

*Full Length Research Paper*

# Success of high-rise residential condominium housing development program in meeting its objectives and its liveability in Addis Ababa: A case of Bole sub city

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**This study aims to study to examine the success of the condominium housing development program. The result of the study revealed that the housing development office is constructing and distributing condominium-housing units with slower pace. Settlement in high-rise residential condominium housing saves land from encroachment and improper utilization. The open space reserved at sites of condominium is not proportional to the number of residents, and it is not used properly. Residents of condominium are satisfied with their spatial accessibility to some selected social and infrastructural service centers. At some sites, the roads leading to or passing along sites of condominium is not paved or asphalted. Of residents, those who moved to their condominium unit before the proper functioning of the installation suffered from the problem of water and electric power for four to eight months. The strength of social interaction among residents of condominium is weaker. When residents move to their condominium unit, they quit their membership of Ekub and Iddir associations, to which they were member and the livelihood activities that they were practicing at their former residence. Sound disturbance and theft crime are common social problems at sites of such settlement.**

**Key words:** Condominium, residents, housing.

## INTRODUCTION

Homelessness is a common problem at urban centers of developing and developed countries, and is made worse due to rural-urban migration (Ingwani et al., 2010). As more people migrate to cities, the pressure to find suitable accommodation such as housing has great impact on the society as a whole (Hulchanski, 2002).

Shortage of affordable housing is one of the serious

challenge that affect economic competitiveness, and quality of life. On the other hand, most municipal governments and housing providers are unable to meet housing need. Like other poor countries, the urban housing problem in Addis Ababa is mainly due to continuous population increase, low level of economic performance, in efficient land service delivery and in

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adequate urban management and regulatory framework.

The government of Ethiopia planned condominium housing<sup>1</sup> development program in the country since 2003. Accordingly, the first pilot test condominium housing units were constructed in Addis Ababa at Bole sub city between the year 2003 and 2005. In the subsequent years, regional and federal government of Ethiopia borrowed money from the commercial bank of Ethiopia, and constructed the subsidized condominium houses at the capital city and some selected towns.

The intervention of government is important for land and finance supply, capacity building, bulk purchase of industrial products of construction materials, organizing medium and small enterprises, standardizing housing, and introducing new construction technology that minimize cost and time (Tamiru, 2007). The government designed this form of housing development program to address multiple social, economic, and environmental problems of the urban society.

The first and foremost objective of the program is to address housing problem of low and middle-income group of the society by constructing subsidized affordable condominium houses (Tamiru, 2007). The second objective is to economize urban land through densification by utilizing open space, renewing decayed areas and vertical increment of units by constructing G+2 to G+4 condominium houses (Yenoinsheet, 2007).

However, authors such as Kunze (2005) described such settlement as "trading privacy for location". The third objective is to ease the provision of amenities and services placing them at common area where it will be accessible for all (Yared, 2008), and reduce cost of provision (MWUD, 2007). This is because settlement with in high-rise building results in high density and small land area coverage. In turn, high density results in high concentration of infrastructures (Narayanan, 2006). The fourth objective is to reduce urban unemployment and poverty levels, enhance and build capacity of the domestic construction industry, reduce slum through upgrading, reduce urban sprawl, and encourage household saving for home ownership and ensure tenure security (United Nation, 1999; MWUD, 2007).

Condominium house residents not only have next-door neighbors but also have upstairs and down stair neighbors. Such types of house owners have the individually and communally owned properties (CMHC, 2009).

Common properties include: the roof, stair cases, exterior walls and windows, building foundations, infrastructure such as piping, electrical cables, recreational areas, gardens, lobbies, hall ways, walk ways, space for:

animal slaughtering ,coffee grinding, spice drying areas, coffee ceremony, children's play ground , green field and car parking(United nation human settlement, 2007). Since residents have these much communal possessions, they have a lot of chance to meet each other while they use these properties jointly.

As result, this frequent contact of residents probably leads them either to conflict or to peaceful relationship. No study previously conducted examine if the program addressed the four objectives mentioned earlier, and the strength of social interaction among residents.

Therefore, the purpose of this study is to examine the success of the condominium housing development program with regard to the progress of constructing and distributing condominium-housing units as per the demand, effective land management and infrastructure and social services provision efficiency as well as social problems related to resettlement to condominium housing and living in. Specifically the study aims to:

1. To examine the progress of housing development office in constructing and distributing condominium houses
2. To assess the implication of condominium housing system on effectiveness of land management and utilization of open space available at sites of condominium
3. To evaluate the satisfaction of residents by their spatial accessibility to different infrastructure and social services
4. To examine the social problems related to resettlement to condominium housing and living in.

## MATERIALS AND METHODS

For this study, both primary and secondary data sources were used. Primary data were collected using one focus group discussion session, questionnaire, unstructured interview and observation. The focus group discussion was conducted among three females and four males. For the discussion, one person has been taken from each seven sampled sites (that is, Gerji1, Gerji2, Gerji3, Gerji5, Japan Embassy, International stadium, and Adwa Park). The participants of the focus group discussion are heads, house unit owners, and the one who lived longer at the site.

The questionnaires were used to gather information about the demographic characteristic of the household, satisfaction of households by the available open space, their access to social and infrastructural services, the social interaction, relationship of residents, and security related issues such as theft crime and sound disturbance. Questions were closed and open-ended. Interview was conducted with office head of housing development, owner's association committee member, and the guards of each condominium site. The researcher employed observation to gather data concerning the utilization of the available open space, the road qualities, waste management mechanism, and the sanitation issues at sites of condominium.

Secondary data were collected from housing development office, land development and administration office of Bole sub city and housing transfer of Bole sub city. The general profile about the number of condominium houses constructed and distributed to owners within the whole city during the three phase of construction and six round of distribution is taken from housing development

<sup>1</sup> Condominium is common interest based types of house. It consists of two parts: the individual unit and common properties (CMHC, 2009). The individually owned property is only the air space within the walls of their units. In this case, owners do not own any portion of the floors, ceiling, and walls enclosing their unit. Their physical ownership is limited to the air rights within those floors, ceilings, and walls.

**Tables 1.** Number of sample households from each sampled site.

S/N	Site name	Total	Sample
1	Gerji1	696	19
2	Gerji2	320	10
3	Gerji3	1188	36
4	Gerji5	862	25
5	Japan embassy	304	10
6	International stadium	344	10
7	Adwa park	344	10
<b>Total</b>		<b>4058</b>	<b>120</b>

Source: Housing transfer office of Bole sub city.

office of the city. Cadastre (*'Carta'*)<sup>2</sup> information concerning non-floored form of individual's residential house is taken from land development and administration office of Bole sub city.

Regarding sampling technique, multistage sampling is used. Since Addis Ababa is a city, where condominium houses are constructed as a pilot test in the country, it has longer experience than other regional cities and towns of the country. Due to this, Addis Ababa is selected as a research site. In particular from the ten sub cities of Addis Ababa, the researcher selected Bole sub city as a case study area because the first pilot test for this form of houses is conducted at this sub city particularly at Gerji. At the time of the survey, within Bole sub city, there are 12 sites of condominium.

However, residents did not occupy two sites at the time of the survey. Meaning during the survey for this study there were no people living at these two sites. These sites were Bole summit and Bole Ayat2. Hence, using simple random sampling technique out of ten sites seven of them sampled. The sampled sites are Gerji1, Gerji2, Gerji3, Gerji5, Japan Embassy, International stadium, and Adwa Park. These seven sites have 4058 households. From the total 4058 number of households, 3% that is 120 sample households were taken. Number of households varies from site to site. Hence, the number of sampled households from each site was proportional to the total number of households living at each site.

Accordingly; 19, 10, 36, 25, 10, 10 and 10 households were sampled using simple random sampling technique from Gerji1, Gerji2, Gerji3, Gerji5, Japan embassy, International stadium and Adwa Park respectively (Table 1). To analyze the collected data, the researcher used statistical techniques such as arithmetic mean, location quotient<sup>3</sup>, Gini coefficient<sup>4</sup>, one sample T-test, and percentage. The data were organized and described using tables and figures.

Arithmetic mean and density formula<sup>5</sup> was used to compare

<sup>2</sup> homeownership identification map

<sup>3</sup> Location quotient =  $\frac{x/\sum x}{y/\sum y}$  ..... (2)

Where  $x$  = number of people,  $y$  = open space size at each site in m<sup>2</sup>,  $\sum x$  = Total number of all sites people,  $\sum y$  = Total open space area of all sites.

<sup>4</sup>  $GC = \frac{1}{100} * \frac{1}{100} * ((x_1 * y_2 + x_2 * y_3 + x_3 * y_4 + x_4 * y_5 + x_5 * y_6 + x_6 * y_7 + x_7 * y_8 + x_8 * y_9 + x_9 * y_{10} + x_{10} * y_{11}) - (y_1 * x_2 + y_2 * x_3 + y_3 * x_4 + y_4 * x_5 + y_5 * x_6 + y_6 * x_7 + y_7 * x_8 + y_8 * x_9 + y_9 * x_{10} + y_{10} * x_{11})) * 100$  ..... (3)

Where; GC=Gini-coefficient

$x_1, x_2, x_3, \dots, x_{10}$  Total number of each site

$y_1, y_2, y_3, \dots, y_{10}$  Total open space of each site

<sup>5</sup>  $Densit = \frac{\text{Total number of people of the site}}{\text{Total area of the site used}}$  .....4

density at condominium sites and non-floored form of individual's house. Location quotient and Gini coefficient jointly was used to assess the proportionality between numbers of residents, and the size of open space available at sites of condominium. Location quotient shows the site's share of number of peoples (number of household) in comparison with general distribution. If the location quotient is less than one, number of residents of that site is below the general distribution in reference to the available open space. If location quotient equal to one, number of residents at the site is according to the general distribution. If the location quotient is, greater than one the number of people settled at the site is above the general distribution in reference to the available open space.

To do so, total number of residents of each site and size of open space at each site were important. Total number of residents was obtained by multiplying the number of households by average household size, which was estimated for Addis Ababa (that is, 4.1) by CSA in 2007. Open space size of each condominium site was obtained by subtracting the total area occupied by buildings from the total area of the site. Gini coefficient tells us the degree of in equality.

One sample T-test was used to measure the satisfaction of residents with the available open space, their spatial accessibility to different social and infrastructural services and the strength of social interaction. In the overall process of analysis, qualitative methods was also used to analyze data collected through observation, interview, and focus group discussion; and from secondary sources and open-ended questions.

## RESULT

### Progress of housing development office in constructing and distributing condominium houses

It is difficult to get the exact demand for condominium at city level. Therefore, the number of people registered for Condominium in 2004 in the city is considered as demand in this study. This information is not an updated one because the increased demand after 2004 is not known. The writer tried to get updated information from offices of housing development but the office did not record the demand after 2004. The office is on the process of responding to the demand of registered people since then. Hence, this study stressed to assess how much percentage of the demand of people registered in 2004 is solved over the last seven years (2004 to 2011). At city level, 453.287 people registered. Therefore, the total demand for condominium house in Addis Ababa is 453.287 units, and the supply varies over rounds of distribution (Table 2).

The number of people who registered for studio, one bedroom, two bedroom and three-bed room are 102287(23%), 201969 (44%), 118241 (26%) and 30790 (7%) respectively. Within the seven years, the housing development office constructed 80.287 housing units with three phases of construction, and distributed with six rounds of distributions. The total supply of studio, one bed room, two bed room and three bed room equal to 16801 (21%), 30367 (38%), 25304 (31%) and 8355 (10%) respectively.

According to the project plan of housing development office, it was to construct 50.000 units annually and fulfill

**Table 2.** Demand and Supply of condominium houses in typology.

Typology of houses	Number of registered people (demand)	Supplied over the last seven years
Studio	102.287	16801
One bed room	201969	30367
Two bed room	118241	25304
Three bed room	30790	8355
Total	453.287	80827

Source: Housing development office (2011).

453.287 demands within nine years (that is, 453, 287/50,000) but only 80.287 units were constructed and distributed within seven years. According to the plan, 80.287 units were supposed to be constructed within one or one and half year. Nevertheless, during the last seven years only 17.7% of the demand is met. If the construction and distribution continue with this pace another additional 32 years probably will be required to meet the rest 372.460 demand.

The high deficit rate is resulted from high demand and low supply of the houses. For example, one-bed room units have 171.602 deficits. This means that 171.602 of the demand for one bedroom did not get response during the last six round of distribution or three phase of construction (Figure 1).

Although the demand-supply deficit is high in the case of all typologies, the housing development office is constructing and distributing housing units based on the number of applicants for each typology. This means the supply for each typology is proportional to the respective demand. For example, as there is more demand for one bedroom than other typologies, more number of one bedrooms housing units were constructed and distributed through lottery.

The trend of construction and distribution of condominium housing units declined throughout the six round of distribution although it increased during the fourth round (Figure 2). As the researcher heard from the sub plan officer of housing development, the main obstacle of the office to construct houses according to the plan with an increasing rate are lack of finance and improper implementation of the plan.

Condominium housing development office made significant attempt to solve housing shortage problem but some rooms are still not occupied at some sites. At city level, there are 502 unoccupied units. Within Bole sub-city alone, there are 147 vacant units. At Gerji2, Gerji3, Gerji5, Japan embassy, international stadium, Adwa Park, and Bole ring road there are 26, 65,15,31,3,6, and 1 vacant unit respectively.

According to housing development office head, these units remain vacant mainly due to two reasons. The first one is that housing development office did not contract with owners because owners did not hear that they became winners of the lottery. Secondly, units made

vacant by government to resettle people who will be displaced due to urban redevelopment. As a result, units remain vacant for along without returning the cost government incurred for construction.

Consequently, the financial capacity of the government may weaken, and the program becomes unsustainable. As information is obtained from focus group discussants and sample respondents, condominium housing is also not addressing the need of the targeted groups (that is, the middle and low-income group). Most people who get the chance to own a housing unit by the drawn lottery and who cannot pay the down payment are selling it to the richer people. Consequently, in addition to missing the chance of being homeowner, the poor also miss the chance to participate in this program for the second time or other housing development program in the future in the city. On the other hand, rich people own more number of houses while the poor remain homeless. This implies that the poor are without house, which is the important asset at urban areas.

#### **Land management and open space utilization at the sites of condominium houses**

Researches on high-rise or multi-storied houses indicated different advantages of it. For example, it is noted that settlement in such form of housing is efficient in land management, reducing traffic congestion, postponing urban sprawl, improving viability and access to community services and infrastructure provision (Sakowicz, 2004; Yuen et al., 2006; Alex, 2007) as well as efficient use of motor vehicles and therefore reduction in fossil fuel combustion (Marcotullio, 2001).

It also paves and opportunity to transform a form of settlement from isolated location to physically, socially, and economically interconnected form (Adeel, 2006; Alex, 2007), and reduces cost of infrastructure development. Moreover, it enables to get extra space for playing ground, greenery and constructions of other facilities (Yenoinshtet, 2007); Alex, 2007).

In contrast to this, research work of other scholars noted that high-rise buildings have defects such as shadowing on other buildings, require high construction costs, small gross floor area ratio and wind effect on high

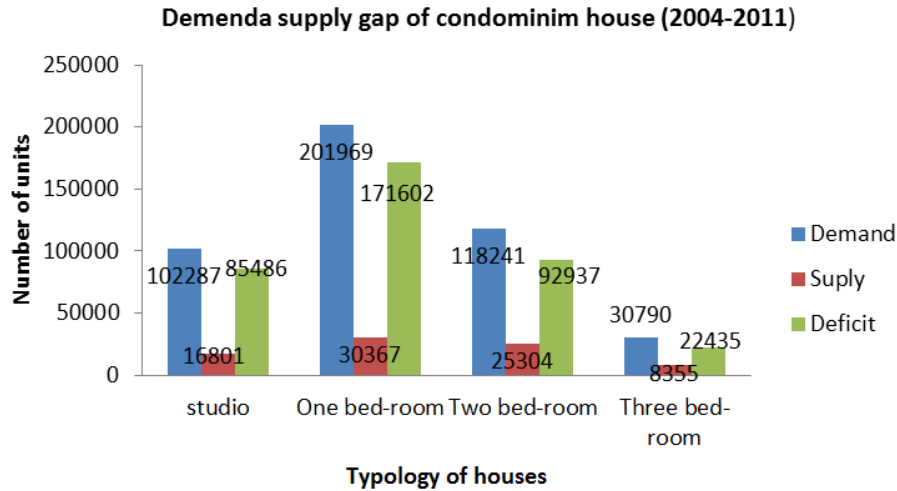


Figure 1. Demand -supply gap of condominium house in Addis Ababa.

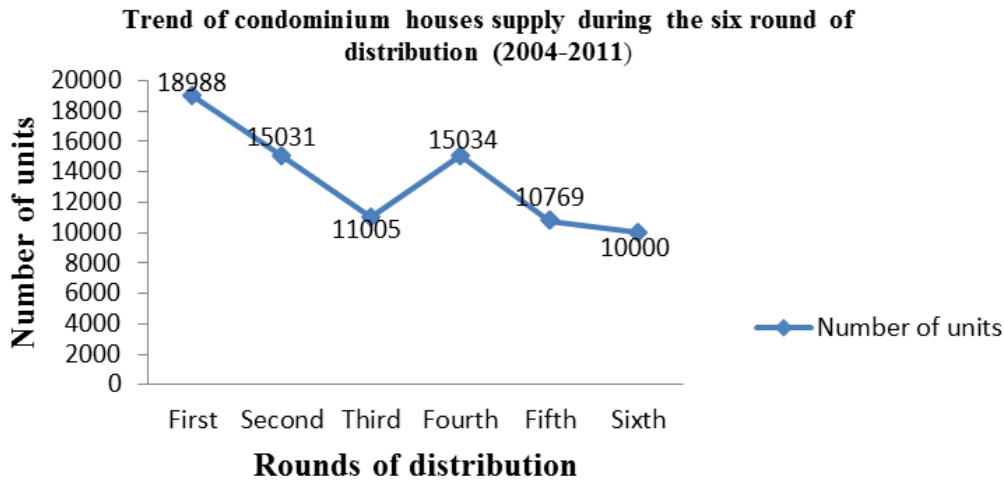


Figure 2. Trend of condominium house supply during the six round of distribution.

floor residents (Kunze, 2005; Narayanan, 2006), poor social interaction among neighbors (Narayanan, 2006) and shortage of open spaces (Alex, 2007).

Some other studies indicated that the satisfaction of condominium house residents relates with their feeling of crowdedness that directly associate with personal perception. For example, Annie et al. (1996) explained that the actual physical density is not a matter, but rather people’s perception or feeling of it. The feeling of crowdedness at high-rise residential apartment houses is due to physical causes (restricted space ,tall buildings, lack of parks and greenery etc), social cause (interpersonal relationship), and individual factors (age, sex or socio-cultural back ground).

Land within the city of Addis Ababa is highly priced thus a growing number of high-rise apartment are being built

in the city by both privates and government to bring effective land management for business and residence purposes (Yared, 2008). Open space at such residential home, which is necessary for children playing, and their socialization (Dublin city council, 2007), parking of the vehicles, aesthetical value, animal slaughtering, coffee grinding, and spice drying, coffee ceremony, children’s playing and green field (Ingwani et al., 2010) also requires emphasis. Studies indicated that most selected sites of condominium houses in Addis Ababa are very small in size and fragmented creating difficulties in management, and this resulted in lack of space for car parking, children playing, and some other functions (Yenoinshtet, 2007).

One of the purposes of condominium housing development program is to effectively manage and use

**Table 3.** Density (person/square meter) at 12 sites of condominium.

S/N	Site name	Total number of residential units at each site	Area of each site (m <sup>2</sup> )	Estimated Total number of people at each site (number of household * average household size (4.1))	(Density)Number of person per area of site ( m <sup>2</sup> )
1	Gerji 1	696	45.864	2853.6	0.062219
2	Gerji 2	320	21.950	1312	0.059772
3	Gerji3	1188	50.237	4583.8	0.091244
4	Gerji5	862	44.450.00	3534.2	0.07951
5	Japan embassy	304	94.68.33	1246.4	0.131639
6	Bole Mikael	244	6467	1000.4	0.154693
7	International stadium	344	12.533	1410.4	0.112535
8	Adwa park	344	9825.6	1410.4	0.143543
9	Bole ring road	111	4828	4555.1	0.094263
10	Bole Ayat1	2644	354530	10840.4	0.03057682
11	Bole Ayat2	1081	115392	4432.1	0.03840908
12	Bole summit	2915	2511300	11951.5	0.00475909
Total		11053	3186845	49130.3	1.003163

Source: Housing development design office and own calculation.

the expensive urban land, and to delay haphazard sprawl of cities and towns by settling in high-rise residential houses such as condominium. Although vertical form of residence considered having impact on urban sprawl, still no study was not conducted regarding its impact in saving land from encroachment and improper utilization as compared to non-zoning (single- use-zoning) form of houses for the purpose of residence.

Therefore, this study is designed to examine the nexus between effective use of urban land through high-rise residential condominium houses settlement and satisfaction of residents with the open space available at sites. Area of the twelve condominium sites of Bole sub city and area of 47 individual's single- use-zoned compound taken as a sample for density comparison.

The area of each condominium sites were taken from housing development office, but the total

number of residents at each site calculated by multiplying the number of households by average household size. The average household size used was estimated by CSA for Addis Ababa (that is, 4.1) in 2007. The average density of the twelve condominium sites is equal to  $0.083596920$  ( $\frac{1}{0.083596920}$ ) (Table 3). That is adding the density of all sites and dividing for the number of sites (12). This means that the land area share of one person at each condominium site is averagely  $0.083596920\text{m}^2$ .

The average density for 47 sampled households' individual compound is equal to  $0.017579914$  ( $\frac{1}{0.017579914}$ ). This means that the land area share of a person at each individual's house is averagely  $0.017579914\text{ m}^2$  (Table 4). As the aforementioned results showed, the average density of the two cases is different. The average

density at condominium sites is  $0.083596920$  while it is  $0.017579914$  at an individual households' case. This shows that more land is reserved at condominium sites, which would be used for activities such as sport fields, car parking, playing ground, placement of septic tanks and soon.

However, if we compare the area occupied by the building of condominium and the land occupied by an individual houses, then more lands were occupied at the individual's houses. This is because condominium house are constructed in story form-one unit over another. This implies that more open is space is reserved at condominium sites. However, the problems related to open space are not much related with the small size of the available open space, but rather improper utilization of it. As the researcher observed, only small part of the open space is

**Table 4.** Calculated density for each sampled household's Area of compound.

S/N	Carta number	Area (m2)	House hold size	Density
1	bole3/15/4/13	108	4.1	0.037963
2	bole01/346/9670/00	129	4.1	0.031783
3	bole01/346/9666/00	129	4.1	0.031783
4	19031/92	670	4.1	0.006119
5	26673/93	250	4.1	0.0164
6	33745/91	1000	4.1	0.0041
7	4724/94	175	4.1	0.023429
8	42680/94	345	4.1	0.011884
9	4069/93	160	4.1	0.025625
10	18579/94	328	4.1	0.0125
11	42678/90	333	4.1	0.012312
12	7595/94	175	4.1	0.023429
13	726/90	500	4.1	0.0082
14	7676/94	175	4.1	0.023429
15	33632/94	207	4.1	0.019807
16	42636/93	192	4.1	0.021354
17	42684/93	407	4.1	0.010074
18	249/92	500	4.1	0.0082
19	8190/94	175	4.1	0.023429
20	41164/92	686	4.1	0.005977
21	247/92	500	4.1	0.0082
22	8188/94	175	4.1	0.023429
23	37321/93	420	4.1	0.009762
24	bole01/51/05-220/5668/01	397	4.1	0.010327
25	8257/95	175	4.1	0.023429
26	bole01/346/9675/00	129	4.1	0.031783
27	42645/95	192	4.1	0.021354
28	bole01/346/9663/00	129	4.1	0.031783
29	237/92	520	4.1	0.007885
30	000809/91	210	4.1	0.019524
31	9642/93	441	4.1	0.009297
32	0315/94	417	4.1	0.009832
33	8204/94	175	4.1	0.023429
34	0288/91	250	4.1	0.0164
35	28569/93	250	4.1	0.0164
36	0951/90	218	4.1	0.018807
37	1455/92	150	4.1	0.027333
38	0720/94	500	4.1	0.0082
39	bole01/67/51-3008	270	4.1	0.015185
40	719/89	500	4.1	0.0082
41	42685/94	402	4.1	0.010199
42	2569/93	175	4.1	0.023429
43	42688/95	345	4.1	0.011884
44	550/92	150	4.1	0.027333
45	35782/92	500	4.1	0.0082
46	440/92	175	4.1	0.023429
47	4580/94	175	4.1	0.023429
Total		14584	192.7	0.826256

Source: Land development and administration office of Bole sub city and own calculation (2011).

**Table 5.** Number of residents and open space size proportion

Site name	Total number of people (x)	Open space (m <sup>2</sup> )	$x/\sum x$	$y/\sum y$	$x/\sum x/y/\sum y$
Ayat1	10840.4	305734	0.31476	0.584033	0.538946
Ayat2	4432.1	81567.5	0.12869	0.155815	0.825916
Gerji2	1312	13078	0.0381	0.024982	1.524881
Gerji1	3075	30338	0.08929	0.057954	1.540642
Gerji5	3714.6	32805	0.10786	0.062666	1.721137
International stadium	1549.8	11855	0.045	0.022646	1.98709
Gerji3	5133.2	33602	0.14905	0.064189	2.322023
Bole ring road	504.3	2610	0.01464	0.004986	2.936919
Japan embassy	1295.6	5032.3	0.03762	0.009613	3.913343
Adwa park	1533.4	4280.6	0.04452	0.008177	5.444955
Bole Mikael	1049.6	2585.5	0.03048	0.004939	6.170535

Source: Design Sub office of housing development office and own calculation.

properly utilized. The more part of it was covered by solid waste, occupied by satellite dish and grass and vegetation within which waste is deposited.

Open space at the sites of condominium is space not occupied by buildings. This space function for car parking, drying clothes, greenery, children playing, septic tank placement, entry and exit to and from units, recreation, crop drying, laying down tent (a portable shelter made of cloth)(dinkuan), which is used during occasion of sad and festivity.

Previous studies indicate that the available open space for such functions at condominium sites is insufficient. This study examined the proportionality between the number of residents (households) and the size of reserved open space at each site using location quotient and Gini coefficient jointly to understand if the problem relates with proportionality of space size and number of residents.

The location quotient result at BoleAyat1 and BoleAyat12 condominium sites is 0.53895 and 0.826 respectively, which are less than one (expected). When compared to the general distribution at these sites for larger area there are small numbers of residents (households). This means that at these sites there is condition of under population as compared to the general distribution. The rest, Gerji 2, Gerji1, Gerji5, International stadium, Gerji3, Bole ring road, Japan embassy, Adwa Park and Bole Mikael sites have location quotient greater than one, which is above the general distribution.

This means that as compared to the general distribution at these sites for larger number of residents (households) there is smaller size of open space. On the other hand, at these sites there is condition of over population as compared to the general distribution. Bole Mikael site has a location quotient of six (the greatest of all). Hence, Bole Mikael condominium site has smallest open space and followed by Adwa Park, Japan embassy, Bole ring road, Gerji3, International stadium, Gerji5, Gerji1, Gerji2, Bole Ayat-2, and Bole Ayat1 (Table 5).

Gini coefficient result notifies that the overall degree of inequality in the distribution of households or residents in terms of the site open space area size is 25.095%.

Once we discussed the area size of sites and residents' number proportionality, it is important to substantiate resident's satisfaction with the available open space at sites of condominium that that is used for different functions. The satisfaction of respondents with the available open spaces was measured using likert scale (satisfied, unsatisfied and neither nor), and the result analyzed using on sample T-test. Their satisfaction coded as 1 for satisfied, 2 for neither nor and 3 for unsatisfied. Then 2 used as a test value and the hypothesis that stated "satisfaction of respondents for all uses- taken in to account is not different from 2" tested at 0.05 significance level. Consequently, the result is presented in Table 6.

The result revealed that the satisfaction of respondents with the space available for car parking, children playing and laying down tent are significantly different from neutrality ( $p < 0.05$ ). The mean difference for car parking is positive. This implies that respondents were satisfied with the available open space for car parking. This is mainly due to the fact that only few households have car so the problem is sensed only by those few. Although the general response showed that residents were satisfied with the available open space for car parking, at some sites for example, at Gerji2, Bole Mikael and Adwa park due to lack of space cars of some households which are parked outside the site compound on the road passing along the site.

The mean difference for the case of children playing and laying down tent is negative. This implies that respondents are dissatisfied with the available open space at sites of condominium. As respondents indicated, it is difficult to dry cloth near the car parking because the dust blows to it and make it dirty. Hence, households prefer to dry it on the corridors in front of their unit.

However, this does not mean that there is no space for



**Table 6.** Satisfaction of residents by the available open space at sites of condominium.

Types of uses	Test value = 2					
	t	df	Sig. (2-tailed)	Mean difference	95% CI difference	
					Lower	Upper
Drying cloth	-1.568	119	0.120	-0.142	-0.32	0.04
Car parking	3.863	119	0.000*	0.317	0.15	0.48
Drying food grain	-1.699	119	0.092	-0.150	-0.32	0.02
Children playing	-5.845	119	0.000*	-0.458	-0.61	-0.30
Laying down tent (Dinkuan) <sup>6</sup>	-2.287	119	0.024*	-0.200	-0.37	-0.03

Source: Own field survey and computed (2011); \*Significant at 0.05 significance level.

<sup>6</sup> A portable shelter made of cloth

these uses at sites but the problem associates with improper utilization of it. When the available space occupied by few households for example for car parking or laying down tent or drying cloth some could not get space to use it for another purpose. As interview made with owners association committees, the rule of owners association did not allow residents to dry cloth on the corridor. However, considering the crowdedness of space to dry cloth the committees could not enforce the rule. That is why respondents did not indicated lack of space to dry cloth as a problem.

The low satisfaction of residents by the available open space for aforementioned activities is not due to the small size. It rather relates with improper utilization of it. For example, satellite dish of most households placed on the ground. Thus if all households have dish and placed on the ground it is not difficult to estimate how much of land will be occupied. Moreover, residents throw solid and liquid waste through their window top down with rapped plastic or container to the available open space. As a result, it makes even the available open space unpleasant for children playing, drying cloth and spice, recreation and some other functions. In general, it loses its aesthetic value and remains abandoned land. Subsequently households compete to use the small open space, which is relatively with good sanitation.

### **Infrastructural and social services provision at condominium sites**

#### **Spatial accessibility of residents to some selected infrastructural and social services**

Since vertical settlement can comprise large number of residents on small plot of land and consequently eases infrastructure provision, government of different countries valued dense settlement. Vertical settlement avoids scatter settlement that require large resources for the provision of infrastructural services. High density creates opportunities for viability and access to community

services, provides economy of infrastructure, supports public transport, and reduces car travel and parking demand (kunze, 2005).

The government of Ethiopia constructed high-rise condominium houses to achieve its purpose of easing infrastructure service provision for the densely settled people. With regard to this, no study was conducted previously, that examines the success of government with this aspect. The important indicators which are useful to measure residents spatial accessibility to infrastructure and social services include market, bank, schools (kindergarten, elementary school and secondary school), health center, main road, solid waste disposal site, tele center, religious worshipping places(church and mosque), hotel and restaurant and post office. As well as transport accessibility, water and electric light supply and sanitation issues are considered as indicators in this study.

In this study, spatial accessibility of residents to infrastructure and social services such as market, bank, kindergarten, elementary school, secondary school, health center, main road, solid waste disposal site, tele center, church, mosque, hotel, restaurant, and post office compared to the previous residence place is measured based on their judgment. Their response rated as far, neither far nor near and near. The far, neither far nor near and near responses were labeled as 1, 2 and 3 respectively. Then the result analyzed using one sample t-test. For the analysis the test value is two (neither far nor near) because the null hypothesis is that residents are neither far nor near to the stated service centers and the result is as shown in (Table 7).

The null hypothesis states, "residents are neither near nor far from the stated service centers" is rejected. This is because the probability values of all services indicate the presence of significant difference between the hypothesized or the test value, and the mean response of respondents. This implies that all residents rated that they are spatially accessible to the aforementioned service centers.

As information is obtained through the researcher's

**Table 7.** Spatial accessibility of condominium house residents to infrastructural and social services compared to their previous residence place.

Test value = 2						
Service centers	t	df	Sig. (2-tailed)	Mean difference	95% Confidence interval of the difference	
					Lower	Upper
Market	7.535	119	0.000	0.542	0.40	0.68
Bank	17.615	119	0.000	0.825	0.73	0.92
Kindergarten	24.631	119	0.000	0.883	0.81	0.95
Elementary school	29.570	119	0.000	1.083	1.01	1.16
secondary school	16.274	119	0.000	0.792	0.70	0.89
Health center	9.485	119	0.000	0.617	0.49	0.75
main road	43.943	119	0.000	0.958	0.92	1.00
solid wasted	11.259	119	0.000	0.700	0.58	0.82
Tele center	20.413	119	0.000	0.825	0.74	0.91
Church	16.454	119	0.000	0.783	0.69	0.88
Mosque	11.063	119	0.000	0.650	0.53	0.77
Hotel and restaurant	12.857	119	0.000	0.717	0.61	0.83
Post office	7.885	119	0.000	0.558	0.42	0.70

Source: Own field survey (2011).

**Table 8.** The time residents moved to condominium and the functionality of water and electric power installations.

The housing facility type	Alternatives	Response	
		Frequency	Percentage (%)
Water	After the household come to condominium	33	27.5
	Before the household come to condominium	87	72.5
Electric power	After the household come to condominium	54	45
	Before the household come to condominium	66	55

Source: Own field survey (2011).

observation, the main roads that lead to or passing along sites of condominium is near to all sites. The maximum distance of the main road from sites is 100 meter. However, at some sites, the roads were not paved or asphalted. For example, the roads leading to or passing along gerji1,gerji2,gerji3,gerji5, international stadium and Japan embassy still not asphalted or even paved. At these sites, people travel through a cloud of dust rose as the trucks drove off. However, the road that lead to or passing along Adwa Park, Bole ring road, Bole mikael and Bole Ayat1 condominium sites is asphalted.

#### Water and electric power supply to condominium house residents

After lottery drawn for the ownership of condominium housing units, not all chanceful people move to their new unit at the same time. Some move immediately and some

others move after some time. Residents who moved early to their condominium unit are more likely faced with electric light and water supply problems. The lately moved people came to the facilitated and furnished conditions. First comers lived without water and electric light until the installation functions properly (Table 8).

In total, 27.5% of respondents noted that the installed water became functional for their unit after they moved to the site. The rest, 72.5% of respondents responded that it was installed and was functional before they move to the unit of their site. In terms of light, 45% of respondents responded that the installed light is functional for their unit after they moved to their unit. The remaining, 55% respondents responded that installed light is functional for their unit before they move.

Some households' water or electric light installation can be adjusted easily while others may have serious problem and requires serious working and takes longer time. Therefore, the length of time the household stay

**Table 9.** Length of time pre comers stayed without water until the installation is functional.

Length of time residents stayed without water or electric power	Water			Electric power		
	Frequency	Percentage (%)	Cumulative percentage (%)	Frequency	Percentage (%)	Cumulative percentage (%)
2 days	0	0	0	1	1.9	1.9
4 days	0	0	0	3	5.6	7.4
5 days	0	0	0	3	5.6	13.0
6 days	1	3	3	0	0	13.0
1 week	1	0	3	3	5.6	18.5
2 week	2	6.1	12.2	1	1.9	20.4
1 month	8	24.2	36.4	22	40.7	61.1
2 months	8	24.2	60.6	14	25.9	87.0
3 months	0	24.2	0	3	5.6	92.6
4 months	8	24.2	84.8	4	7.4	100
5 months	2	6.1	90.9	0	0	100
8 months	3	9.1	100.0	0	0	100
Total	33	100	100	54	100	100

Source: Own field survey (2011).

without water and/or light is as shown in table Table 9.

The length of time residents stayed without water varies even among pre comers. They suffered from the problem of water for minimum of six days and maximum of eight months. Most of them (87.8%) of them suffered from the problem for more than one month. More than half of the respondents waited for more than two month to get pipe water that comes to their unit. As respondents explained, during that time residents were fetching water from private and public tap incurring one Ethiopian birr per a twenty-five liter container.

With regard to electric power residents who moved to the site before the light meter is adjusted for each unit or installations are not functional, suffered from the problem of eclectic power for a minimum of two days and maximum

of four months. Of who moved to the site before proper functioning of the light wires and the light meter adjustment, more than 80% of them stayed without electric power supply for one to four month.

As understood from focus group discussion an interview conducted with the committees of owners association, the common reason for the delay of the installed water and light functionality at sites directly relates with improper adjustment of sewers of water and wires of electric light. Water sewers and light wires are adjusted at the time of construction. During this time, residents are not at the place so the adjusted sewers and wires will not be checked whether they are functional or not. Later on when residents come in and check the functionality of installation, they fail to function properly.

Water pipe and electric light wires are hided in

the wall of the building. If problem is encountered somewhere in the wall it is difficult to readjust it. For example, at international stadium condominium site, the case of a certain household's unit the sewer was not adjusted properly. Consequently, it leaks water to the next lower unit. Readjusting it requires digging the wall of the building or the ceramic floor of the toilet and/or bathroom. This in turn requires large capital resource and deteriorates the quality of the building.

In addition, at some sites and blocks water did not reach the second floors and above units. This is due to the fact that the force of gravity restrains upward flow of water. Particularly at Japan embassy, Gerji3 and Adwa Park condominium site the problem is common. Tebarek (2007) also noted that the water pumped up ward against gravity could not reach to house of upper floor

residents due to loss of power. Consequently, residents of upper floors faced problems of sanitation because of lack of water to flush toilets and others.

As it is understood from the interview conducted with committee members of owners' association and the guards, the electric meter of all households of a given block placed together within a box like shelf immediately in front the ground units. However, households complained with such placement. This is because the source of electric power of each unit is from the respective electric meter of the household, which is placed in the box at the common place. Unfortunately, the light meter of one household may in mistake be connected with the wire of other household's. In addition, when someone wants to put off/on his/her light meter in mistake may put off/on others.

### Sanitation

Neighborhood forms of settlement like condominium housing create conducive condition to manage liquid and solid waste. The liquid waste collected from unit of each household flows to the communal septic tank. However, as the writer understood from observation, focus group discussion and interview conducted with committee members of each site, improper solid waste management by residents is the source of the sanitation problem.

Residents drop solid wastes such as modus, utilized condom, peel of onion, peel of potatoes, peel of tomatoes and plastic bags within the toilet of their unit. These solid substances block the flow of liquid through sewer. This in turn either makes the sewerage returns back to the units of households or makes the sewer to fracture somewhere and pollute the environment. The other problem associated with this is improper adjustment of sewer. Adjusted sewer does not take in to account the inclination (level) of land that indicates flow direction of liquid. For example, at Gerji5 at the time of the survey the liquid waste was coming out from the sewer somewhere on the way to the septic tank and polluting the environment due to improper adjustment of the sewer.

Regarding the solid waste disposal mechanism, each household accumulates solid waste within a sack near their unit. Then group of workers who are organized in small and micro enterprise take it to the disposal site once a week. However, some residents carelessly throw solid wastes at undesignated area. As understood from respondents and committees of owners association, some people throw wastes to the open space through window mostly during nighttime when they could be hardly seen by others. For example, one of the committee members at Gerji3 said the following.

"There are residents who have commitment to take care of the sanitation of the site. In contrast, others never care. The careless group throws waste which is wrapped with plastics to the open space. They do not do it during the day time when others can see them but they do it

during nighttime, and when there are no other residents or committee member/s around."

These aforementioned problems are not the only cause of sanitation, slaughtering of animals at undesignated area also pollutes the sites. The owner association committees and focus group discussants explained that some households slaughter animal near stair or in front of units or on the open space. As a result, the blood and waste of the slaughtered animal worsen the sanitation of the corridor and the nearest units. As understood from committee members this problem is especially more serious during holidays when many households slaughter animal at the same time, and the designated slaughtering space is crowded.

According to the rule and regulation of owners' association, even a person who slaughtered animal at the designated area for slaughtering should clean the place after completion. However, the committee members mentioned that most people do not obey the rule.

### Social issues at condominium housing sites

Living in cohousing is different from regular neighborhood from perspective of social context and the organization of the physical environment. As people attend such kind of living they are face with different forms of informal and formal interaction. As several studies showed proximity of dwellings, the position towards other houses, buffer zones between private and common space and shared pathways affect interactions of the community. Social interaction relates to social well being. Social well being is dependent on the network of personal relationships and social exchanges that takes place.

Therefore, neighboring is a behavioral variable involving social interaction and the exchange of support between neighbors. The physical features of the neighborhood such as the proximity of homes, placement of doors of homes that is closer to one another and location of recreational facilities determine interaction (Farrel et al., 2004). The major sources of social welfare in Ethiopia are traditional associations such as Iddir<sup>7</sup>, Ekub<sup>8</sup> and religious. These associations have religious, political, family, or other bases for their formation. Its main objective is to assist families financially during the time of illness, death, and property losses due to fire or theft. This institution became prevalent with the formation of the urban society.

As noted by Ingwani et al. (2010), condominium house influence the social network of traditional society which is established by traditional associations. When beneficiary join to condominium houses they obligated to cut off the relation they have with their former Neighbors and form another ties with their new Neighbors.

<sup>7</sup> Financial and other forms of aid for neighbors, people with the same occupation or friends during challenges

<sup>8</sup> Traditional saving institution in Ethiopia

**Table 10.** Agreement of respondents for ten social interaction indicators questions.

Test value = 2						
Code of questions <sup>9</sup> (see the footnote)	t	df	Sig. (2-tailed)	Mean difference	95% Confidence interval of the difference	
					Lower	Upper
Q1	-.581	119	0.562	-0.050	-0.22	0.12
Q2	-8.290	119	0.000*	-0.600	-0.74	-0.46
Q3	-4.426	119	0.000*	-0.358	-0.52	-0.20
Q4	-5.158	119	0.000*	-0.417	-0.58	-0.26
Q5	-10.073	119	0.000*	-0.658	-0.79	-0.53
Q6	-.384	119	0.702	-0.033	-0.21	0.14
Q7	-1.747	119	0.083	-0.150	-0.32	0.02
Q8	-19.891	119	0.000*	-0.858	-0.94	-0.77
Q9	-4.619	119	0.000*	-0.375	-0.54	-0.21
Q10	-22.931	119	0.000*	-0.892	-0.97	-0.81

\*Significant at 0.05 significance level (Source: Own field survey (2011)).

<sup>9</sup> Q1: Do your household member/members lend each other tools like dishes, knife, tea cub and the like with other household members?

Q2: Do your household member/members help each other in looking after home and child/children while they are away from home.

Q3: Do your household member/members go together with other household member/members to church, mosque, market, and institutions such as Ekub and Iddir?

Q4: Do your household member/members share information with your neighbors about home repairing?

Q5: Do your household member/members discuss with neighbors about neighborhood issues and problems with neighbor?

Q6: Do your household member/members invite each other to each other's home for coffee or food?

Q7: Do your household member/members assist each other with neighbor household to tasks such as room repair or moving furniture?

Q8: Do your neighbor assist your household member/members during emergency?

Q9: Do you go to your neighbors for advice when you/your household member/members face problem?

Q10: Do you and your neighbors cooperate to solve a serious problem occur at your neighborhood?

In general, such form of settlement relates with different social issues such as interaction, social cost due to resettlement to condominium, sound disturbance, and theft crime.

### Social interaction

Social housing may either create ground for social cohesion or unwanted interaction (Ely, 2007). As studies indicated, dense settlement may create an opportunity to form stronger social interaction than the scattered one. This is because of spatially proximity of households' units.

Some other studies noted that dense settlement such as high-rise condominium is not an opportunity to form strong social interaction. Beside to this some residents explain that social interaction at such settlement is weaker while others say the opposite. To examine these controversies the researcher in this study forwarded ten questions, which are indicators of social interaction for the residents.

First, the agreement of respondents for the questions is rated in likert scale. That is, one as agree, two as neither agree nor disagrees, and three as disagree. Then the hypothesis that stated "respondents neither agrees nor disagrees with the stated questions" is analyzed using

one sample t-test, and the result is as shown in (Table 10).

As the result is depicted in Table 10, the agreement of respondents for question number 2, 3, 4, 5, 8, 9, and 10 are significantly different from neutrality (neither agrees nor disagrees). They agreed with these questions. In brief, residents of condominium house help each other in looking after home and children; go together to church, mosque, market, and institutions such as Ekub and Iddir; share information about home repairing and neighborhood issues; assist each other during emergency; take advice and cooperate to solve serious problems that occur at their neighborhood. On the other hand, respondents neither agree nor disagree for the question number 1, 6 and 7. In short respondents are not sure that residents of condominium lend each other tools such as dishes, knife and tea cub, invite each other for coffee or food and assist each other with neighbor household to tasks such as room repair or moving furniture.

As the writer understood from focus group discussion, single men and women have weak social interaction than couples. Some residents not greet each other even with the neighbors living immediately next to their unit. This hindered the interaction of residents and the culture of assisting each other when a certain individual or household encounter problem. For example, a woman

**Table 11.** Strength of social interaction and prevalence of sources of conflict compared to the previous residence place.

Strength of social interaction				Prevalence of sources of conflict		
Strength scale	Frequency	Percentage (%)	Cumulative percentage (%)	Residence place	Responses	
					Frequency	Percentage (%)
Very weak	12	10.0	10.0	At the current	41	34.2
weak	57	47.5	57.5	At the former place	79	65.8
Neither nor	12	10.0	67.5	Total	120	100
strong	33	27.5	95.0	-	-	-
Very strong	6	5.0	100.0	-	-	-
Total	120	100	-	-	-	-

Source: Own field survey (2011).

interviewed at Gerji3 condominium site said the following about the man who was living with his dog only.

*“A young man working in the bank was living next to my unit. He was living only with his small dog. He and I did not greet each other. He was going out from his unit in the morning and return back in the evening. One upon a time I heard when the dog shouting inside his unit. I thought that he put it inside and shut the door. On the third day, I suspected that he is not well and knock the door but no one respond. The door was locked from inside. I called phone to police to take measure. The Police force came and broke the door. Unfortunately the man was dead but the only thing the police found near the dead was the small dog and pack of medicine.”*

Residents were asked about the strength of their social interaction with their neighbors and the prevalence of sources of conflict at condominium housing as compared to their previous residence place. Accordingly, the result revealed that more than half (that is, 57.5%) of the respondents noted

that the strength of social interaction is weak and very weak at condominium sites. About 47.5% of them indicated that the strength of social interaction is weak while the rest 10% of them notify the strength is very weak (Table 11).

With regard to sources of conflict almost, more than half of respondents (65.8%) agreed that sources of conflict prevail more at the former residence place of residents. The rest (34.2%) noted that sources of conflict prevail more at condominium. Those who agreed with that source of conflict prevail more at their former residence place, attributed to different factors. At the former place renters and owners, live together in one compound. Most owners are aggressive and shout to renters when they use toilet, electric light, and water communally. Others who agreed that sources of conflict prevail more at condominium site reasoned out that there is no similar understanding and motivation among residents of condominium with regard to caring for sanitation of the sites, proper utilization of communal properties, controlling sound disturbance, and theft crime. This means that while others do for enhancement others do against enhancement either knowingly or unknowingly. This in turn may

lead residents to conflict and weaken the strength of social interaction. In addition, most residents living in rental house externalize themselves about sources of problems that happened at their sites and are not volunteer to be part of the solution.

As it is inferred from the aforementioned results, residents of condominium house assist and interact with each other more for mutual interest, benefit, safety and when a member of a certain household face serious problem such as death.

**Social costs induced by resettlement to condominium house**

Residents of condominium house have different background. Some of them are owners, some others are living in rental house, and others resettled to condominium house due to urban renewal/ redevelopment. Residents who resettled to condominium houses due to urban renewal are mostly forced to move without their interest. The people, who are displaced by urban redevelopment/renewal and joined to irrespective condominium, occupied their current unit of their

**Table 12.** Residents membership status to social associations before and after they move to condominium.

Residents membership status to social associations	Alternatives	Frequency	Percentage (%)
The number of residents dropped out from Social associations when they move to condominium house	Dropped	36	30
	Not dropped	84	70
	Total	120	100
Types of association they drop out from	Ekub	4	11.11
	Iddir	24	66.67
	Ekub and Iddir	8	22.22
	Total	36	100
The current membership status of residents to social associations	Became member	18	50
	Not became member	18	50
	Total	36	100

Source: Own field survey (2011).

preference of the site and the unit.

Unfortunately, they leave the sub-city, where they were living previously. Consequently, these displaced people dropout from associations such as Ekub and Iddir in which they were member at their previous residence. However, it is not only the people, who resettled to condominium in the name of urban redevelopment; suffer from the problem of dropping out from such associations.

It also includes all others those moved by their own preference.

Respondents were asked about whether they dropped out from any social associations when they move to condominium, the types of association they dropped out from if any and their current membership status to any social associations, the result is presented in Table 12.

Of the total respondents, 70% of them did not drop out from any social associations they were member at their former place when they move to condominium. This is because either they resettled from the nearest place and continued their former membership or they were not member to such associations at their former residence place. The rest 30% of them notified that they dropped out from the associations they were member at their former place of residence when they move to condominium. They did so because the resettlement sites are far away from the former residence place.

Of those who quitted their membership of social associations, 66.67% of them exited from Iddir only. The other 22.22% of them dropped out from both Iddir and Ekub. The rest exited from Ekub only. Hence, it is possible to conclude that most people dropped out from membership of Iddir. As a result, they lost the benefit of Iddir that families are assisted financially during the time of illness, death, and property losses due to fire or theft. From this group half of them (50%) are member to such associations at their current residence place while the other half still did not be member due to their own reason.

In addition, to abandoning their membership to such associations, they are also faced with difficulty to continue the livelihood activities that they were practicing at their former residence place. For example, people who were selling bread, injera and other consumable goods at the former place were unable to continue at the newer place. Because at condominium housing sites, modern style of living were not matched with such type of livelihood activities. Furthermore, customers could not come in from outside of the site because guards do not allow them to get in. People at condominium are not interested in traditional drinks and cooked food such 'Injera'<sup>10</sup> with 'wat'<sup>11</sup>. The demand is only for Injera. A woman interviewed at Gerji2 said that:

*"I came to this Gerji2 condominium site from shuromeda when my house is demolished in the name of urban renewal. At my previous residence place, I used to selling consumable goods like bread, Injera, potatoes, tomatoes, onions, and the like in my home or near my home. However, here I faced challenges to undertake similar activities. Furthermore, my daughter is not interested to stay weekends at this site because she could not experience playing with children of her age of the site. So I took her to my previous neighbors' home in the afternoon on Friday to play during weekends and took her back to my home in the afternoon on Sunday to go to school the next day"*

### **Social problems related to sound disturbance and theft crime at condominium sites**

Long (2007) stated that at multistoried houses while

<sup>10</sup> The traditional pancake in Ethiopia

<sup>11</sup> Wat is traditionally eaten with injera

**Table 13.** Sound disturbance and theft crime at condominium sites.

Statement	Alternatives	Response	
		Frequency	Percentage (%)
You disturbed by sounds produced by neighbors	Yes	94	78.3
	No	26	21.7
	<b>Total</b>	<b>120</b>	<b>100</b>
There is theft at your condominium site	Yes	102	85
	No	18	15
	<b>Total</b>	<b>120</b>	<b>100</b>

Source: Own field survey (2011).

people move upstairs footfall on hard surface and on carpeted floor wake the sleeping people in the morning. As well as when toilets flush upstairs, it sounds like waterfall running through their wall. The closing of door and window also create disturbing sound to the upper and the lower up stair units.

In this study, respondents were asked about the presence of sound disturbances and sources of sounds as well as the theft problems at their respective condominium sites. Accordingly, the result is presented in Table 13.

Out of 120 sampled households, 78.3% of them reported that sounds produced when the immediate upper stair unit residents move furniture, flush toilet, close and open door, grind coffee, open music from television and other player devices and sound of cars while entering and exiting to and from compound disturbs them. Most sources of music and dancing disturbances at some sites are bar and restaurants found close to the site or at the site. At most, sites ground units are commercial units. Thus, people take permit for shopping and convert it to bar and restaurant. During nighttime people dance, drink and shout. These sounds disturb people sleeping in their unit.

In terms of theft, 85% of the respondents reported that theft is experienced at their sites of condominium. Such form of settlement is convenient for the prevalence of theft problem. This is because as the writer understood from the focus group discussions and interviews with committee members of each site, even for the guards, it is difficult to identify residents of the site and newcomers. Using the gap thieves come from outside of the sites, and steal drying cloth and amenities placed outside the units on the corridor or inside of the units. Each site has its own guards but the problem is hardly possible to identify residents of the site and outsiders. For example, one of the guards of Japan Embassy condominium site said that;

*“As you see there are 304 households. If each of these households has three family members there shall be at least 912 people. Look, it is difficult to identify the 912 people facially. Leave a side the people living within the*

*site; relatives, friends, or families of these household come from outside. It is difficult to prevent them not to come in the only thing that I can do is I ask them to which unit they are going. This situation paves an opportunity for the thieves to come from outside and take something”*

## Conclusion

The housing development office is constructing and distributing condominium -housing units with slower pace. Consequently, the demand-supply deficit is still higher. According to the plan of the office it was to meet the demand of 453 287, total registered people within nine years by constructing and distributing 50.000 units per year. However, the office constructed and distributed only 80.287 units within seven years. In other word, only 17.7 % of the demand is met over the last seven years. If the office continued with this pace, it will take about 32 years to respond for the rest demand.

Settlement in high-rise residential condominium housing saves land from encroachment and improper utilization. The land is saved in terms of the land occupied by the buildings when compared with the land occupied by the non-floored individuals' house. However, when the total area size of condominium site is compared with the total area size of non-floored individuals house compound in terms of density, larger area of land that could be used for activities such as sport fields, recreation, greenery, and car parking reserved at condominium sites.

However, the open space reserved at sites of condominium is not proportional to the number of residents. As it is understood from the location quotient result at BoleAyat1 and BoleAyat2 condominium sites there is condition of under population as compared to the general distribution.

In contrast, at Gerji 2, Gerji1, Gerji5, International stadium, Gerji3, Bole ring road, Japan embassy, Adwa Park and Bole Mikael there is condition of over population as compared to the general distribution. These results imply that the size of open space reserved at sites of



condominium not took into account the number of people who would settle on.

Residents were dissatisfied with the space available for children playing and laying down tent (dinkuan). However, much complain about open space is not related with the size of it, but with improper utilization of it. At most sites, the satellite dish of most household is placed on the open space. In addition, the open space is also covered with solid waste and is unattractive to use it for other purpose. Some types of land use also contradict each other for example car parking and drying cloth at the same place or at nearby.

Residents of condominium satisfied with their spatial accessibility to social and infrastructural service centers such as market, bank, schools(kindergarten, elementary school and secondary school),health center, main road, solid waste disposal site, Tele center, religious worshipping places(church and mosque), hotel, restaurant and post office. However, most roads leading to or passing along sites of condominium is not paved or asphalted. As a result, people travel through a cloud of dust rose as the trucks drove off.

Water and electric power supply are the serious problems at sites of condominium. Of residents, those who moved to their condominium unit before the installation of water pipe, sewerage sewer and the electric power wires are functioning properly, suffered from the problem of water and electric power for a minimum of six days and maximum of eight months and minimum of two days and maximum of four months respectively. It is known that water and electric power are the two important services at such settlement. Absence of water not only causes lack of water for drinking and washing but also contributes for the problem of sanitation, when it lack to flush the toilet. Since there is no traditional kitchen at condominium sites, most source of energy for cooking is electric power. Therefore, electric power and water installations functioning should be checked before residents moving. These problems directly relate with improper adjustment of water pipe, sewerage sewer, and electric power wires at the time of construction. The mechanism of solid waste management is also weak. Most residents throw solid waste which is rapped with plastic bag at undesignated open space.

With regard to the strength of social interaction among residents, more than half (that is, 57.5%) of the respondents noted that the strength of social interaction is weak and very weak at condominium sites. Of this, about 47.5% of them indicated that the strength of social interaction is weak while the rest 10% of them notify the strength is very weak.

Residents of condominium house assist and interact with each other more for mutual interest, benefit, safety and when a member of a certain household face serious problem such as death. There is no certainty that residents invite to each other's home for food and coffee and assist each to tasks such as room repair or moving furniture, which is the business of an individual

household only.

When residents move to their condominium unit, they quit their membership to associations such as Ekub and Iddir to which they were member at their former residence place. Moreover, they encountered difficulty to continue the livelihood activities they were practicing at their former residence.

About 78.3% of respondents noted that they are disturbed by sounds produced when the immediate upper stair unit residents move furniture, flush toilet, close and open door, grind coffee, open music from television and other player devices and sound of cars while entering and exiting to and from compound disturbs them. Moreover, 85% of the respondents noted that theft is common at their condominium site.

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## CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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