	100.00	15,112
DESSIE	91.53	3.47	3.75	1.25	100.00	17,426
DIRE DAWA	47.37	39.98	11.49	1.17	100.00	34,680
GAMBELLA	74.42	22.10	3.49	-	100.00	11,413
GONDAR	82.75	10.59	5.30	1.35	100.00	21,694
HARAR	86.48	10.33	2.02	1.16	100.00	17,445
JIJIGA	79.67	12.01	6.10	2.23	100.00	4,112
JIMMA	89.49	7.62	2.04	0.85	100.00	17,078
MEKELLE	86.70	10.27	2.14	0.89	100.00	21,609
NAZARETH	82.47	12.47	4.28	0.78	100.00	25,011
COUNTRY LEVEL	89.49	6.63	3.14	0.74	100.00	1,471,563

It can be observed that 8 out of the 13 towns have a higher proportion of housing units with walls built from modern materials than the national average of urban Ethiopia (7.7 percent). These are Harar (10.3 percent), Mekelle (10.3 percent), Gondar (10.5 percent), Addis Ababa (11.4 percent), Jijiga (11.6 percent), and Nazareth (12.4 percent). Gambella and Dire Dawa have a different situation with 22.1 percent and 40 percent, respectively. Dessie and Awassa are two special cases with respect to usage of modern materials for the construction of walls: Dessie town shows a proportion of only 3.5 percent and Awassa nearly 5 percent.

Associating the variable "percentage of housing units which use traditional materials" with type of building (from non-storied detached to multi-storied attached) we observe a marked decreasing trend in Addis Ababa, Gondar, Jimma and Debrezeit towns. The widest gap is in Addis Ababa, it goes down from 83.8 percent for the non-storied detached to 33.2 percent for the multi-storied attached. Similarly it drops from 86.8 percent to 45 percent in Gondar, from 92.3 percent to 53.6 percent in Jimma, and from 94 percent to 60 percent in Debrezeit town (Annex Table 3.6).

There is a conspicuous observation for two towns: Mekele and Harar with regard to usage of traditional materials for the construction of walls by type of building. In both towns, the variation of usage of traditional materials in construction of walls, with respect to type of building, is minimal compared to the others.

Obviously, the use of modern materials for the construction of wall increases as type of building varies from non-storied detached to multi-storied attached. This is observed in the towns, which showed a decreasing trend in use of traditional material. For instance, in Addis Ababa it increased from as low as 11 percent to 63 percent, in Debrezeit from 3.7 percent to 40.6 percent and in Gondar from 6.9 percent to 49 percent.

A closer view of the Annex Table 3.6 reveals that in Dessie, Harar, and Mekele towns the percentage material used for the construction of the walls of housing units in multi-storied buildings, plunges as we go from the traditional-to the modern. The widest gap is observed in Dessie (91.5 percent to 4.6 percent) for the multi-storied attached building types.

The data for the housing units in a multi-storied building in Awassa, Bahir Dar, Gambella, and Jijiga towns is not sufficient to make any statement.

3.3.2. Construction Material of Roof

Country Level

Table 3.12 presents the summary data of the type of materials used in the construction of roof cross-classified by type of building. As can be observed, the overwhelming majority (82.9 percent) of the housing units in the total urban area of the country are roofed by corrugated iron. Thatch follows at a wider gap (10.5 percent). Wood and mud constituted 2.4 percent, while concrete 0.9 percent and bamboo a very negligible percentage (0.4 percent). Surprisingly the results of the 1984 census showed the same percentage (82.5 percent) for corrugated iron, not significantly different ratio for the thatch (9.3 percent) and concrete (1.2 percent).

Breaking the data into type of building still shows that over 3 out 4 housings units have a corrugated iron roof. In the case of non-storied buildings thatch roof appears second in percentage, with a pronounced figure in the non-storied detached. It is very difficult to accept the findings for the multi-storied detached as they revealed 5 and 7 percent of the total housing units to have tatch and wood/mud material as a roof, respectively. As these cases represent only 1.7 percent (both together) of the total housing unit, the obtained results could have occurred due to conceptual problem or error introduced due to sampling.

One possible observation is that the percentage of concrete roof increases from as low as 0.6 percent for the non-storied detached to 16 percent in the multi-storied attached buildings. Inversely, the percentage of thatch decreases along with the grouping i.e from non-storied detached to multi-storied attached

Table 3.12 Percentage Distribution of Type of Building Cross- Classified by Construction Material of Roof, Urban Ethiopia: 1994

Construction Material Of Roof	Type of Building				Total
	Non storied		Multi-storied		
	detached	attached	Detached	attached	
Corrugated iron	75.27	92.62	79.42	74.44	82.86
Concrete	0.60	0.77	4.75	16.13	0.86
Thatch	16.82	2.82	4.89	1.05	10.47
Wood/mud	2.81	1.84	6.92	2.89	2.41
Bamboo	0.62	0.13	0.44	0.23	0.40
Other	3.06	1.25	2.36	4.44	2.28
N/S.	0.82	0.58	1.23	0.83	0.72
Total Percent	100.00	100.00	100.00	100.00	100.00
Number	804,903	642,162	9,595	14,902	1,471,563

Regional Level

Extending the analysis to regional level, we observe a great variability of materials used to make a roof which is in part due to differences of climate and in part due to development and economy. Results of the 1994 census for materials of roof are presented in Table 3.13 cross-classified by region.

According to the results obtained by the census, it is possible to regroup the regions into three: Above national average, below national average and lower rates. The above average group is comprises Addis Ababa (96.5 percent), Dire Dawa (91.9 percent), Oromiya (86.7 percent) and Harari (83.9 percent). The below national average group includes Tigray (73.6 percent) and SNNP (72.6 percent).

Consistent with expectation, lower percentages of housing units with corrugated iron roof are observed in Affar (32.4 percent), Somali (37.2 percent), Gambella (44.4 percent) and Benishangul Gumuz (48.2 percent). These regions have a hotter climate and a nomadic way of life. Therefore, use of corrugated iron for roof will aggravate the hotness and/or make it difficult to transport during evacuation. Hence, people in the nomadic areas like Affar, Somali, Gambella and Benishangul-Gumuz regions make their houses, huts or tukuls from mud and wood or highly ventilated twigs with some thing to cover from the top to withstand the heat.

Among these regions Benishangul and Gambella evinced nearly an equal proportion of the housing units to have a thatch roof. The case for Somali region is different not only for having a quarter of the housing units roofed by thatch but also a substantial percentage (24.5 percent) under the category of others. Similarly, the case for Affar region shows one third of the housing units to have a mud or wood roof while 24 percent have ‘others’. These other category needs an investigation in the future as it comprises a sizeable proportion in this region. It could probably be huts made up of twigs and covered by clothes, plastics … etc.

A quick glance at Annex Table 3.7 reveals that in Tigray, Oromiya, Harari, Addis Ababa and Dire Dawa there is a relatively increasing percentage of housing units with concrete roof, as we go from the non-storied detached to the multi-storied attached buildings. It is not possible to make any judgement about the trend in the remaining regions because of insufficient cases of the multi-storied buildings. However, in all the regions there is an increasing trend in the usage of corrugated iron for roof of the non-storied attached buildings.

Table 3.13 Percentage Distribution of Urban Housing Units Cross-Classified by Construction Material of Roof and Regions, Ethiopia: 1994

REGION	Construction Material of Roof							Total	
	Corrugated Iron	Concrete	Thatch	Wood/Mud	Bamboo	Other	N/S	Percent	Number
TIGRAY	73.61	0.96	11.36	11.78	0.43	0.66	1.21	100.00	115,421
AFFAR	32.44	1.69	6.93	33.00	1.51	23.59	0.84	100.00	20,161
AMHARA	82.21	0.55	15.07	0.35	0.30	0.46	1.06	100.00	285,203
OROMIYA	86.69	0.64	9.95	0.96	0.27	0.52	0.97	100.00	406,159
SOMALI	37.17	1.18	26.34	9.82	0.13	24.47	0.89	100.00	70,087
BENISHANGUL-GUMUSZ	48.21	0.33	48.11	0.12	0.52	0.66	2.06	100.00	8,499
SNNP	72.62	0.78	22.03	0.53	2.04	0.81	1.20	100.00	142,212
GAMBELLA	44.37	1.24	48.55	0.75	0.08	2.11	2.90	100.00	6,268
HARARI	83.93	2.59	1.19	8.56	0.14	2.08	1.52	100.00	17,445
ADDIS ABABA	96.55	1.10	0.31	0.08	0.05	1.61	0.30	100.00	374,743
DIRE DAWA	91.94	1.21	0.37	3.42	0.11	1.79	1.17	100.00	36,382
COUNTRY LEVEL	82.57	0.86	10.54	2.42	0.41	2.33	0.88	100.00	1,471,563

Towns Level

Of the 13 towns understudy, except Gambella and Jijiga all others showed a more than the national average ratio of having corrugated iron roofs. In fact, in Addis Ababa, Nazareth, Awassa, Debrezeit and Dessie the percentage of roof with corrugated iron comprise over 95 percent of the total housing units (Table 3.14).

There is an odd finding for Jijiga, Gambella, and Bahir Dar. In Gambella town 15 percent of the housing units have roof made up of the 'other' category. In Jijiga 49 percent of the housing units have thatch roof. In Bahir Dar, the capital of Amhara region, it is surprising to find 13 percent of the housing units to have thatch roof unlike the other towns.

There is not much to say about the trend of the type of roof with respect to the type of building, all the way through the four groups. This is because cases in multi storied buildings for almost all towns are insufficient. Nevertheless, the percentage of housing units with corrugated iron roof increases in all towns from the non-storied detached to the non-storied attached (Annex Table 3.8).

3.3.3 Construction Material of Floor

According to the 1994 census results there were responses to all categories of construction material of floor listed in the questionnaire. The list included mud\earth, wood tiles, plastic tiles, cement and concrete, and cement bricks. We have tried to categorize the results into three: mud in one group; concrete, cement and brick in another group; wood and plastic tiles in the third group. It can also be regrouped as modern and traditional; where the modern group comprises wood and plastic tiles and the others fall in the traditional group.

Country Level

At a country level 88.9 percent of the housing units have a floor made up of traditional materials of which 72.6 percent is mud floor. Only 9.4 percent of the total housing units enjoyed modern floor i.e. wood or plastic tiles (Table 3.15). This proportion was 67.7 percent mud and 14.8 percent wood\plastic tiles in 1984. The increase in percentages of mud floors and a decrease in percentage of modern floors could have arose due to the higher proportion of housing units with mud floors built in the last ten years (Table 3.19).

Table 3.14 Percentage Distribution of Housing Units Cross-Classified by Construction Material of Roof and Towns, Ethiopia: 1994

TOWN	Construction Material of Roof							Total	
	Corrugated Iron	Concrete	Thatch	Wood/Mud	Bamboo	Other	N/S.	Percent	Number
ADDIS ABABA	96.55	1.10	0.31	0.08	0.05	1.61	0.30	100.00	374,743
AWASSA	95.89	0.63	2.17	0.06	0.06	0.23	0.95	100.00	13,851
BAHIR DAR	85.40	0.39	12.79	0.10	0.10	0.86	0.35	100.00	19,808
DEBREZEIT	95.29	0.48	2.44	0.16	0.07	0.20	1.36	100.00	15,112
DESSIE	95.04	0.54	0.59	0.49	0.05	1.89	1.41	100.00	17,426
DIREDAWA	92.42	1.20	0.36	3.03	0.11	1.78	1.10	100.00	34,680
GAMBELLA	72.10	2.32	6.97	3.50	-	15.11	-	100.00	11,411
GONDAR	92.50	1.37	3.29	0.43	0.06	0.88	1.46	100.00	21,694
HARAR	83.93	2.59	1.19	8.56	0.14	2.08	1.52	100.00	17,445
JIJIGA	43.26	1.43	48.78	0.58	0.12	3.11	2.70	100.00	4,112
JIMMA	90.24	0.67	6.30	0.41	0.46	1.09	0.83	100.00	17,078
MEKELLE	91.79	1.53	1.79	3.07	0.32	0.38	1.13	100.00	21,609
NAZARETH	96.30	0.76	0.66	0.12	0.06	1.10	1.01	100.00	25,016
COUNTRY LEVEL	82.57	0.86	10.54	2.42	0.41	2.33	0.88	100.00	1,471,563

Table 3.15 Percentage Distribution of Type of Building Cross- Classified by Construction Material of Floor, Urban Ethiopia: 1994

Construction Material Of Floor	Type Of Building				Total
	Non storied		Multi-storied		
	detached	attached	detached	attached	
Traditional Materials	90.98	87.33	71.32	61.01	88.95
Modern materials	7.51	10.99	25.50	36.24	9.44
Other	0.52	0.99	1.99	1.95	0.75
N/S.	0.99	0.69	1.19	0.81	0.86
Total Percent	100.00	100.00	100.00	100.00	100.00
Number	804,903	642,162	9,595	14,902	1,471,563

With regard to type of building and floor, the use of traditional materials decreases form 90.9 percent to 61.01 percent as we go from the non-storied detached to the multi-storied attached buildings. Inversely, the percentage of the modern materials used for floor increases from 7.5 percent to 36.2 percent. Obviously, the high percentage of multi-storied building with traditional floor must have been inflated for we grouped cement and cement bricks in the traditional group.

Regional Level

As we look into regional urban housing, considering the above grouping, an interesting fact arises. In all the regions, except for Addis Ababa, urban area housing units use traditional materials for floors higher than the national average (Table 3.16). However, focusing only on mud floor, we observe that in six of the regions over 80 percent of housing units have mud/earth floor and the highest proportion is observed in Amhara region (88.6 percent). Among the regions Dire Dawa showed the lowest proportion (44.4 percent) for mud floor.

Table 3.16 Percentage Distribution of Urban Housing Units Cross-Classified by Construction Material of Floor and Regions, Ethiopia: 1994

REGION	Mud	Concrete/ cement	Wood/ Plastic	Others	N/S	Total	
						Percent	Number
TIGRAY	83.92	9.82	2.90	2.08	1.29	100.00	115,421
AFFAR	87.25	9.05	1.60	0.50	1.61	100.00	20,161
AMHARA	88.55	6.82	3.14	0.32	1.18	100.00	285,203
OROMIYA	77.2	14.67	6.53	0.45	1.16	100.00	406,169
SOMALI	84.12	11.27	1.80	0.24	2.64	100.00	70,085
BENISHANGUL-GUMUZ	87.16	8.46	2.19	0.12	2.05	100.00	8,499
SNNP	71.48	22.73	3.91	0.44	1.46	100.00	142,212
GAMBELLA	80.2	11.61	4.36	0.54	3.30	100.00	6,268
HARARI	53.97	40.77	3.27	0.43	1.58	100.00	17,445
ADDIS ABABA	52.78	21.25	24.35	1.30	0.34	100.00	374,743
DIRE DAWA	44.41	50.63	3.37	0.13	1.46	100.00	36,382
COUNTRY LEVEL	72.6	16.2	9.40	0.70	1.10	100.00	1,471,563

Only Addis Ababa, which accounts 25 percent of all the housing units in urban Ethiopia (347,743 housing units), has a significantly high proportion of floors with either wood or plastic tiles (24.4 percent). All the other regions reported a below national average proportion of modern floor. In fact, the lowest proportion for modern floor is observed in Affar and Somali regions (below 2 percent).

The other interesting feature of Dire Dawa is that, half of the housing units' floor is made up of concrete/cement bricks. Harari region stands second to Dire Dawa with 41 percent of the housing units having concrete/cement brick floor.

Towns Level

Out of the 13 towns four of them (Bahir Dar, Dire Dawa, Harar and Jijiga) reported to have high proportion of traditional floor i.e. over 94 percent. Splitting the traditional floor rate into mud and concrete/cement changes the picture: Bahir Dar remains in the group standing first with 81.2 percent of mud floor. Gondar with 80.9 percent and Gambella with 77.8 percent follow Bahir Dar (Table 3.17).

The case for Dire Dawa and Harar is the same as their respective regions. This is because the size of the towns is the same as the regions. This holds also for Addis Ababa. In Jijiga town out of the 94.4 percent traditional floor 41 percent is a contribution of the concrete and cement bricks.

Table 3.17 Percentage Distribution of Housing Units Cross-Classified by Construction Material of Floor and Towns, Ethiopia: 1994

TOWN	Mud	Concrete/ cement	wood/ plastic	Others	N/S	Total	
						Percent	Number
ADDIS ABABA	52.78	21.23	24.35	1.30	0.34	100.00	374743
AWASSA	48.49	36.27	10.77	3.31	1.16	100.00	13,851
BAHIR DAR	81.45	13.94	4.01	0.29	0.31	100.00	19,808
DEBREZEIT	62.37	19.46	16.28	0.47	1.42	100.00	15,112
DESSIE	71.42	10.87	14.79	1.54	1.38	100.00	17,426
DIREDAWA	43.19	51.88	3.37	0.14	1.42	100.00	34,680
GAMBELLA	77.77	10.27	8.12	0.34	3.5	100.00	11,413
GONDAR	80.90	8.90	7.97	0.58	1.65	100.00	21,694
HARAR	53.97	40.75	3.27	0.43	1.58	100.00	17,445
JIJIGA	53.49	40.92	5.59	-	-	100.00	4,112
JIMMA	58.97	28.42	9.34	2.10	1.17	100.00	17,078
MEKELLE	70.18	10.14	7.80	10.58	1.30	100.00	21,609
NAZARETH	60.01	29.41	8.90	0.50	1.18	100.00	25,011
COUNTRY LEVEL	72.6	16.2	9.40	0.70	1.10	100.00	1,471,563

With regard to modern floor i.e. wood /plastic, as already stated in the regions section above, Addis Ababa stands out with 24.3 percent of housing units to have “modern” floor. Others, which have a higher than the national averages (9.4 percent), are Debrezeit (16.3 percent), Dessie (14.8 percent), and Awassa (10.8 percent). The other 8 towns used a lower than average of “modern” materials.

3.4 Age of Housing Units, Material of Construction and Type of Building

In order to evaluate the housing stock of a given country, region or town, statistics on housing units by age break down provides useful information. It is important not only to asses the condition of existing housing but also to estimate the expected rate of replacement. It is also indispensable for determining the extent to which housing programs are meeting the need for new dwellings.

Knowledge of the age of a housing unit or the building in which the housing unit is found together with the materials and methods of construction, provides the basis for an estimate of the annual rate of dwelling constructions. It also furnishes an insight into the housing patterns of population. More over, it is of special importance for the information of housing programs, since they provide the basis for appraising the dwelling inventory in terms of durability comfort and access to better living conditions.

However, data on age of construction of housing units are difficult to collect and prone to errors, because of memory lapse or lack of knowledge of the year of construction. Respondents may not know the exact year of construction, specially those households living in government houses, public houses or houses rented from individuals.

A question on this particular statistics was posed to households in the 1994 census. Information obtained from the census is discussed below for the country, regions and selected towns, respectively. The Tables show data in five age groups by building type and construction material of wall, and roof. For reasons stated above the results should be treated cautiously.

3.4.1 Age of Housing Units and Material of Wall

Country Level

According to the second national census, more than half (55.7 percent) of urban Ethiopia’s residential housing were less than 20 years old, of which one in five were built in the five years prior to the census (Table 3.18). Only four out of ten urban Ethiopia’s residential houses are older than 20 years. Altogether residential houses are very new. However, this does not necessarily imply that all are of good quality and up to standard.

Table 3.18 Percentage Distribution of Urban Housing Units by Age, Cross-Classified by Regions, Ethiopia: 1994

REGION	Age of Housing Unit in Years						TOTAL	
	<5	5-9	10-14	15-19	20+	N/S	Percent	Number
TIGRAY	26.93	11.64	12.72	8.39	38.21	2.11	100.00	115,421
AFFAR	22.90	22.57	16.22	13.17	23.19	1.94	100.00	20,161
AMHARA	22.42	17.38	14.21	9.25	34.87	1.87	100.00	285,203
OROMIYA	19.55	16.79	10.57	8.28	43.14	1.67	100.00	406,169
SOMALI	29.91	37.55	9.83	4.47	15.77	2.46	100.00	70,088
BENISHANGUL - GUMUZ	45.53	30.58	8.51	3.86	8.94	2.58	100.00	8,499
SNNP	28.24	21.67	13.30	9.29	25.98	1.52	100.00	142,212
GAMBELLA	49.39	29.02	6.25	2.19	7.63	5.52	100.00	6,268
HARARI	7.65	7.92	5.77	6.84	69.31	2.50	100.00	17,445
ADDIS ABABA	12.92	9.80	7.63	6.86	61.53	1.25	100.00	374,743
DIRE DAWA	20.30	16.46	8.65	6.40	45.84	2.36	100.00	36,382
COUNTRY LEVEL	20.52	16.28	10.87	7.98	42.63	1.71	100.00	1,471,563

An interesting picture emerges when we associate age of housing units with the material used in building its walls. Housing units constructed with modern materials of wall go from 6.4 percent (7,594) in the period 1975-79, to 7.6 percent (12,196) in 1980-84. Table 3.19 shows an increment of 60.6 percent over the preceding five years. The proportion remained constant i.e. 7.6 percent up to the period 1985-89 and declined to 5.9 during the last five years when 17,915 housing units were constructed. This shows a negative growth of 2.7 percent. It may indicate that construction of walls with modern material in urban Ethiopia has been growing slowly but not in the last five years prior to the census. It is worth noting that in 1990-94 the housing units constructed with modern material decline not only in relative terms, but also in absolute terms.

The materials used in the construction of floor consistently increased with regard to traditional materials i.e. mud, cement, concrete, etc. Inversely, the proportion for materials showed a consistent decrease in the two decades preceding the census.

Regional Level

Distribution of housing units by age at regional level reveals some interesting picture. For instance, over 75 percent of the housing units in urban Gambella and Benishangul Gumuz were built during 1985 to 1994, where the peak is observed in the last five years prior to the census. Similarly 67 percent of the Somali urban housing were erected in the ten years preceding the census. In Tigray over a quarter of the urban housing units were constructed between 1990 and

1994. On the contrary, over 60 percent of housing in urban Harar and Addis Ababa were built well before 1974. The case for Harar is special, nearly 70 percent of the housing units were over 20 years old (Table 3.18).

Table 3.19 Percentage Distribution of Urban Housing Units by Age Cross -Classified by Construction Material of Wall, Roof, and Floor, Ethiopia: 1994

Construction Material	Age of Housing Unit in Years						Total
	<5	5-9	10-14	15-19	20+	N/S	
WALL							
Traditional materials	88.01	87.79	88.29	89.56	91.20	78.13	89.32
Modern materials	5.89	7.63	7.57	6.42	6.36	6.50	6.61
Other	5.26	3.75	3.35	3.36	1.85	2.90	3.16
not stated	0.84	0.83	0.79	0.66	0.60	12.48	0.91
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
ROOF							
Corrugated iron	64.29	73.00	84.06	89.06	93.89	71.05	82.57
Concrete	0.58	1.08	0.68	0.72	0.97	0.83	0.86
Thatch	25.90	16.86	9.64	5.52	1.87	11.49	10.54
Wood/mud	2.85	2.88	2.83	2.65	1.85	3.22	2.42
Bamboo	0.98	0.65	0.36	0.17	0.09	0.61	0.41
Other	4.53	4.79	1.61	1.19	0.75	1.43	2.33
Not stated	0.87	0.75	0.81	0.69	0.57	11.37	0.88
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
FLOOR							
Traditional materials	96.16	94.63	92.58	88.88	82.48	76.04	88.76
Modern materials	2.36	3.94	5.99	9.61	15.78	7.01	9.39
Other	0.43	0.42	0.55	0.69	1.08	0.81	0.75
not stated	1.05	1.01	0.88	0.82	0.66	16.14	1.10
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total Number	304,261	241,413	161,091	118,368	632,075	25,383	1,471,563

Upon closer inspection the situation in Tigray is quite anomalous. In the last five years 31,083 housing units have been built, amounting to 26.9 percent of the total housing stock (against 20.5 percent in urban Ethiopia), with a 131 percent increase compared to the previous five years. Regarding housing units constructed with modern materials the increase is even more remarkable. From 580 housing units constructed during the period 1985-89, to 1,510 in 1990-94 (160 percent increase).

In Affar the total increase of housing units in the last decade is very moderate (+1.4 percent against 26 percent in urban Ethiopia), whereas housing units constructed with modern material rises by 141 percent (from 110 to 265).

Somali has yet another situation: The total number of housing units built in the last five years amounts to 20,963 against the 26,320 built during 1985-89 (a 20.4 percent decrease). On the other hand, the housing units constructed with modern materials increase from 1,064 during 1985-89, to 1,242 (+16.7 percent increment) during 1990-94.

Addis Ababa comes second after Dire Dawa with regard to use of modern materials. Except for the decrease in the last five years (1990-94) – from 9,844 to 8,755 housing units in absolute terms and from 26.8 percent to 18.1 percent of the total in relative terms there was a definite increase in the previous five years.

Although Dire Dawa enjoys higher than average walls made up of modern materials, it is surprising to note that during the last 15 years, the proportion decreased rather than increasing. It declined from 48.6 percent of houses constructed with modern materials, before 20 years to 22.7 percent of houses, which are less than 5 years old, in 1994.

Regional distribution shows some variation when we focus on the housing stock built during 1990-94. Affar (5.7 percent), Tigray (4.9 percent), Oromiya (3.4 percent), Gambella (2.6 percent), Amhara (1.5 percent), SNNP (1.5 percent), and Benishangul-Gumuz (0.5 percent) regions showed a proportion below national average.

Harari (9 percent), Addis Ababa (18.1 percent), and Dire Dawa (22.7 percent) regions had an above national average proportion. The results for Somali revealed a similar percentage to the national urban total.

Regarding the use of traditional materials, Amhara, Oromiya, Benishangul-Gumuz, and SNNP regions, showed below average percentages for the total residential housing, as well as housing units constructed between 1990-94. Tigray and Gambella have a total residential stock in which the ratio of the use of modern materials for construction of wall is higher than that of urban Ethiopia, but lower when compared to the last five years (1990-94).

Towns Level

The distribution of housing by town and age of construction presented in Table 3.20 shows that Harar and Addis Ababa have the same finding with their respective region. Debrezeit (62.5 percent), Jimma (58.5 percent) and Dessie (59.6 percent) have relatively older housing units. In

Jijiga, Gambella, Bahir Dar and Awassa towns housing units were constructed in the ten years prior to the census. The overwhelming majority (77.9 percent) of housing units in Jijiga were less than ten years old in 1994, while over 48.5 percent were built during 1990 to1994.

Table 3.20 Percentage Distribution of Housing Units by Age, Cross-Classified by Towns, Ethiopia: 1994

TOWN	Age of Housing Unit in Years						TOTAL	
	<5	5-9	10-14	15-19	20+	N/S		
ADDIS ABABA	12.92	9.80	7.63	6.86	61.53	1.25	100.00	374,743
AWASSA	25.06	18.22	11.93	13.21	30.23	1.36	100.00	13,851
BAHIR DAR	27.38	17.31	17.03	12.28	24.65	1.35	100.00	19,808
DEBREZEIT	8.07	7.79	7.90	11.50	62.53	2.21	100.00	15,112
DESSIE	10.05	8.76	9.24	10.02	59.76	2.17	100.00	17,426
DIREDAWA	20.94	14.65	7.98	6.30	47.83	2.31	100.00	34,680
GAMBELLA	29.05	19.79	4.65	1.17	45.35	0.00	100.00	11,412
GONDAR	12.80	11.03	13.21	11.58	48.92	2.46	100.00	21,694
HARAR	7.65	7.92	5.77	6.84	69.31	2.50	100.00	17,445
JIJIGA	48.54	29.35	5.91	1.95	9.31	4.94	100.00	4,112
JIMMA	12.96	11.47	7.34	8.23	58.51	1.48	100.00	17,078
MEKELLE	21.99	12.58	15.46	11.32	35.84	2.82	100.00	21,609
NAZARETH	16.92	14.43	11.88	8.11	46.15	2.51	100.00	25,016
COUNTRY LEVEL	20.52	16.28	10.87	7.98	42.63	1.71	100.00	1,471,563

We have already pointed out that there has been a decline in the use of concrete material for the construction of walls between 1985 and 1994. However, Nazareth is an exception, in which the proportion of housing units built with concrete walls increased from 16.6 percent to 21 percent during the same period. Gambella and Mekelle towns also showed a better increasing trend than the national average (Annex Table 3.10).

Among the other 10 towns, which follow the general declining trend, the decrement observed in Harar, Debrezeit, and Jijiga town stands out. The proportion in Harar goes from 19 percent to 9 percent and that of Debrezeit from 22 percent to 10.2 percent and in Jijiga it drops all the way from 18.7 percent down to 3 percent.

3.4.2 Age of Housing Units and Material of Roof

Country Level

Associating housing age with major material used for the construction of roofs confirms the stagnation of the process of modernisation of the residential housing stock. Even if corrugated iron is predominantly used for the construction of roofs, the situation is not static. In fact, it is amazing to observe that in the twenty years preceding the census, use of corrugated iron for roof

consistently decreased. It dropped from 93.9 percent in older housing units (20+ years) to 64 .3 percent for the housing units built during the period 1990-94 (Table 3.19).

The proportion of housing units with roof made up of concrete followed the same trend; decreased over the last 20 years. On the other hand, the use of thatch material for roof has increased significantly from 1.3 percent for older housing units to 25.9 percent for those built in the period 1990-94.

Regional Level

Extending the analysis to the regions, the data in Annex Table 3.11 shows that only three regions (Tigray, Affar, and Harari) do not follow the general trend of a progressive reduction in the proportion of housing units with corrugated iron roofs during the last decade. Considering the last 20 years before the census, in Tigray the proportion of housing units with corrugated iron roofs, decreased from 82.3 percent to 62.5 percent in the period 1985-89 and increased to 66.4 in 1990-94. Inversely, the proportion that has been increasing for the other two categories of roof constructing materials (thatch, wood, and mud) decreased in the last five years (1990-94).

In Affar the proportion of housing units with corrugated iron roofs goes down from a peak of 48.1 percent of housing units built in 1975-79 to a minimum of 18.7 percent of housing units built in 1985-89. However, it rose again to 23.9 percent in the following five years (1990-94). On the other hand, the proportion of housing units with wood and mud roofs increased to 45.8 percent in 1985-89 from 30 percent in 1975-79 then declined to 30.4 percent in the following five years.

Harari is a special case: the use of corrugated iron roofs increased from 81.4 percent during 1975-79 to 91.3 in 1980-84 and surprisingly remained constant thereafter. This trend is analogous to that of Addis Ababa and Dire Dawa. These two regions have more than 90 percent of housing units with corrugated iron roofs throughout the years under consideration.

Towns Level

The overall picture of a declining trend in the use of corrugated iron for roof and an increasing trend in the use of thatch observed at country level has been reflected in almost all towns. Focusing on the twenty years prior to the census, we observe that the use of corrugated iron for roof decreased in all the towns since 1975. The major decrease is observed in Jijiga; from 88.7 percent to 30.7 percent, in

Table 3.21.a Percentage Distribution of Urban Housing Units by Age, Cross-Classified by Type of Building, Ethiopia: 1994

BUILDING TYPE	Age of Housing Unit in Years						Total	
	<5	5-9	10-14	15-19	20+	N/S	percent	number
Non storied detached	26.54	19.37	11.89	8.04	32.86	1.30	100.00	804,915
Non storied attached	13.35	12.78	9.87	8.10	54.59	1.30	100.00	642,163
Multi storied detached	9.95	7.77	5.53	6.14	68.99	1.62	100.00	9,594
Multi storied attached	15.42	10.29	6.12	5.04	61.53	1.60	100.00	14,902
Total	20.56	16.33	10.91	8.02	42.87	1.31	100.00	1,471,563

Table 3.21.b Percentage Distribution of Urban Housing Units by Age, Cross-Classified by Type of Building, Ethiopia: 1994

BUILDING TYPE		Age of Housing Unit in Years						Total
		<5	5-9	10-14	15-19	20+	N/S	
Non storied detached		70.58	64.90	59.63	54.79	41.93	54.40	54.70
Non storied attached		28.34	34.15	39.47	44.08	55.57	43.55	43.64
Multi storied detached		0.32	0.31	0.33	0.50	1.05	0.81	0.65
Multi storied attached		0.76	0.64	0.57	0.64	1.45	1.24	1.01
Total	Percent	100	100	100	100	100	100	100
	Number	302,601	240,248	160,551	118,044	630,903	19,227	1,471,563

Jimma from 96.5 to 66.8 percent and in Bahir Dar from 94 percent to 68 percent. Inversely, these towns showed a remarkable increase in the use of thatch for roof. For instance in Jijiga the proportion increased from 11.3 percent to 65.8 percent and in Bahir Dar from 4.9 percent to 30 percent.

3.4.3 Age of Housing Units by Type of Building

Country Level

As stated in the previous sections almost 55 percent of the entire housing stock is of the non-storied detached type, while nearly 44 percent is of the non-storied attached type. The proportion of housing units in multi-storied type of buildings is only one percent.

Out of the 804,915 non-storied detached housing units one third (32.9 percent) were built before 1975, while one quarter (26.5 percent) were less than five years old by 1994. Among the non-storied attached (642,163) group over 54 percent were older than twenty years (Table 3.21.a). Of the multi-storied type of buildings over 62 percent were built before twenty years (attached or detached).

Housing units in non-storied detached type of buildings have a higher rate of increment compared to the detached. In fact, they account for 42 percent of all housing units built before 1975, and for 70 percent of those built between 1990 and 1994. Inversely, the proportion of housing units in non-storied attached type of buildings dropped from 55.6 percent of the total housing units built before 1975, to 28.3 percent all housing units built between 1990 and 1994. Much can not be said about the multi-storied buildings, however, from Table 3.21.b a general decreasing trend is apparent.

Regional Level

At regional level, in Tigray, Amhara and Oromiya the non-storied detached buildings make a balance of proportion between housing units built in the last five years and those erected before twenty years. In Somali, Benishangul-Gumuz and Gambella regions over 85 percent of the non-storied detached buildings were less than 15 years old in 1994 (Annex Table 3.13).

In almost all regions most of the multi-storied buildings were built before 1975. The case for Harari is exceptional. It can be said that the construction of multi-storied buildings was completed before 1975 (over 90 percent were older than twenty years).

Table 3.22 Percentage Distribution of Source of Drinking Water of Urban Housing Units Cross-Classified by Regions, Ethiopia: 1994

REGION	Tap Inside House	Tap in comp. Private	Tap in comp. Shared	Tap Outside Comp.	Prot. Well, Spring	Unprotected well/river	N/S.	Total	
								percent	number
TIGRAY	3.02	5.33	7.72	50.37	7.48	25.43	0.64	100.00	115,421
AFFAR	3.90	8.16	3.97	55.63	1.42	26.28	0.64	100.00	20,161
AMHARA	2.95	7.29	7.68	52.09	10.04	19.42	0.54	100.00	285,203
OROMIYA	2.78	8.24	7.39	45.98	11.90	23.15	0.56	100.00	406,169
SOMALI	2.37	3.08	6.49	26.45	9.48	51.47	0.68	100.00	70,085
BENISHANGUL-GUMUZ	2.94	1.98	4.94	29.36	15.80	44.17	0.81	100.00	8,499
SNNP	2.25	7.36	7.21	38.71	15.50	28.33	0.65	100.00	142,212
GAMBELLA	3.72	1.26	8.44	43.32	15.70	26.28	1.29	100.00	6,268
HARARI	4.41	21.41	29.27	41.52	1.55	0.89	0.94	100.00	17,445
ADDIS ABABA	4.43	22.43	25.57	45.33	0.67	1.40	0.18	100.00	374,743
DIRE DAWA	3.49	10.09	9.72	71.35	3.47	0.84	1.04	100.00	36,382
COUNTRY LEVEL	3.23	11.22	12.27	46.31	8.16	18.31	0.50	100.00	1,471,563

Towns Level

In Awassa and Mekele an equal and a sizeable proportion of non-storied detached buildings were built either during 1990-94 or before 1975. In accordance to the findings for the total urban Ethiopia, in all the remaining towns a better proportion of housing units were built before 1975; irrespective of the type of the building (Annex Table 3.14).

In general in all towns but Debrezeit and Nazareth proportion of housing units in the non-storied detached type of buildings built during the period 1990-1994, is higher than the proportion of housing units built in an attached type of buildings for the same period.

3.5 Housing Units By Main Housing Facilities

3.5.1 Housing Units by Source of Drinking Water

Protected water supply for the total population is of great importance for sanitary purpose, for the protection of communicable diseases and for the general safety of the population. The most effective means of protecting water from pollution and to ensure its purity is supplying it through pipes. This may hold true provided that the water supply system is effectively administered (UN 1969). More over, the availability of organoleptic standard tap piped water is an essential indicator of the hygienic- sanitary level, and of access to utilities which are now considered an indispensable part of urban life.

The census long questionnaire allowed the gathering of useful information on the kind of tap water housing units could rely on. As a matter of fact the tap water supply results from the aggregation of four different kind of piped tap water They are: 1. Tap inside house, 2. Tap in compound-private, 3. Tap in compound-shared and 4. Tap outside compound. The other sources mentioned by respondents include protected well, unprotected well/river and of course ‘not stated’

Country Level

If we consider it to be a natural and legitimate aspiration to have one’s own tap water supply inside house, we will be obliged to find only 3.2 percent of the urban Ethiopia housing units satisfying their need.

In general, the sources of water supply for the majority (73 percent) of the housing units in urban areas is piped tap water, irrespective of the place where the tap is located. Housing units that obtained drinking water from protected well/spring amount 8.2 percent, and those who obtained from unprotected well/river/lake/pond are 18.3 percent. That adds up to 26.5 percent to give the

total housing units whose occupants that are at risk of communicable diseases (Table 3.22). In 1984, the corresponding figures for the source of drinking water was 66.5 percent for tap water from any source, 20.2 percent from unprotected well/river/pond/lake and 10.6 percent from protected well/spring.

Regional Level

The proportion of housing units with piped water supply varied among regions. Table 3.23 shows that it ranges from 97.8 percent in Addis Ababa, to 38.4 percent in Somali. Besides Addis Ababa, Harari with 96.6 percent and Dire Dawa with 94.6 percent showed an above average rate compared to the country total. All the other regions show a lower than average percentages of housing units with piped water. Next to Somali, Benishangul-Gumuz (39.2 percent) has the lowest proportion with regard to access to piped water. SNNP (55.5 percent) and Gambella (56.7 percent) regions fall in one group. Oromiya (64.4 percent) and Tigray (66.4 percent) have a similar rate. Likewise Amhara (70 percent) and Affar (71.7 percent), make yet another group.

Addis Ababa and Harari have a relatively higher proportion of tap inside house water supply (4.4 percent), and the lowest (2.3 percent) is observed in SNNP. Among the housing units in Addis Ababa, 92.3 percent were enjoying piped water in 1984. Compared to 97.8 percent in 1994 it shows an increment of a 5.5 percentage point in the ten years between the two censuses.

Towns Level

All the 13 towns, but two, have a higher percentage of housing units with tap piped water than the one pertaining to urban Ethiopia. Nazareth is the town with the highest proportion of housing units obtaining water from piped supply (98.9 percent). In Debrezeit, Dessie, and Harar towns 97.6 percent of housing units have access to piped water (However, it should be noted that this does not necessarily mean they have access to safe drinking water). A relatively lower proportion is observed for Jijiga (66.8 percent). Even worse, in Jimma less than fifty percent of housing units have access to piped water (Table 3.23).

Jijiga is an interesting case. On the one hand it is the town with the highest proportion of housing units obtaining water from unprotected wells, and/ or rivers (25.6 percent), on the other it has a relatively higher proportion of housing units obtaining water from tap inside house (5.1 percent).

Table 3.23 Percentage Distribution of Source of Drinking Water of Housing Units Cross-Classified by Towns, Ethiopia: 1994

TOWN	Tap Inside	Tap Compuond Private	Tap Compound Shared	Tap Outside Comp.	Prot. Well, Spring	Unprot. Well, River	N/S.	Total	
								percent	number
ADDIS ABABA	4.43	22.43	25.57	45.33	0.67	1.40	0.18	100.00	374,743
AWASSA	3.86	19.07	24.95	46.97	2.80	1.62	0.72	100.00	13,851
BAHIR DAR	3.30	14.90	24.72	45.72	1.84	9.12	0.39	100.00	19,808
DEBREZEIT	3.21	25.83	24.85	42.20	2.78	0.63	0.50	100.00	15,112
DESSIE	3.70	20.27	17.89	54.75	1.58	1.31	0.49	100.00	17,426
DIREDAWA	3.63	10.36	10.14	73.75	0.63	0.46	1.02	100.00	34,680
GAMBELLA	5.82	10.46	24.41	52.34	5.81	1.17		100.00	11,413
GONDAR	4.14	9.98	9.06	61.12	7.18	7.89	0.63	100.00	21,694
HARAR	4.41	21.41	29.27	41.52	1.55	0.89	0.94	100.00	17,445
JIJIGA	5.11	1.92	11.21	48.61	6.15	25.61	1.39	100.00	4,112
JIMMA	2.48	9.95	11.76	21.36	30.14	23.86	0.46	100.00	17,078
MEKELLE	4.46	10.67	17.47	49.78	6.11	10.89	0.62	100.00	21,609
NAZARETH	3.80	18.13	16.70	60.33	0.08	0.02	0.94	100.00	25,016
COUNTRYLEVEL	3.23	11.22	12.27	46.31	8.16	18.31	0.50	100.00	1,471,563

In Addis Ababa, Awassa, Bahir Dar, Debrezeit and Gambella one quarter of the households get drinking water from tap in side compound but shared. In Harar the proportion increases to one in three households.

In these towns over four out of ten households get their drinking water from taps out side their compound. The case for Dire Dawa is unique as 74 percent of housing units get water to drink from taps outside their compound. These sources are mostly neighboring households who own tapped water and who sale per gallon or bucket (these days even Kiosks sale water). The other outside compound water sources are government standpipes locally known as 'Buno or Birka'.

On the other hand, 25.6 percent households in Jijiga and 24 percent households in Jimma drink water exposed to water borne diseases i.e. unprotected well or rivers. A sizeable proportion, 10 and 11 percent of the households in Bahir Dar and Mekele, respectively, drink from open well or river.

3.5.2 Housing Units by Type of Toilet Facility

The United Nations Principles and Recommendations for housing census defines toilet as an installation for the disposal of human excrete and a flush toilet as an installation connected with piped water arranged for humans to discharge their wastes and from which the wastes are flushed by water (UN, 1969)**.** One of the measurements of environmental sanitation is the provision of water supply by which a safe and efficient disposal of human waste is maintained. In the second national population and housing census of Ethiopia households were interviewed whether they have a toilet or not and if they have one to state the type of the toilet. The results obtained are discussed below.

Country Level

Overall in urban Ethiopia 42.3 percent of the housing units did not have any type of toilet until 1994. On the other side only 5.5 percent of the housing units enjoyed a flush toilet of which 3.5 percent were private (Table 3.24**).** A little more than half (51.1 percent) of the housing units in all urban centres of the country used dry pits (private or shared toilet). The national report of the first census indicated that by 1984 almost half (49.5 percent) of the total urban areas did not have any type of toilet. A total of 42.7 percent had dry pit (private or shared) while only 6.3 percent enjoyed flush toilet. This shows a decline over the ten years between the two censuses in the proportion of housing units with no toilets

Table 3.24 Percentage Distribution of Types of Toilet Facility of Urban Housing Units Cross-Classified by Regions Ethiopia:1994

REGION	Has No Toilet	Flush Private	Flush Shared	Pit Private	Pit Shared	N/S.	Total	
							percent	number
TIGRAY	69.99	2.37	2.64	9.82	13.77	1.41	100.00	115,421
AFFAR	58.33	4.87	0.86	20.20	15.70	0.05	100.00	20,161
AMHARA	61.50	1.59	1.15	18.24	16.36	1.15	100.00	285,203
OROMIYA	39.94	1.82	1.35	33.41	22.39	1.10	100.00	406,169
SOMALI	51.64	1.04	0.52	21.35	24.68	0.77	100.00	70,090
BENISHANGUL-GUMUZ	35.09	2.24	3.95	30.27	26.73	1.72	100.00	8,499
SNNP	35.86	1.24	0.87	38.08	22.77	1.19	100.00	142,212
GAMBELLA	66.98	3.03	3.14	13.05	11.74	2.06	100.00	6,268
HARARI	28.70	5.10	2.98	25.35	35.75	2.13	100.00	17,445
ADDIS ABABA	23.89	8.04	3.95	18.12	45.03	0.98	100.00	374,743
DIRE DAWA	23.45	4.57	2.34	29.77	37.96	1.91	100.00	36,382
COUNTRY LEVEL	42.33	3.45	2.05	24.20	26.85	1.12	100.00	1,471,563

Regional Level

Table 3.24 presents type of toilet facilities by region. According to the data in the Table, the highest percentage of housing units with no toilet is to be found in Tigray (70 percent). Housing units in Gambella (67 percent), Amhara (61.5 percent), Affar (58.3 per cent), and Somali (51 percent) regions also suffer from not having any type of toilets. In relative terms, housing units in Dire Dawa showed the lowest proportion of not having a toilet (23.4 percent). In Addis Ababa, Dire Dawa, Harari and SNNP regions over 61 percent of housing units have dry pit toilet (private /shared).

Relatively the highest percentage of housing units with a flush private toilet facility is reported in Addis Ababa region (8 percent). Harari (5.1 percent), Affar (4.9 percent), and Dire Dawa (4.6 percent) follow it. The remaining seven regions have a below the national average (3.4 percent) proportion of housing units with flush private toilet facilities. The lowest is to be found in Somali (1 percent).

Towns Level

All towns under study showed extremely varied situations with regard to toilet facility. The opposite poles are represented by Jijiga, with 67.6 percent and Awassa with only 9.6 percent of housing units without toilet facilities. Nevertheless, Awassa has a slightly above average proportion of housing units with private flush toilet facilities. Nine out of the thirteen towns have dry pits well over the national average. Paradoxically the highest proportion (83.1 percent) of dry pits (private/shared) is observed in Awassa followed by Dire Dawa, Nazareth and Jimma towns

(See Table 3.25 below).

Table 3.25 Percentage Distribution of Types of Toilet Facility of Housing Units Cross-Classified by Towns, Ethiopia: 1994

TOWN	Has No Toilet	Flush Private	Flush Shared	Pit Private	Pit Shared	N/S.	Total	
							%	No
ADDIS- ABABA	23.89	8.04	3.95	18.12	45.03	0.98	100.00	374,743
AWASSA	9.60	3.76	2.17	32.06	51.08	1.34	100.00	13,851
BAHIR DAR	50.41	3.82	3.41	14.25	27.21	0.90	100.00	19,808
DEBREZEIT	23.07	5.82	4.54	28.83	36.43	1.31	100.00	15,112
DESSIE	37.99	3.73	3.72	21.09	31.72	1.74	100.00	17,426
DIRE DAWA	21.59	4.79	2.43	29.70	39.56	1.94	100.00	34,680
GAMBELLA	26.74	4.65	1.16	16.30	49.99	1.17	100.00	11,412
GONDAR	50.18	3.52	2.35	20.82	21.60	1.54	100.00	21,694
HARAR	28.70	5.10	2.98	25.35	35.75	2.13	100.00	17,445
JIJIGA	67.56	4.13	4.18	9.00	12.69	2.43	100.00	4,112
JIMMA	27.35	3.91	1.48	34.32	31.78	1.15	100.00	17,078
MEKELLE	47.31	5.48	6.91	12.84	25.73	1.73	100.00	21,609
NAZARETH	22.59	4.85	2.48	31.93	36.17	1.97	100.00	25,016
COUNTRY LEVEL	42.33	3.45	2.05	24.20	26.85	1.12	100.00	1,471,563

Three towns: Bahir Dar (50.4 percent), Gondar (50.2 percent), and Mekelle (47.3 percent) have a higher than urban Ethiopia average of housing units without any toilet facilities. The remaining eight towns showed a below national average (42.3 percent) proportion. However, even in the bigger towns of Addis Ababa, Dire Dawa, Nazareth, and Debrezeit nearly one in four housing units do not have any toilet. Surprisingly, all the 13 towns showed a proportion of housing units with private flush toilet higher than the country's total urban.

Addis Ababa has shown some improvement in the ten years between the censuses with regard to toilet facilities: The proportion of housing unit, with no toilet has come down to 23.9 percent from 29.2 percent while the proportion of housing units with dry pits increased from 59.4 percent to 63.11 percent. However, the proportion of housing units with flush toilet remained constant over the decade (12 percent).

3.5.3 Housing Units by Type of Lighting

The source of lighting in housing units gives us important information about their quality. Nowadays to have electricity-powered lighting is considered as a primary need. To gather data on the distribution of light in both the censuses households were asked to provide information on what type of lighting they use.

Country Level

In general, 65.4 percent of the total urban housing units have electricity powered lighting of which 61.2 percent use a common electric meter. More than one quarter (25.8 percent) of the housing units use kerosene lamps (Table 3.26). Ten years before the 1994 census 62.3 percent of housing units in urban areas did get light from an electric power. For the other 27.3 percent of housing units the source of lighting was kerosene lamp. Statistically, three percentage points have been gained in the ten years gap. It is surprising to find identical results for housing units using kerosene lamp and those using electricity with private meter (25.8 percent).

Table 3.26 Percentage Distribution of Type of Lighting of Urban Housing Units Cross-Classified by Regions, Ethiopia: 1994

REGION	Elect. Meter Private	Elect. Meter Shared	Lantern	Kerosene Lamp	Other	N/S	Total	
							percent	number
TIGRAY	13.13	35.32	4.59	44.14	2.33	0.49	100.00	115,421
AFFAR	14.25	38.70	18.21	21.72	5.57	1.55	100.00	20,159
AMHARA	16.56	38.60	3.53	40.16	0.77	0.39	100.00	285,203
OROMIYA	23.41	38.42	6.75	29.76	1.26	0.40	100.00	406,169
SOMALI	5.66	14.51	59.07	11.89	6.84	2.03	100.00	70,086
BENISHANGUL-GUMUZ	8.85	29.98	4.38	53.52	2.34	0.93	100.00	8,499
SNNP	16.38	32.38	6.38	42.65	1.79	0.43	100.00	142,212
GAMBELLA	8.92	17.25	4.79	59.76	7.77	1.52	100.00	6,268
HARARI	37.68	57.64	0.73	2.69	0.48	0.77	100.00	17,445
ADDIS ABABA	45.05	50.49	0.24	3.07	1.03	0.14	100.00	374,743
DIRE DAWA	29.09	58.78	3.46	6.90	1.14	0.63	100.00	36,382
COUNTRY LEVEL	25.28	40.15	6.74	25.8	1.58	0.45	100.00	1,471,563

Regional Level

As can be observed from the data in Table 3.26, there is a high degree of variability at regional level. At one end, in Addis Ababa region, 95.5 percent of housing units have electricity-powered lighting. At the other end, in Somali, only 20.2 percent of housing units have electric light. Other than Addis Ababa, only two regions have a higher ratio of housing units, which enjoy electric light. They are Harari (95.3 percent) and Dire Dawa (87.9 percent). Oromiya follows at a distance with 61.8 percent. On the other hand, next to Somali region, Gambella with 26.2 percent makes the bottom proportion.

Nearly 60 percent of households in Somali region get light from lantern. Another impressing proportion is that of Gambella region. In this region the light for 60 percent of the households comes from kerosene lamp. Similarly, over 40 percent of housing units in Tigray, Amhara and SNNP regions suffer from the smoke that come out of the kerosene lamp. A sizeable proportion (30 percent) of the housing units in Oromiya region share the same problem.

Towns Level

Table 3.27 gives the summary of the type of light housing units in the selected towns use. Except in Jijiga, all the other towns have a higher proportion of housing units with electric light than urban Ethiopia, which is 65.4 percent. In Jijiga, only 39.2 percent of housing units have electric powered light.

Among the towns, Addis Ababa has the highest proportion of housing units with electric lighting (95.5 percent). As for the others they make three groups. Harar (95.3 percent), Awassa (95.2 percent), Nazareth (93.2 percent), and Dessie (90.2 percent) make the higher proportion group. Dire Dawa (89.6 percent), Mekelle (84.8 percent), and Bahir Dar (84.2 percent), make the second higher proportion group while Jimma (79 percent), Gambella (72.1 percent) and Gondar (68.2 percent) make the third group.

Jijiga leads the list of the proportion of housing units using kerosene lamp (53.3 percent), followed by Jimma (18.9 percent), Bahir Dar (15.1 percent), and Gambella (14 percent).

3.6 Housing Units by Number of Rooms and Number of Persons (Crowding Matrix).

One of the most common indicators used to describe living conditions is the matrix of crowding, which compares housing units divided into number of rooms, and households according to number of members.

In order to evaluate the level of acceptability of housing density we tried to establish thresholds which divide the housing units according to whether they are adequately occupied, under-occupied and overcrowded.

In this analysis the thresholds set by the U.N. (1967) are used that is:

a) Housing units with more than one room occupied on average by less than one person per room are classified as under-occupied.

b) Housing units with one or more rooms occupied on average by one to 2.4 persons per room are classified as adequately occupied

c) Housing units with one or more rooms occupied on average by 2.5 or more persons per room as overcrowded.

These thresholds were established 34 years ago. May be it is time to up-date them. It is certainly strange that, after having reported a U.N. recommendation, raising the crowding matrix boundary between adequately occupied housing units and overcrowded housing units to three occupants per room. According to us our assumption it would have been more acceptable to lower it to two occupants per room. Of course, raising the limit of the adequately occupied housing units reduces the extent of overcrowding, and therefore requires an adjustment.

Table 3.27 Percentage Distribution of Type of Lighting of Housing Units Cross -Classified by Towns, Ethiopia: 1994

TOWN	Elect. Meter Private	Elect. Meter Shared	Lantern	Kerosene Lamp	Other	N/S	Total	
							percent	number
ADDIS ABABA	45.05	50.49	0.24	3.07	1.03	0.14	100.00	374,743
AWASSA	28.02	67.22	0.19	4.11	0.10	0.35	100.00	13,851
BAHIR DAR	21.85	62.31	0.15	15.05	0.31	0.33	100.00	19,808
DEBREZEIT	39.59	53.18	0.13	6.08	0.53	0.50	100.00	15,112
DESSIE	40.06	50.07	0.53	8.61	0.25	0.48	100.00	17,426
DIREDAWA	29.91	59.69	2.63	5.98	1.15	0.64	100.00	34,680
GAMBELLA	19.79	52.32	13.94	13.95	-	-	100.00	11,413
GONDAR	28.14	60.11	0.25	10.33	0.63	0.53	100.00	21,694
HARAR	37.68	57.64	0.73	2.69	0.48	0.77	100.00	17,445
JIJIGA	13.23	25.97	2.02	53.26	3.65	1.87	100.00	4,112
JIMMA	32.47	46.52	1.41	18.87	0.29	0.45	100.00	17,078
MEKELLE	20.20	64.63	1.62	12.77	0.37	0.43	100.00	21,609
NAZARETH	37.50	55.65	0.39	5.05	0.76	0.64	100.00	25,016
COUNTRY LEVEL	25.28	40.15	6.74	25.80	1.58	0.45	100.00	1,471,563

We believe that after 34 years, housing policy should aim to reduce overcrowding, from 3 or more occupants per room to more than two occupants per room. The lower limit of adequately occupied housing units, which separates it from under-occupied housing units, that is, the ratio of one occupant per room, is absolutely reasonable.

Based on these considerations, the following analyses, at country and regional level, and in the 13 towns, will be carried out taking both parameters into consideration.

Country Level

As can be seen from Tables 3.28 and 3.29, at country level, over 72 percent of housing units in urban Ethiopia do not have more than 2 rooms. The under-occupied housing units amount to 6.7 percent of the total, which corresponds to slightly less than 100,000 housing units.

Adequately occupied housing units amount to 50.7 percent of the total according to variant 1 (one or more rooms occupied on the average by one to three persons per room), which corresponds to 752,382 housing units. If however, we apply variant 2 (one or more rooms occupied on the average by one to 2 persons per room), the adequately occupied housing units fall to 29.8percent of the total and these corresponds to 441,699 housing units. Application of variant 1,gives the overcrowded housing units to be 42.5 percent of the total, which corresponds to 630,709 housing units, whereas application of variant 2, shows the overcrowded housing units amount to 63.5percent of the total, which corresponds to 941,392 housing units.

Regional Level

The regional data of housing density presented in Table 3.30, shows that there is little deviation from the national average, except for Somali region, which is a special case.

Regarding the under-occupied housing units, compared to the relative average of urban Ethiopia of 6.7 percent, at the extreme lower end of the range we find Somali with 2.1percent, which corresponds to 1,494 housing units. On the other end we find Affar region with 8.3percent, that corresponds to 1,673 housing units. Dire Dawa (2.2 percent), Tigray (3.4 percent) and Gambella (4.6 percent) regions have lower proportions of under-occupied housing units than national average. Regions like SNNP (7.2percent), Oromiya (7.7percent) and Addis Ababa (7.9percent) have proportions greater than to the national average.

Table 3.28 Distribution of Urban Housing Units by Number of Rooms and Number of Persons (Crowding Matrix),Ethiopia:1994

No of Persons	Number Of Rooms										
	1	2	3	4	5	6	7	8	9+	n.s.	Total
1	126,039	35,785	8,134	2,929	1,099	533	286	96	376	3,096	178,373
2	114,414	56,691	15,311	4,445	1,545	609	315	185	413	2,794	196,722
3	103,394	67,436	22,355	6,823	2,546	1,018	443	577	582	2,624	207,498
4	87,407	70,523	27,535	9,958	3,728	1,445	596	381	748	2,234	204,555
5	65,060	62,705	29,424	11,552	4,906	1,740	719	612	934	1,816	179,468
6	44,760	51,287	28,424	12,712	5,267	2,225	1,166	577	848	1,524	148,790
7	30,842	39,969	24,598	11,683	5,252	2,578	1,154	659	798	1,386	118,919
8	20,586	27,664	19,315	10,019	4,719	1,975	1,099	693	798	781	87,649
9+	27,564	40,608	36,291	22,717	13,245	7,137	3,806	2,716	3,990	1,665	159,739
n.s.	149	119	-	5	15	10	-	-	5	574	877
Total	620,215	452,787	211,387	92,843	42,322	19,270	9,584	6,496	9,492	18,494	1,482,590

u1=underoccupied :housing units more than one room occupied on the average by less than one person per room 99499

a1=adequately occupied: housing units with one or more rooms occupied on the average by one to 2.9 persons per room 752382

o1=overcrowded: housing units with one or more rooms occupied on the average by 3 or more persons per room 630709

u2=underoccupied:housing units with more than one room occupied on the average by less than one person per room 99499

a2=adequately occupied :housing units with one or more rooms occupied on the average by one to1.9 persons per room 441699

o2=overcrowded :housing units with one or more rooms occupied on the average by 2 or more persons per room 941392

NB

u1, a1 and o1 represents housing units classified as under occupied, adequately occupied and overcrowded according to variant 1, respectively while the index "2" represents same classification according to variant 2.

Table 3.29 Percentage Distribution of Urban Housing Units by Number of Rooms and Number of Persons (Crowding Matrix), Ethiopia : 1994

No. of Persons	Number Of Rooms										
	1	2	3	4	5	6	7	8	9+	n.s.	Total
1	8.5	2.41	0.55	0.2	0.07	0.04	0.02	0.01	0.03	0.21	12.03
2	7.72	3.82	1.03	0.3	0.1	0.04	0.02	0.01	0.03	0.19	13.27
3	6.97	4.55	1.15	0.46	0.17	0.07	0.03	0.02	0.04	0.18	14
4	5.9	4.76	1.86	0.67	0.25	0.1	0.04	0.03	0.05	0.15	13.8
5	4.39	4.23	1.98	0.78	0.33	0.12	0.05	0.04	0.06	0.12	12.11
6	3.02	3.46	1.92	0.86	0.36	0.15	0.08	0.04	0.06	0.1	10.04
7	2.08	2.7	1.66	0.79	0.35	0.17	0.08	0.04	0.05	0.09	8.02
8	1.39	1.87	1.3	0.68	0.32	0.13	0.07	0.05	0.05	0.05	5.91
9+	1.86	2.74	2.45	1.53	0.89	0.48	0.26	0.18	0.27	0.11	10.77
n.s.	0.01	0.01		0	0	0			0	0.04	0.06
Total	41.83	30.54	14.26	6.26	2.85	1.3	0.65	0.42	0.64	1.25	100

u1=underoccupied :housing units more than one room occupied on the average by less than one person per room 6.7

a1=adequately occupied: housing units with one or more rooms occupied on the average by one to 2.9 persons per room 50.7

o1=overcrowded: housing units with one or more rooms occupied on the average by 3 or more persons per room 42.5

u2=underoccupied:housing units with more than one room occupied on the average by less than one person per room 6.7

a2=adequately occupied :housing units with one or more rooms occupied on the average by one to1.9 persons per room 29.8

o2=overcrowded :housing units with one or more rooms occupied on the average by 2 or more persons per room 63.5

NB.

u1, a1 and o1 represents housing units classified as under occupied, adequately occupied and overcrowded according to variant 1, respectively while the index "2" represents same classification according to variant 2.

According to variant 1, the amount of adequately occupied housing units for most of the regions are more than 50 percent. The extreme lowest proportions are observed in Somali region which has only 19.percent of the total housing units adequately occupied.

Table 3.30 Distribution of Urban Housing Units by Categories of Overcrowding and Regions, 1994 (Variant 1)

REGION	Adequately Occupied		Over Crowded		Under Occupied	
	Number	percent	Number	percent	Number	percent
TIGRAY	51,298	44.44	60,139	52.1	3,984	3.45
AFFAR	11,081	54.96	7,407	36.74	1,673	8.3
AMHARA	152,813	53.58	114,028	39.98	18,362	6.44
OROMIYA	224,860	55.36	149,847	36.89	31,462	7.75
SOMALI	13,355	19.06	55,236	78.81	1,494	2.13
BENISHANGUL-GUMUZ	4,971	58.49	2,975	35	553	6.51
SNNP	75,072	52.79	56,949	40.05	10,191	7.17
GAMBELLA	2,988	47.67	2,991	47.72	289	4.61
HARARI	8,950	51.3	7,431	42.6	1,064	6.1
ADDIS ABABA	191,938	51.22	153,182	40.88	29,622	7.9
DIRE DAWA	15,054	41.38	20,523	56.41	805	2.21
COUNTRY LEVEL	752,382	50.7	630,709	42.5	99,499	6.7

According to variant 2, the range of variation of adequately occupied housing units by region is even smaller: excluding the Somali region the two extremes are Dire Dawa, at the lower end, with 22.9percent, and Benishangul-Gumuz at the upper end with 35.5percent of adequately occupied housing units. In almost seven regions only one in three housing units are adequately occupied.

Table 3.31. Distribution of Urban Housing Units by Categories of Overcrowding and Regions, Ethiopia:1994 (Variant 2)

REGION	Adequately Occupied		Over Crowded		Under Occupied	
	Number	percent	Number	percent	Number	percent
TIGRAY	27,204	23.57	84,233	72.98	3,984	3.45
AFFAR	6,216	30.83	12,272	60.87	1,673	8.3
AMHARA	87,991	30.85	178,850	62.71	18,362	6.44
OROMIYA	133,006	32.75	241,701	59.51	31,462	7.75
SOMALI	5,971	8.52	62,620	89.35	1,494	2.13
BENISHANGUL-GUMUZ	3,016	35.49	4,930	58.01	553	6.51
SNNP	45,152	31.75	86,869	61.08	10,191	7.17
GAMBELLA	1,851	29.53	4,128	65.86	289	4.61
HARARI	5,427	31.11	10,954	62.89	1,064	6.1
ADDIS ABABA	117,519	31.36	227,601	60.74	29,622	7.9
DIRE DAWA	8,347	22.94	27,230	74.84	805	2.21
COUNTRY LEVEL	441,699	29.8	941,392	63.5	99,499	6.7

Overcrowded housing units at country level vary from 42.5percent (variant1) to 63.5 percent (variant 2) in urban Ethiopia, excluding Somali, variant 1 registers a wider range of 21 points (56.41-35.00) compared to 16 points for variant 2 (74.84-58.01). Somali region showed a much lower proportion of adequately occupied housing units, which implies a much higher proportion of overcrowded housing units.

Applying variant 1, overcrowded housing units in Somali amount to 78.8percent which corresponds to 55,236 housing units whereas when variant 2 is applied, the percentage of overcrowded housing units rose to 89.3 percent of the total. Excluding the extreme value of Somali and applying variant 1 the minimum proportion which is equal to 35 percent, is observed in Benishangul-Gumuz, and the maximum, 56.4 percent in Dire Dawa region.

In the case of variant 2 the regions with a minimum and a maximum proportion of overcrowded housing units are the same: Benishangul-Gumuz with 40.2 percent, and Dire Dawa with 74.8percent of the total housing units.

Towns Level

At town level under-occupied housing units, compared to the national urban average of 6.7 percent, only 3 towns reported a higher average. These are Debrezeit (9.9 percent), Jimma (8.1percent) and Addis Ababa 7.9 percent. The other ten reported a below average proportion. Dire Dawa showed the minimum with 2.2 percent (see Tables 3.32 and 3.33).

Applying variant 1 we find Gambella at the lower end with 36.1 percent of the housing units adequately occupied and Debrezeit with 57.8 percent housing units adequately occupied at the upper end. Six out of the 13 towns have proportions above national average, and the other 6 are below average.

Table 3.32 Distribution of Housing Units by Categories of Overcrowding and Selected Towns, Ethiopia: 1994 (Variant 1)

TOWN	Adequately Occupied		Over Crowded		Under Occupied	
	Number	Percent	Number	Percent	Number	Percent
ADDIS ABABA	191,938	51.22	153,182	40.88	29,622	7.9
AWASSA	7,841	56.61	5,121	36.97	889	6.42
BAHIR DAR	10,004	50.5	9,053	45.7	751	3.79
DEBREZEIT	8,741	57.84	4,874	32.25	1,497	9.91
DESSIE	8,638	49.57	7,798	44.75	990	5.68
DIRE DAWA	14,382	41.47	19,517	56.28	781	2.25
GAMBELLA	4,115	36.06	6,633	58.13	663	5.81
GONDAR	9,387	43.27	11,486	52.95	821	3.78
HARAR	8,950	51.3	7,431	42.6	1,064	6.1
JIJIGA	1,920	46.69	2,002	48.69	190	4.62
JIMMA	9,402	55.05	6,288	36.92	1,388	8.13
MEKELE	8,757	40.52	12,171	56.32	681	3.15
NAZARETH	14,304	57.18	9,052	36.18	1,660	6.64
COUNTRY LEVEL	752,382	50.7	630,709	42.5	99,499	6.7

When we apply variant 2, the opposite extremes remain to be the same towns: Gambella with just 15 percent of the housing units - 14 points below the urban Ethiopia average (29.8 percent) – and Debrezeit with 36.5 percent.

Table 3.33 Distribution of Housing Units by Categories of Overcrowding and Selected Towns, Ethiopia: 1994 (Variant 2)

TOWN	Adequately Occupied		Over Crowded		Under Occupied	
	No	percent	No	percent	No	percent
ADDIS ABABA	117,519	31.36	227,601	60.74	29,622	7.9
BAHIR DAR	5,764	29.1	13,293	67.11	751	3.79
DEBRE ZEIT	5,519	36.52	8,096	53.57	1,497	9.91
DESSIE	5,016	2878	11,420	65.53	990	5.68
DIRE DAWA	7,992	23.04	25,907	74.7	781	2.25
GAMBELA	1,726	15.13	9,022	79.06	663	5.81
GONDER	5,067	23.36	15,806	72.86	821	3.78
HARAR	5,427	31.11	10,954	62.79	1,064	6.1
JIJIGA	1,226	29.82	2,696	65.56	190	4.62
JIMMA	5,582	32.69	10,108	59.19	1,388	8.13
MEKELE	4,574	21.17	12,171	75.68	681	3.15
NAZARETH	8,740	34.94	14,616	58.43	1,660	6.64
COUNTRY LEVEL	752,382	50.7	941,392	63.5	99,499	6.7

As far as overcrowded housing units are concerned, applying variant 1, Gambella has the maximum proportion with 58.1 percent of housing units, while Debrezeit has the minimum proportion with 32.2 percent. In the case of variant 2 the situation at the extreme ends is the same: at one end Gambella with 7.1 percent, and at other end Debrezeit with 53.6 percent.

CHAPTER 4
DEMAND FOR HOUSING IN URBAN ETHIOPIA

The assessment of housing demand is an important question for all developed or developing economies, for two reasons. The first one is to assure all citizens of the fulfillment of all basic needs - quantitative and qualitative - that makes a decent standard of living possible in the reasonably near future. The importance of this point of view is generally shared. As a matter of fact, the need for an appropriate dwelling is considered a basic need as crucial as alimentary and sanitary needs. The second reason notes the importance of building industry, either as a powerful factor for labor force demand, or as a boost for the industrialization of the country.
It is therefore understandable why every government devotes particular attention to the housing question either on the need and demand side, or on the financing of the supply and demand one.

4.1 Definitions

In order to have an appropriate approach to the housing question, we should first solve a knotty problem: the definition of housing need and housing demand. The concept of housing demand stems from economics, and it concerns not only the wish to own a good, but also the capacity to pay the price.

The concept of needs refers to the inherent duality of dwelling - that is, it is both an economic good, subject to the market laws as well as a good or social service whose fulfillment depends on the support of the public operator and his resources. In this second meaning it seems plausible to reason in terms of need [Abate, Picciotto 1983,p.85 Ricci, 1984,p.37].

In the analysis, it follows that factors to take into consideration are different depending on the favouring of the supply side or the need side. In the case of the former, purely economic variables such as incomes, prices, rates of interest, etc. come to the forefront. In the case of the latter, population structure and the goals to be pursued in terms of housing standards acquire prevailing importance. Housing standards can be defined in quantitative and qualitative terms. The most elementary quantitative standards consist of establishing a number of rooms (generally one at most) or some amount of housing space per person.

Qualitative standards refer to the equipment of certain crucial facilities that define the urban way of life, such as running water, indoor toilet, electricity, but they also refer to elements involved in the structural features of dwellings that distinguish a home from a mere shelter.

Housing standards, either quantitative or qualitative, are considered by some to be “objective.” In reality, the opposite is true: They are criteria that, once established, easily become subject to subjective considerations. Moreover, they are historical criteria in the sense that their validity is temporarily and spatially limited, because they are expressions of requirements, feelings and trends of socio-political nature.

Therefore they might be valid in a certain time but not so in a successive moment, because they might be replaced by different and more increasingly demanding feelings and trends. So the establishment of standards becomes a matter of housing policy, because it translates into quantitative terms choices that belong to the public authorities.

4.2 Methodology

The housing need assessment is the result of the combination of previously unmet housing needs and future housing needs [Leone 1983, p.13]. By the expression “previously unmet needs” we mean unmet housing needs at a given time, all housing deficiencies concerning all households living in under-standard conditions.

Future housing needs [U.N.1967, p.8, Ricci 1984, p.66] arise from two demographic components: the natural one and the social one. In order to evaluate the increased need due to natural demographic movement, one is supposed to calculate the increase of households due to the formation of new entities net of terminations. The assessment of the social demographic movement concerns the estimate of migration flows, either international or domestic (rural-urban and urban-urban migration). The assessment of future housing need hinges upon correctness of demographic forecast.

The assessment of previously unmet housing need appears to be a more complex and uncertain operation, especially when it is sure that, as in the case of Ethiopia, a large proportion of the population lives in under-standard conditions. In these cases, as noted above, the highly subjective establishment of quantitative and qualitative standards and their possible change imply a marked variation in overall figures.

An additional element making the whole evaluation more difficult is that, while some types of under-standard condition can be dealt with only through increasing new housing, in other cases lighter adjustment or interventions, such as electricity network connection or running piped water supply, could be sufficient. After these considerations, let us explain the criteria we chose in this research for the assessment of housing needs.

4.2.1. Criteria to Assess the Unmet Need

4.2.1.1. Assessment of Overcrowded Housing

As is well known, the first factor creating unmet housing needs is traditionally calculated through the evaluation of existing phenomenon of overcrowding [UN 1967, p.9]. This aspect can be approached from two points of view. The first is connected to analysis of households and housing units at every level– national, regional, and local.

The second compares number of rooms and number of people. In the first case one assumes that quantitative reference standard is established by a one-to-one ratio between housing units and households. In the case of cohabitation, the number of households will exceed the number of housing units. In general terms, cohabitation can be voluntary or forced (because there is not enough housing to accommodate all the households or because some households can not afford the cost of an independent dwelling). Assuming that the standard to be pursued is that of one household per housing unit, the number of households exceeding the number of housing units is the first indication of previously unmet needs.

The comparison between number of rooms and number of persons is the basis for the elaboration of the crowding matrix (see Tables 3.28 and 3.29). It allows us to divide the housing units into under-occupied, adequately occupied, and overcrowded. Overcrowded housing units show the existence of unmet housing needs. Housing policy should aim to progressively decrease overcrowded conditions. In theory one could think to pursue a general condition of adequate occupation by moving households from under-occupied housing units to overcrowded housing units and vice versa, but the operation is impossible due to evident reasons which will not be discussed here. The resources to help increase the supply specifically oriented to the households living in overcrowded housing unit remains. The comparison between rooms and number of people leads to a quantification of unmet housing needs in terms of rooms, whereas comparison between households and housing units lead to a quantification of unmet housing needs in terms of housing units. The two different indicators cannot be reduced to a single one, but are to be considered separately. Both of them give useful information.

4.2.1.2 Assessment of Qualitative Under-Standard Housing

A second factor of housing needs stem from qualitative under-standard housing units [U.N.1967, p.16]. We can divide qualitative standards in two categories: those concerning the construction materials, and those concerning supply of essential facilities such as running water,

indoor toilet, bathing facilities, and electricity. When facilities such as electricity and running water are absent, what is needed is readjustment of existing housing stock, but it does not require any replacement of the housing units or adding of newly built room.

As a consequence, data gathered on these aspects of quality of living give useful information about standard of dwellings. This is because they are useful indicators of the amount of intervention needed to promote adequate supply of essential facilities, but do not affect unmet housing needs in terms of housing units or rooms. On the other hand, in the case of housing units with no indoor toilet (for example, 42.3 percent of the housing units in urban Ethiopia), the aim to supply every housing unit with an indoor toilet means adding a new room to each house.

As for the construction materials of housing units, the census data describe a situation in which there has been an overwhelming use of “traditional materials” for the construction of walls or roofs or floors. Regarding the definition of traditional and modern material, one can consult the appropriate section of this report. We assume that the traditional construction materials are incompatible with the basic qualitative housing standard need of the population, therefore housing policy should make it a priority to promote in due time the replacement of all the housing units built with those materials.

As a key component to a correct assessment of the unmet housing needs stemming from these considerations, let us consider the construction material of the wall of the housing units. The roof and the floor can be replaced with modern construction material without resorting to replacement of the housing unit. In the case of the wall, the use of modern materials requires the replacement of the existing housing unit.

4.2.2.Criteria to Assess Future Need

As already mentioned, future housing needs depend on the population dynamics which result from natural and social movements. The natural movement is based on the difference between birth and death rates as factors of population, and on the difference between the household formation and dissolution in terms of households. The social movement refers to migration, therefore it is based on the forecast of population transfers. Both of these forecasts are important because it is not enough to assess future housing needs on a large scale; the housing needs must be localized. Nobody is expecting an equal increase in population and households in every region or town/city of the country, and consequently a suitable housing policy should know in advance the towns/cities where the need is increasing at a faster rate.

The 1994 Census Report includes accurate population estimation taking into duly account natural and social movements. Thus we have population estimates at national and regional level. We made the same estimation – but limited to the years 2000, 2005 and 2010 - with regards to the 13 towns of the country. Moreover, we wanted to assess the amounts of households corresponding to that amount of population [U.N. 1967, p.15]. To do that we applied the headship rate method projecting the trend recorded between 1984 and 1994 [Kono 1987, Linke 1988 Istat 1990]. We are fully aware that we have only two points to build a straight line. Therefore, the extrapolation of the headship rate we made should be taken cautiously. Having to base our calculations on comparable data, we are not able to present data covering the national and regional level.

Our data assesses the number of households in the years 2000, 2005 and 2010, having applied to the population figures of the 13 towns the estimated headship rates by age group.

4.3. Overall Urban Housing Demand

4.3.1 Cohabitation Estimate

Country Level

Applying the illustrated methodology we can now proceed first to estimate the needs based on the comparison between housing units and households, as registered in the 1994 Population and Housing Census (Table 4.1). In urban Ethiopia according to the result of the census , in 1994 there were 1,482,589 housing units and 1,771,911 households, which shows a surplus of 289,319 households, equal to 16.3 percent. This figure reveals the dimensions of cohabitation: currently no surveys or estimates exist to evaluate the quantity of forced cohabitation, as distinct from voluntary cohabitation, and they would be useful because only the former deals with unsatisfied housing needs. However, we think we are not far from the truth in maintaining that most cohabitation is forced due to objective lack of housing units and/or lack of economic means to have access to the housing market. Almost all households in cohabitation are housing units made up of two families.

Regional Level

At regional level, the region with the lowest proportion of cohabitation is obseved in Addis Ababa, with 11.2percent of its households, and the highest, as quota of the existing housing stock reveals is Somali, with 29.4 percent (Table 4.1). In order to eliminate cohabitation, the region that needs the largest number of housing units to be built is Oromiya. Even though it shows a

proportion of cohabitation (16.6 percent) similar to the country data, it needs nearly 81,000 housing units – almost 30percent of the total need at country level. As can be observed, Dire Dawa (28 percent), Affar (24.4percent), and Benishangul-Gumuz (22.5 percent) Regions showed a higher proportion of cohabitation than the national average (16.3percent).

Towns Level

The indicators of the major towns show better living conditions and a lower ratio of cohabitation than in urban Ethiopia. Evidently cohabitation is more widespread in small centers classified as urban. Out of 10 towns taken into consideration (we have left out Harar, Gambella and Jijiga, towns because the data for these towns does not seem reliable), Jimma (24.2 percent), Dire Dawa (28.7 percent), Dessie (31.4 percent) and Nazareth (17.9 percent) have proportions higher than the national average. The other six regions revealed proportions lower than the country average. From a quantitative point of view, the biggest effort is required in Addis Ababa, with almost 47,290 housing units needed to satisfy the need for privacy (see table 4.1).

Table 4.1 Distribution of Cohabiting Households by Housing Units Needed, Regions and Towns, Ethiopia: 1994

REGION/TOWN	No. of housing units	Number of Households	Housing need	
			Number	percent
	1	2	(3)=(2)-(1)	(4)=(3):(2)x100
REGION				
TIGRAY	115,421	133,526	18,105	13.6
AFFAR	20,161	16,670	6,509	24.4
AMHARA	285,203	338,591	53,388	15.8
OROMIYA	406,169	486,886	80,717	16.6
SOMALI	70,087	99,261	29,174	29.4
BENISHANGUL-GUMZ	8,499	10,966	2,467	22.5
SNNP	142,212	169,626	27,414	16.2
ADDIS ABABA	374,743	422,033	47,290	11.2
DIRE DAWA	36,382	50,518	14,136	28.0
TOWN				
ADDIS ABABA	374,743	422	47,290	11.2
AWASSA	13,851	16,063	2,212	13.8
BAHIR DAR	19,808	21,654	1,846	8.5
DEBREZEIT	15,112	17,302	2,190	12.7
DESSIE	17,426	25,408	7,982	31.4
DIRE DAWA	34,680	48,614	13,934	28.7
GONDAR	21,694	24,586	2,892	11.8
JIMMA	17,078	22,535	5,457	24.2
MEKELLE	21,609	21,311	3,702	14.6
NAZARETH	25,011	30,465	5,454	17.9
COUNTRY LEVEL	1,482.59	1,771.91	289,319	16.3

4.3.2 Overcrowding Estimate

Another measure of unmet needs arises from the evaluation of overcrowding. Traditionally, while cohabitation is the result of the comparison between housing units (supply) and households (demand), overcrowding derives from the comparison between rooms (supply) and the population (demand). These two indicators, as already noted, are not to be reduced to only one and therefore, are to be considered as sources, distinct and separate, of useful information on the living conditions and appropriate tools on which to base the need estimates.

Country Level

In order to evaluate overcrowding we need to establish the threshold of overcrowding. As stated in sub-section 3.6, we have taken as the basis of our analysis, two different thresholds. According to the first (variant 1) we have considered all the housing units with at least three inhabitants per room as overcrowded. According to the other variant (variant 2), we have considered all housing units with at least two inhabitants per room as overcrowded. At country level, variant 1 provides over 630,000 overcrowded housing units, equal to 42.5 percent of all urban Ethiopia housing units. If we apply variant 2, over 941,000 overcrowded housing units result, which corresponds to 63.5percent of all in urban Ethiopia (see Tables 3.30 and 3.31).

Regional Level

Data on the number of rooms and households is presented in Tables 4.2 and 4.3. As we can see from these tables, in 1994 the housing stock at urban Ethiopia level comprised 3,078,064 rooms, with 7,018,753 people living in them, which means an average of 2.3 people per room. The region with the highest overcrowding is Somali – as we have already found relative to cohabitation – with an average of 4.5 inhabitants per room. Addis Ababa and Oromiya are regions with the lowest number of inhabitants, 2.1 persons per room.

Towns Level

Among the towns Debrezeit has the lowest proportion of overcrowding (1.9). Five towns: Dire Dawa (3), Mekelle (2.9percent), Jijiga (2.8percent), Gondar (2.7 percent) and Dessie (2.4 percent) have higher proportions than the national average.. On the other hand, Addis Ababa (2.1 percent), Nazareth, Jimma (2.1 percent) and Awassa (2.2 percent), have proportions of overcrowding below the national urban average (Table 4.2).

Table. 4.2 Distribution of Cohabiting Urban Housing units and Crowding by Region Selected Towns
Ethiopia : 1994

REGION/TOWN	Households	Housing Units	Cohabitation		Household members	Rooms	Crowding
			Number	per cent			
	1	2	(3)=(2)-(1)	(4)=(3):(2)x100	(5)	(6)	(7)=(5):(6)
REGION							
TIGRAY	133,526	115,421	18,105	13.60	447,838	165,769	2.7
AFFAR	26,670	20,161	6,509	24.40	80,074	36,377	2.2
AMHARA	338,591	285,203	53,388	15.80	1,206,967	540,123	2.2
OROMIYA	486,886	406,169	80,717	16.60	1,855,167	864,710	2.1
SOMALI	99,261	70,087	29,174	29.40	438,801	96,806	4.5
BENISHANGUL-GUMUZ	10,966	8,499	2,467	22.50	36,033	16,392	2.2
SNNP	169,626	142,212	27,414	16.20	663,967	293,551	2.3
GAMBELLA	9,099	6,268	2,831	31.10	24,830	9,010	2.8
HARARI	24,743	17,445	7,298	29.50	72,657	31,867	2.3
ADDIS ABABA	422,033	374,743	47,290	11.20	2,031,058	969,477	2.1
DIRE DAWA	50,518	36,382	14,136	28.00	161,361	53,991	3.0
Town							
ADDIS ABABA	422,033	374,743	47,290	11.20	2,031,058	969,477	2.1
AWASSA	16,063	13,851	2,212	13.80	63,572	29,400	2.2
BAHIR DAR	21,654	19,808	1,846	8.50	90,460	38,897	2.3
DEBREZEIT	17,302	15,112	2,190	12.70	68,279	35,670	1.9
DESSIE	25,408	17,426	7,982	31.40	94,616	38,725	2.4
DIRE DAWA	48,614	34,680	13,934	28.70	153,548	51,645	3.0
GONDAR	24,586	21,694	2,892	11.80	104,672	39,006	2.7
JIJIGA	5,654	4,112	1,542	27.30	16,148	5,851	2.8
JIMMA	22,535	17,078	5,457	24.20	80,836	39,205	2.1
MEKELE	25,311	21,609	3,702	14.60	92,411	32,051	2.9
NAZARETH	30,465	25,011	5,454	17.90	120,259	57,062	2.1
COUNTRY LEVEL	1,771,911	1,482,592	289,319	16.30	7,018,753	3,078,064	2.3

Table 4.3 Distribution of Urban Housing Units by Number of Persons per Room, Region and Selected Towns, Ethiopia: 1994

Region/Town	Presons per Room			
	Three and more		Two and more	
	No. of housing units	per cent	No. of housing units	per cent
REGION				
TIGRAY	60,139	52.10	84,233	72.98
AFFAR	7,407	36.74	12,272	60.87
AMHARA	114,028	39.98	178,850	62.71
OROMIYA	149,847	36.89	241,701	59.51
SOMALI	55,236	78.81	62,620	89.35
BENISHANGUL-GUMUZ	2,975	35.00	4,930	59.01
SNNP	56,949	40.05	86,869	61.08
GAMBELLA	2,991	47.72	4,128	65.86
HARARI	7,431	42.60	10,954	62.79
ADDIS ABABA	153,182	40.88	227,601	60.74
DIRE DAWA	20,523	56.41	27,230	74.84
TOWN				
ADDIS ABABA	153,182	40.88	227,601	60.74
AWASSA	5,121	36.97	8,089	58.40
BAHIR DAR	9,053	45.70	13,293	67.11
DEBREZEIT	4,674	32.25	8,096	53.57
DESSIE	7,798	44.75	11,420	65.53
DIRE DAWA	19,517	56.28	25,907	74.70
GONDAR	11,486	52.95	15,806	72.86
JIJIGA	2,002	48.69	2,696	65.56
JIMMA	6,288	36.82	10,108	59.19
MEKELE	12,171	56.32	16,354	75.68
NAZERETH	9,052	36.19	14,616	58.44
Urban Ethiopia	630,709	42.54	941,392	63.50

4.3.3. Assessment of Qualitative Under-standard Housing

In order to determine the number of housing units that require additional supply of a facility and those that need substitution of housing stock we considered two parameters from chapter three. One is the absence of any type of toilet, and the other is the construction material used for the walls of the housing units.

Table 4.4 presents evaluations drawn from the consideration that the necessity of having a toilet is a priority. Therefore all the housing units without a toilet, given equal overcrowding, need to add a room to meet this requirement. Altogether, this means 627,592 housing units need additional rooms, which correspond to 42.3 percent of the total housing units. Regionally, percentages of the absence of toilets are very variable, going from 70 percent in Tigray, to 23.4 percent in Dire Dawa. Quantitatively, Amhara region needs the largest number of additional rooms for toilets (175,400).

Table 4.4 Distribution of Urban Housing Units that Need Additional Room for Toilet by Region and Selected Towns, Ethiopia: 1994

REGION / TOWN	1994	
	No of housing units	percent
REGION		
TIGRAY	80,779	70.0
AFFAR	11,759	58.3
AMHARA	175,400	61.5
OROMIYA	162,241	39.9
SOMALI	36,192	51.6
BENISHANGUL-GUMUZ	2,982	35.1
SNNP	51,001	35.9
GAMBELLA	4,198	67.0
HARARI	5,006	28.7
ADDIS ABABA	89,508	23.9
DIRE DAWA	8,531	23.4
TOWN		
ADDIS ABABA	89,508	23.9
AWASSA	1,330	9.6
BAHIR DAR	9,986	50.4
DEBREZEIT	3,486	23.1
DESSIE	6,621	38.0
DIRE DAWA	7,487	21.6
GAMBELLA	3,051	26.7
GONDAR	10,886	50.2
HARAR	5,006	28.7
JIJIGA	2,778	67.6
JIMMA	4,670	27.3
MEKELE	10,223	47.3
NAZARETH	5,651	22.6
COUNTRY LEVEL	627,592	42.3

The decision to consider all housing units with walls made of traditional materials (that is, all except concrete, bricks and hollow blocks) as under-standard, and therefore to be substituted, dramatically increases the previous unmet need. In fact, almost 90 percent of all housing units, which correspond to over 1.3 million housing units (Table. 4.5), have been constructed with traditional materials (wood and mud, wood and thatch, reed and bamboo, stone and mud, stone and cement).

Table 4.5 Distribution of Urban Housing Units Constructed with Traditional Wall Material by Region and Selected Towns, Ethiopia: 1994

REGION/TOWN	1994	
	No of housing units	percent
REGION		
TIGRAY	103,370	89.6
AFFAR	16,726	83.0
AMHARA	269,810	94.6
OROMIYA	383,764	94.5
SOMALI	57,591	82.2
BENISHANGUL-GUMUZ	7,774	91.5
SNNP	135,778	95.5
GAMBELLA	5,159	82.3
HARARI	15,031	86.2
ADDIS ABABA	311,682	83.2
DIRE DAWA	17,548	48.2
TOWN		
ADDIS ABABA	311,682	83.2
AWASSA	12,933	93.4
BAHIR DAR	18,043	91.1
DEBREZEIT	13,706	90.9
DESSIE	15,901	91.5
DIRE DAWA	16,317	47.4
GONDAR	17,924	82.8
JIJIGA	3,285	79.7
JIMMA	15,274	89.5
MEKELE	18,689	86.7
NAZERETH	20,562	82.5
COUNTRY LEVEL	1,324.23	89.5

4.3.4 Future Need Estimate

As already noted, future need is determined by the population increase with regard to rooms, and by the increase in families with regards to housing units.

The first row of Table 4.6 shows the Population Census count of 1994 and projected population at national level for the years 200,2005.and in 2010. Similarly, the headship rate reported by the census and as effect of the projection based on the extrapolation of the tendencies

seen in the data from 1984 and 1994 are also shown. The third row shows number of households in 1994, and projected households, which are calculated by applying the headship rate to the population forecast up to 2010. In the fourth row the increase of households is shown and in the fifth, the annual average increase of households – a simple average and therefore, not precise, but which is nevertheless a perfectly acceptable indicator of future needs.

Table 4.6 Distribution of Urban Population , Headship Rate and Households in 1994 and Projected Figures for the Periods 2000-2010,Ethiopia: 1994

	1994	2000	2005	2010
Population	7,323,207	9,472,971	11,674,521	14,351,356
Headship rate	0.247	0.228	0.217	0.207
Households	1,771,911	2,159,137	2,533,371	2,970,731
Increase	-	387,926	373,534	479,360
Yearly average	-	64,654	74,705	87,472

Table 4.7 shows the increase of families in some of the most important towns, applying the headship rate method. It is not possible to provide analogous data for the regions because between 1984 and 1994 the administration changed, and with it the parameters which enable us to carry out this type of projection, which is based on the extrapolation of homogeneous data. However, the data does not seem reliable enough.

Table 4.7 Future Housing Need Assessment of Selected Towns According to Household Projections for the Years 2005 and 2010 :Ethiopia

TOWN	1994	2005			2010		
	Number of Households	Number of Households	Increase		Number Households	Increase	
			No.	%		No.	%
ADDIS ABABA	422,033	545,561	123,528	29.30	578,547	32,986	6.05
AWASSA	16,063	32,472	16,409	102.20	35,136	2,664	8.20
BAHIR DAR	21,654	34,861	13,207	61.00	37,988	3,127	8.97
DEBREZEIT	17,302	24,445	7,143	41.30	26,148	1,702	6.97
DESSIE	25,408	30,548	5,140	20.20	32,246	1,698	5.56
DIRE DAWA	48,614	55,607	6,993	14.40	58,577	2,970	5.34
GONDAR	24,586	33,811	9,225	37.50	35,769	1,958	5.79
JIMMA	22,535	28,473	5,938	26.40	30,055	1,582	5.56
MEKELE	25,311	33,811	8,500	33.60	36,389	2,578	7.62
NAZARETH	30,465	39,335	8,870	19.10	52,439	13,104	33..31
COUNTRY LEVEL	1,771,911	2,533,371	761,460	43.00	2,970,731	437,360	17.26

Table 4.8 shows the population increase in urban Ethiopia, in single regions and in the major cities, according to medium variant. urban Ethiopia registered a population increase equal to almost 2.5 million between 1994 and 2000 (3.5 percent) – with a minimum of 22.8 percent in the city-region Addis Ababa, and a maximum in Gambella (+45 percent, but only just over 11,000 people in absolute terms). The biggest increase is forecast for Awassa (+48 percent equal to 30,000 people). But also Jimma, Debrezeit, Nazareth, Gondar, Dire Dawa and Bahir Dar have a higher than 40 percent increase rate.

Between 2000 and 2005 the increase, at Urban Ethiopia level, goes down to just over 2.2 million, equal to +23.2 percent (but this is relative to 5 years, not 6). Once again the smallest increase is forecast for the Addis Ababa region (+15.7 percent), which corresponds to 392,000 people. The biggest rise is forecast for SNNP (+27.2 percent), equal to 261,000 people. Regarding cities, all those that have been taken into consideration, except for Addis Ababa, registered a slightly higher population increase than Urban Ethiopia. Once again Awassa has the prerogative of the highest increase (+27.1 percent).

Between 2005 and 2010 the population increase in Urban Ethiopia will decrease very slightly relative to the previous 5 year period (+22.9 percent against 22.2 percent). In absolute terms this means almost 2.7 million people. The region with the highest growth rate will be Oromiya (+26.1 percent, equal to 876,000 people). Addis Ababa leads the cities with the least growth (15.2 percent), equal to almost 440,000 people. All the others, except for Dire Dawa (+22.6 percent), will grow slightly more than the average. Debrezeit, Nazareth and Jimma, with 26 percent, are forecast as the cities with the fastest growth rate.

Table 4.9 presents a summary including data relative to:

- -Estimate of housing units cohabited in 1994 (col.1)
- -Estimate of sub-standard housing units due to having been built with traditional materials
- -Projection of households at Urban Ethiopia level and of major towns (col. 3-5),
- -Estimates of overcrowded housing units in 1994 according to two different indices of overcrowding
- -Number of housing units without toilet facility as indicator of past needs in terms of rooms
- -Population projection from 2000 to 2010

Table 4.8 Future Urban Housing Need Assessment by Region and Selected Towns According to Population Projection for Years 2000-2010: Ethiopia

REGION/TOWN	1994	2000			2005			2010		
	Population	Population	Increase		Population	Increase		Population	Increase	
			No	per cent		No	per cent		No	per cent
Urban Ethiopia	7,323,207	9,473,000	2,454,247	35	11,675,000	2,202,000	23.2	14,351,000	2,676,000	22.9
REGION										
TIGRAY	447,838	622,000	174,162	38.9	780	158,000	25.4	975	195	25.0
AFFAR	80,074	99,000	18,926	23.6	122	23,000	23.2	148	26	21.3
AMHARA	1,206,967	1,680,000	473,033	39.2	2,097,000	417,000	24.8	2,635,000	538	25.7
OROMIYA	1,855,167	2,648,000	792,833	42.7	3,361,000	713,000	26.9	4,237,000	876	26.1
SOMALI	438,801	560,000	121,199	27.6	703	143,000	25.5	877	174	24.8
BENISHANGUL-GUMUZ	36,033	47,000	10,967	30.4	59	12,000	25.5	73	14	23.7
SNNP	663,967	958,000	294,033	44.3	1,219,000	261,000	27.2	1,534,000	315	25.8
GAMBELLA	24,830	36,000	11,170	45.0	45	9,000	25.0	55	10	22.2
HARARI	72,657	97,000	24,343	33.5	118	21,000	21.6	141	23	19.5
ADDIS ABABA	2,031,058	2,495,000	463,942	22.8	2,887,000	392,000	15.7	3,328,000	441	15.3
DIRE DAWA	161,361	229,000	67,639	41.9	284	55,000	24.0	348	64	22.5
TOWN										
ADDIS ABABA	2,031,058	2,495,837	464,779	22.9	2,887,615	391,778	15.7	3,327,498	439,883	15.2
AWASSA	63,572	94,084	30,512	48.0	119,588	25,504	27.1	150,545	30,957	25.9
BAHIR DAR	90,460	127,653	37,193	41.1	159,354	31,701	24.8	200,215	40,861	25.6
DEBREZEIT	68,279	98,656	30,377	44.5	125,195	26,539	26.9	157,765	32,57	26.0
DESSIE	94,616	129,318	34,702	36.7	161,433	32,115	24.8	202,827	41,394	25.6
DIRE DAWA	153,548	217,555	64,007	41.7	270,113	52,558	24.2	331,062	60,949	22.6
GONDAR	104,672	149,043	44,371	42.4	186,055	37,012	24.8	233,763	47,708	25.6
JIMMA	80,936	119,491	38,555	47.6	151,635	32,144	26.9	191,082	39,447	26.0
MEKELE	92,411	128,589	36,178	39.1	161,484	32,895	25.6	201,721	40,237	24.9
NAZARETH	120,259	171,897	51,638	42.9	218,138	46,241	26.9	274,887	56,749	26.0

Table 4.9 Overall Housing Need Assessment for the Years 1994-2010

Region/Town	Housing Units					Rooms in 1994			Population		
	1994		Future need			Over crowded		Substandard			
	Cohabiting Households	Substandard Housing unit	2000	2005	2010	more than 3	more than 2		2000	2005	2010
Urban Ethiopia	289,319	1,324,234	2,159,137	2,533,371	2,970,731	630,709	941,392	627,592	9,473,000	11,675.00	14,351,000
Region											
TIGRAY	18,105	103,370	-	-	-	60,139	84,233	80,779	622,000	780,000	975,000
AFFAR	6,509	16,726	-	-	-	7,407	12,272	11,759	99,000	122,000	148,000
AMHARA	53,388	269,810	-	-	-	114,028	178,850	175,400	1,680.00	2,097.00	2,635,000
OROMIYA	80,717	383,764	-	-	-	149,847	241,701	162,241	2,648.00	3,361.00	4,237,000
SOMALI	29,174	57,591	-	-	-	55,236	62,620	36,192	560,000	703,000	877,000
BENISHANGUL-GUMUZ	2,467	7,774	-	-	-	2,975	4,930	2,982	47,000	59,000	73,000
SNNP	27,414	135,778	-	-	-	56,949	86,869	51,001	958,000	1,219.00	1,534.00
GAMBELLA	2,831	5,159	-	-	-	2,991	4,128	4,198	36,000	45,000	55,000
HARARI	7,298	15,031	-	-	-	7,431	10,954	5,006	97,000	118,000	141,000
ADDIS ABABA	47,290	311,682	-	-	-	153,182	227,601	89,508	2,495.00	2,887.00	3,328,000
DIRE DAWA	14,136	17,548	-	-	-	20,523	27,230	8,531	229,000	284,000	348,000
Town											
ADDIS ABABA	47,290	311,682	442,503	545,561	578,547	153,182	227,601	89,508	2,495,837	2,887,615	3,327,498
AWASSA	2,212	12,933	23,384	32,472	35,136	5,121	8,089	1,330	94,084	119,588	150,545
BAHIR DAR	1,846	18,043	25,325	34,861	37,988	9,053	13,293	9,986	127,653	159,354	200,721
DEBREZEIT	2,190	13,706	17,887	24,445	26,148	4,874	8,096	3,486	98,656	125,195	157,765
DESSIE	7,982	15,901	23,085	30,548	32,246	7,798	11,420	6,621	129,318	161,433	202,827
DIRE DAWA	13,934	16,317	42,350	55,607	58,577	19,517	25,907	7,487	217,555	270,113	331,062
GONDAR	2,892	17,924	25,487	33,811	35,769	11,486	15,806	10,886	149,043	186,055	233,763
MEKELE	3,702	18,689	24,805	33,811	36,389	12,171	16,354	10,223	128,589	161,484	201,721
NAZARETH	5,454	20,562	29,168	39,335	52,439	9,052	14,616	5,651	171,897	218,133	274,887
JIMMA	5,457	15,274	21,166	28,473	30,055	6,288	10,108	4,670	119,491	151,635	191,082

'-' inapplicable because of regional boundry changes between the two censuses.

CHAPTER 5
THE SUPPLY SIDE:
ESTIMATES OF THE BUILDING CAPACITY IN URBAN ETHIOPIA

The data provided relative to the quantitative and the qualitative aspects of the housing stock depict very modest overall living conditions. The considerable increase in population and households in the future will create new housing demand. It is therefore necessary that housing policy take adequate measures regarding supply and demand.

Regarding demand, two types of measures can be taken:

a) A strong increase in public housing to provide cheap housing or low cost housing for the more needy sectors of the population.

b) A policy of substantially subsidized loans to buy or rent houses.

Regarding the supply side, a primary objective must be a strong promotion of the development of the construction industry using the traditional incentives of fiscal and credit policies. Unfortunately, reliable and comprehensive appraisals of the construction industry's capacity do not exist. Up to now, no data has been collected to provide information on this sector in terms of dwellings and rooms, labour force employed, and its contribution to the national income.

We can draw useful information from the census about the age of the existing residential stock. From table 4.10 we see that overall in Urban Ethiopia, in the period 1979-84, 36.1 percent more dwellings were built than during the previous five years period. During 1985-89, it rose to 49.9 percent, and it kept up a high growth rate (+26 percent) throughout 1990-94. This data should be considered with caution. As a matter of fact, having based the calculation on the age classification of the housing units in the 1994 census, they do not include all the demolished dwellings which, given the prevalent use of poor construction materials which do not last long, are probably quite substantial.

Table 4.10. Estimates of Building Output In Urban Ethiopia From 1975-1994

Years	Total	Increase		Yearly Average	Housing units with concrete walls	Increase		Yearly
		Number	Percent	Number	Number	Number	Percent	Number
1975-79	118,367	-	-	23,673	7,594	-	-	1,519
1980-84	161,092	42,725	36.1	32,218	12,196	4,602	60.6	2,439
1985-89	241,412	80,320	49.9	48,282	18,415	6,219	51.0	3,683
1990-94	304,412	63,000	26	60,582	17,915	-500	-2.7	3,583
1975-94	825,130	-	-	41,256	-	-	-	-

'-" Not applicable

Despite the fact that we have oriented our entire analysis towards encouraging a housing policy of higher quantitative and qualitative standards, we will now focus our attention on dwellings whose walls have been built with modern materials. As has already been pointed out, the total percentage of housing units built with modern materials amount to only 6.6 percent of the total. This shows a realiable indication of the overall poverty of the housing stock and, consequently, of the enormity of the challenge to be confronted in order to reverse the situation.

The rate of increase of the housing units whose walls have been built with modern materials during the period 1980-84 and 1985-89, are quite high (60.6 percent and 51percent respectively). In this case the data, even though they do not include demolitions, are a valid indicator of the building capacity/housing output, because they have been erected with much longer lasting materials. Nevertheless, during the last 5 year period (1990-94), there is an unexpected drop (-2.7 percent) in the level of construction, compared to the previous five years period.

However, if we compare the need of new houses on the basis of the net increase in the number of households, a very difficult situation arises. It is estimated that in the period 1994-2000 households increased by 387,926 units (equal to a simple annual average of 64,654 units). During 2000-2005 they should increase by 373,534 units (equal to 74,705 per year), and in 2005-2010 they should rise by another 373,534 units (equal to 87,472 per year).

If, as is shown in Table 4.1, the total average annual supply of the period 1990-94 has been of 304,261 housing units (equal to an annual average of 60,582), not even a leap of 90 percent of new housing supply could stop the existing housing standards from getting worse. Improving current living conditions requires, in a number of cases, restructuring houses and adjusting essential services, where they are lacking. In most cases it is necessary to substitute the existing dwellings with houses built with adequate materials and equipped with all the services which qualify a minimum urban standard of living. According to the data previously provided, over 90

percent of urban Ethiopia's housing stock should be substituted. We realize that this cannot be done with in a very short period of time, or even in the next decade. But in order to be able to face the challenge of guaranteeing all citizens a minimum but dignified standard of housing one thing is certain. That is, it is more urgent to establish a housing policy within a reasonable amount of time, with technical and financial tools, and projects etc.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

One of the general objectives of this paper was to assess the stock of housing by type of building and the materials used in the construction of housing in urban areas of the country. The other main objective was to obtain reliable estimates of the level of accessibility of households to basic necessities such as drinking water, toilets, electric light…etc. In this regard the descriptions and analyses of the 1984 and 1994 census data have brought to light a general situation characterized by substantial qualitative and quantitative shortcomings. This is shown by the fact that a large part of the population of Urban Ethiopia lives in housing conditions which are below the internationally set or suggested standards. A summary and conclusion of these findings with some recommendations are therefore subject to this chapter.

The analysis showed that at country level, out of the total urban housing units, almost 90 percent (1.3 million housing units) have poor type walls i.e. walls made up of wood and mud. These types of houses have shorter life as the wood they are made up of (most of it eucalyptus) can easily be attacked by termites and the mud plaster at ease peel off because of wind and rain. Although the proportion is high in the urban areas of the larger regions like Amhara and Oromiya, in all the regions and the selected towns such houses make invariably the overwhelming majority.

According to the results of the censuses 83 percent of the housing units in the total urban areas of the country are roofed by corrugated iron while one in ten by thatch. Corrugated iron may not last long because of rust. More over, it is not resident friendly as its resistance to weather variation is poor: too hot during dry seasons and cold during winter.

The other indicator of poor housing is the material used in the construction the floor. At a country level 73 percent of the urban housing units have a floor made up of mud. This type of floor has a negative impact on the health of the residents. The primary victims are infants and children who are exposed to continuous risk of contracting respiratory infections, and dust related diseases. With this regard, except in Dire Dawa, Harari and Addis Ababa households in the other regions suffer a lot.

An improvement in the quality of housing, water, sanitation and drainage not only reduces the prevalence of disease but also makes life more pleasant. This is especially very crucial for women who are responsible for looking after the children and for managing the household. In the case of urban Ethiopia only 27 percent of the total housing units have access to piped water within the compound they live in while access to tap inside house is found to be only 3 percent.

One in five housing units in urban Ethiopia get water to drink from open well or rivers. Although we cannot guarantee that the 27 percent of housing units who have access to piped water are drinking safe water, it is so definite that the 18 percent are totally exposed to water borne diseases such as diarrhoea, typhoid ...etc. The finding of a sizeable proportion of the housing units in the selected towns to have their drinking water from rivers and open wells makes the situation in urban Ethiopia even worse.

It seems that in Ethiopia the central importance of life and health is a forgotten tragedy. This is because overall in urban Ethiopia 42.3 percent of the housing units did not have any type of toilet in 1994. In five regions and bigger towns like Bahir Dar, Gondar, Jijiga and Mekele well over fifty percent of housing units do not have any type of toilet. This implies that their residents are in a very serious problem of sanitation. Therefore, the federal government, regional governments, non-governmental organisations and the society as a whole should work hand in hand for the betterment of the country's sanitation.

With regard to source of light, only 65 percent of urban Ethiopia housing units have access to electricity powered lighting. More than one quarter of the housing units use kerosene lamps. Specifically, nearly 60 percent of urban housing units in Somali and Gambella region get light from lantern and kerosene lamp respectively. Similarly, over 40 percent of housing units in Tigray, Amhara and SNNP regions suffer from the smokes that come out of the kerosene lamp. Sizeable proportions (30 percent) of the housing units in Oromiya region share the same problem. This indicates that much work has to be done in these regions and their respective capitals to provide the society with electric light.

In conclusion, the living conditions with regard to essential services (toilet, tap water, electricity etc.,) shows a general situation of deficiency in the country. The problem is more severe in regions like Tigray, Amhara, SNNP, Affar, Somali and Gambella and their respective capitals where residents suffer from the inadequacy of these necessity services.

One of the indicators of the hardship of living conditions can be obtained by comparing the number of housing units with the number of households. The analysis showed that 16.3 percent of all resident households in Urban Ethiopia, equal to approximately 290,000 households, cohabit. The objective to pursue should be to reach a ratio of one housing unit per household without cohabitation or other forms of interference in the fundamental right to privacy.

The crowding matrix also provided the second indicator of the hardship of living conditions. It showed that, at Urban Ethiopia level, the overcrowding index - calculated by comparing households, divided according to size, and housing units, divided according to number of rooms - is equal to 2.3. There are over 630,000 (equivalent to 43 percent of the total) housing units with an overcrowding index equal to 3 or more inhabitants per room, while over 941,000 (equal to 63 percent of the total) have two or more inhabitants per room. The accepted international standard is of one person per room. Given the current conditions in the country it would be absolutely unrealistic to aim for this. What can reasonably be aimed at is to reduce overcrowding consisting of three or more inhabitants per room.

According to the population projections, Urban Ethiopia will register the formation of approximately 75,000 new households per year. This is also the total amount of the demand for new housing, irrespective of the need to meet past requirements quantitatively (cohabitation and overcrowding) and qualitatively (services). Estimates of the building activity reveals that between 1990 and 1994, an average of about 60,000 housing units per year were constructed. A figure not far from the 75,000 required.

Over 1,300,000 housing units have walls, which are constructed with traditional materials. In a prospect of modernization, which pursues housing policies, which aim to achieve international quality standards, the entire traditional housing stock would have to be substituted by constructions built with modern materials (bricks and cement).

The housing units without an internal toilet amount to almost 630,000 units. In order to achieve the objective of providing all housing units with this service (over-crowding index being equal) it would be necessary to construct the same number of rooms.

Actually, if the aim is to raise within reasonable terms the average level of living conditions in Ethiopia, the new housing units to be put on the market should be more than the number of newly formed households. This is in order to reduce the inadequate stock, with more houses built according to the canons of modern residential buildings. Unfortunately, the housing units built with concrete walls during the period 1990-1994 were an average of only 3,5000 per year, registering a decrease compared to the previous five-year period.

The effort to be made is enormous and will require huge investments. But if carried out well, this necessity can be transformed into an opportunity, which may accelerate the country's industrialization. One is the fact that it practically doesn't rely on imports for its raw materials and machinery. The other is it is labor-intensive, which means that it can create more jobs due to the possibility of setting up a vicious circle of investments-salaries-consumption-investments, which would in turn accelerate industrialization.

The crucial factor is the inflow of funds required by this process. Of course, the state has a fundamental role to play. Not only through direct intervention - which is essential and must be done on a large-scale but especially as a planner and regulator of the entire process. As a planner it must guide the intervention by realistically deciding whom, where, and when to build. As a regulator, it should on the one hand be responsible for coordinating procurement of building areas and the construction of primary and secondary infrastructures in them, and on the other hand for raising the necessary public and private capital through appropriate financial and credit maneuvers.

Part of this capital must come from the state budget (by means of direct intervention such as incentives and facilities for private investment). The other part by involving the workers in production projects, for whom the housing units are being built and making them pay a levy from their salaries. Other capital can be raised by attracting private capital - from large and medium sized real estate companies, as well as from the smaller savings of private citizens - to be invested in the residential housing market, through fiscal and credit incentives.

Finally we recommend that:

1. The country should set up an adequate system of statistical data on construction, in particular regarding house building. This is not without reason; statistics on housing demand and supply highly depends on a legal and administrative system where all new housing units are recorded. If most new housing units are not counted in official statistics then figures for a country's 'housing deficit' can be misleading. As we observed, in the Ethiopian context, most housing construction is unrecorded. Currently, the data regarding housing supply, with its related characteristics such as size, services, ownership, age, etc., are only gathered during the demographic census, which is not done frequently enough to provide thorough and timely information, on which to base planning projects.

2. The country also needs a profound housing policy in which the quality of housing construction and extent of provision for water supply, sanitation, drainage, electricity …etc. is properly treated. The policy should give due attention at least for the towns that serve as regional capitals and those towns with low level of proportion of access to housing services.

REFERENCES

1) Central Statistical Office (CSO, 1978): Addis Ababa Demographic Sample Survey and Housing Census, Addis Ababa.
2) Central Statistical Office (CSO, 1979): Report and the Analysis of Addis Ababa Demographic Survey, September 1978, Addis Ababa.
3) Central Statistical Office (CSO, 1987): Population and Housing Census of Ethiopia, 1984 Analytical Report on Results for Addis Ababa, Addis Ababa.
4) Central Statistical Authority (CSA, 1991), The 1984 Population and Housing Census of Ethiopia, Analytical Report at National Level, Addis Ababa.
5) Central Statistical Authority (CSA, 1998): Population and Housing Census 1994, Analytical Report on Regions Addis Ababa, Ethiopia.
6) Central Statistical Authority (CSA, 1995): Population and Housing Census of Ethiopia, 1994: Statistical Report, Addis Ababa, Ethiopia.
7) Dowell Myer (1990), Housing Demography: Linking Demographic Structure and Housing Markets (The University of Wisconsin press).
8) E.Erbach Gerald and K.Bachmann Supply Side Report (1996): Vol.: Analysis and Recommendations (Unpublished) Addis Ababa, Ethiopia.
9) Engleman Robert (ed.) WHY Population Matters: International Edition, pp.25-26, 1997
10) Feye Ensemu (1991) A study of Housing Conditions & Construction in Ethiopia with Special Reference to Addis Ababa city (Unpublished BA Thesis).
11) Follain James and Chim Lim Gill (1980): The Demand For Housing In Developing Countries: The case of Korea, pp. 315-336.
12) G. Venanzoni, M. Palombi, E. Forconi, (October 1993), “Modelli statici di previsione della distribuzione delle famiglie per classi di ampiezza”, estratto da: “Quaderni di statistica e Matematica applicata alle Scienze Economico-Sociali”, Volume XV, n.2, pp. 13-28.
13) Malpezzi Stephen, K.Mayo Stephen with J.Gross David (1985) Housing Demand in Developing Countries World Bank Stat working papers No. 733.
14) M. Abate and M.Picciotto (eds.), 1983, Indagine Sul Sistema Residenziale, Dedalo, Bari, 1983.

15) MWUD (1998) Final Report on Housing and Urban Development Situation Analysis in Ethiopia (5th cycle UNDP Program, HRDU Housing Component).

16) MWUD (1998) Urban Fields Development in Ethiopia and other Related Issues: The proceedings of the workshop on Urban Fields Development in Ethiopia and other Related Issues. Editors: Zewdie Serbarro and Zelleke Zewdie.

17) R.Logan Jhon, Bian Y and Bian F: Housing Inequality in Urban China in the 1990s.

18) United Nations: Principles and Recommendations for the 1970 Housing Censuses, (United Nations New York, 1969).

19) Lester R. Brown, Gary Gardner, and Brian Halweil: World watch Institute (1998) Beyond Malthus: Sixteen Dimensions of Population Problem.

20) U.N., Manuals on Methods of Estimating Population, Manual VII, Methods of projecting Households and Families, 1973.

21) UN, Economic Commission for Europe, Housing Requirements and Demand: Current Methods of Assessment and Problems of Estimation, Geneva, 1973.

22) UN MIC Commission For Europe (1975): Housing Requirements and Demand: Current Methods of Assessment and Problems of Estimation. Geneva, 1973.

23) United Nations Center for Human Settlements (HABITAT): An Urbanizing World; global Report on Human Settlements, 1996 (Oxford, UK: Oxford University Press, 1996).

24) World Bank: World Population Projections 1994-95 edition, Estimates and Projections with Related Demographic Statistics, 1994 (The Johns Hopkins University Press Baltimore and London).