Adaptation and Dissonance in Quality of Life: A Case Study in Mekelle, Ethiopia

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Abstract The aim of this paper is to present an approach to identify the main reasons behind the mismatch between objective and subjective quality of life (QoL) conditions that result in adaptation and dissonance. A mixed method approach was developed and applied in the sub-city of Mekelle, Ethiopia to measure objective and subjective QoL and to understand the divergence between the two. Focused group discussions, household surveys and walking interviews were the methods used for data collection and descriptive analysis, spatial analysis and content analysis were the methods of data analysis employed in this study. The results show that indicators such as 'access to health facilities' score a high level of objective QoL but low level of subjective QoL. Some citizens do not necessarily perceive their QoL condition in the same way as objective indicators do. By combining the subjective and objective QoL four states are identified: wellbeing, deprivation, adaptation and dissonance. Household's strategies and priorities explain adaptation to inadequate objective QOL conditions. Some of the main reasons for adaptation and dissonance are related to issues of access to basic infrastructure, housing ownership, housing affordability, quality of services, and having additional means of income and survival strategies. Understanding the reasons identified for adaptation and dissonance can be used to provide better evidence for the formulation and implementation of public policies.

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1 Introduction

Objective Quality of life (QoL) represents the external or tangible conditions of life (Das 2008; Senlier et al. 2009; Tesfazghi et al. 2010; Foo 2000) and describes QoL with observable norms and standards. In contrast, subjective QoL represents the individual's evaluation of objective conditions of life, satisfaction or judgement of individuals with the life they have (Das 2008). The objective dimension of QoL is measured using objective indicators, whereas the subjective QoL is measured with subjective indicators. The objective and subjective indicators are assumed to be distinct (Shin et al. 2003) and as a result converging and diverging states can be observed when combined (Tesfazghi et al. 2010).

Quality of life has been defined in different ways depending on the discipline and objective of the study (Sirgy et al. 2006; Sirgy 2011). For instance, Foo (2000) defined QoL as the overall satisfaction with the life that individuals have. QoL is also defined in terms of what one has lost, or lacks, rather than what one has (Bowling and Windsor 2001). Costanza et al. (2007) defined QoL as the extent to which objective human needs are fulfilled in relation to personal or group perceptions of subjective wellbeing. On the other hand Senlier et al. (2009) defined QoL as the relation between the individual perceptions and the feelings of people, and their experiences within the space they live in. Pearl et al. (2011) defined QoL as a measure of objective and subjective features of life. These two dimensions can be recognized in some keywords present in QoL definitions such as: objective facts, enjoyment, happiness and life satisfaction (McCrea et al. 2006).

Objective QoL indicators are quantitative and associated with social, economic or environmental conditions. These indicators use tangible domains, like education, health, transport, social welfare, air pollution, water pollution, green space, waste management, family income and consumption, housing and economic dynamism (Santos et al. 2007). Objective QoL indicators are often derived from secondary data; such as census, satellite imagery, crime records and reports on the existence and performance of public services.

Subjective QoL indicators are intangible, incomparable, and unstable as they are based on individual's perception or satisfaction with the objective condition of life (Santos et al. 2007). Different methods are used to develop subjective indicators including household surveys and expertise view (Das 2008; Senlier et al. 2009; Tesfazghi et al. 2010; Foo 2000). As these indicators measure individual's perception, it is important to develop them with full involvement of stakeholders using participatory tools such as focus group discussions. This will in turn aids in attaining indicators that can measure QoL accurately according to the context and geographical location. Moreover, it is important to get a better understanding of the different perceptions that people have for the same area (Woldetinsaye 2011).

The combination of the objective and subjective QoL dimensions enables to identify four states of QoL known as wellbeing, deprivation, adaptation and dissonance[1] (Table 1) (Tesfazghi et al. 2010; Craglia et al. 2004; Olson and Schober 1993). When both the objective and subjective QoL are good the state is called wellbeing, if both are bad there is deprivation. More interesting states are those where there is divergence between objective and subjective conditions. Adaptation exists when the objective condition is bad but the subjective condition is good.

Consequently, if the subjective condition is bad but the objective condition is good, then there is dissonance. Having information from both objective and subjective dimensions is

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[1] Sirgy et al. (2006) refer to them respectively as real paradise, real hell, fool's paradise, and fool's hell.

Table 1 Matrix for identifying the states of QoL

Objective QoL	Subjective QoL	
	Good	Bad
Good	Wellbeing	Dissonance
Bad	Adaptation	Deprivation

also important for improving the QoL of the society through proper policy design and implementation. A point often overlooked is the mismatch between the objective indicators usually taken by local governments and the subjective QoL perceived by citizens and communities. Moreover, the reasons behind this mismatch are usually unknown and therefore relevant evidence that can be used to enhance QoL and increase citizens' satisfaction is scarce.

The main objective of this paper is to present a mixed method approach to identify the main reasons for adaptation and dissonance. The divergence between the objective and subjective QoL conditions is measured for the indicators housing, access to public services and income. To our knowledge no attempt has been made in literature to identify the reasons for the divergence between objective and subjective QoL, although identifying these reasons can help for proper development interventions and improvement of QoL. This is in particular the case in cities in the global south where increasing urbanisation is accompanied by unequal QoL conditions and lack of resources. Despite its potential usefulness, no QoL study has been done in middle size cities in Ethiopia, therefore a sub-city area of Mekelle is chosen as a case study. This approach can be replicated in other areas.

In this paper two questions are considered: first, what is the level of objective and subjective QoL in the study area; and second, why people have different perceptions of QoL from the objective conditions of life they have.

2 Study Area

Mekelle city is the sixth largest city in Ethiopia and its local government has autonomy to manage overall political, social and economic development of the city. Its population has increased from 20,000 in the early 1970s to 507,675 in 2011 (Mekelle City 2011). It is structured for administrative purposes into 7 sub-cities (Fig. 1).

The sub-city of Kedamay Weyane is selected as the case study area due to socio-economic disparities and its central location. It occupies 711 ha with a population of 46,000 and is subdivided in 14 smaller units called Ketenas.

3 Methodology

This research combined in a mixed method approach both quantitative and qualitative (QUAL) methods of data collection and analysis. Figure 2 shows the main steps proposed for this approach.
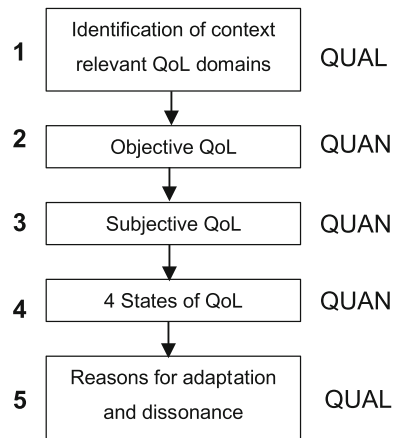
3.1 To Establish Quality of Life Domains

The first step identified the relevant QoL domains in relation to the local context. A focus group discussion (FGD) was held in October 2011 to rank pre-selected domains of life and
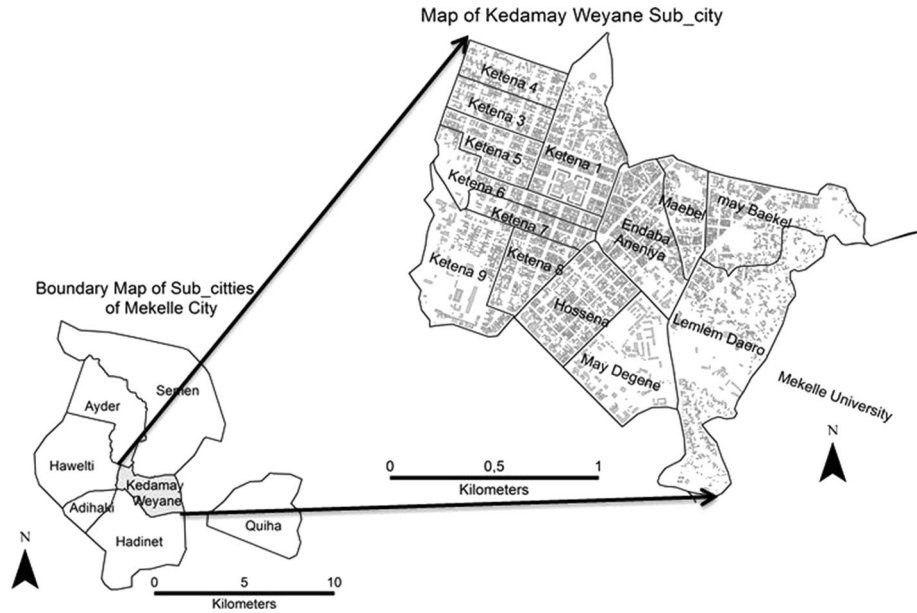
Fig. 1 Study area. **a** Mekelle sub-city boundaries, **b** Ketenas in Kedamay Weyane sub-city

Fig. 2 Main steps in the mixed method approach

their indicators according to the importance given by the residents. The domains were pre-selected based on prior local knowledge of the study area and in depth reviews of literature (Woldetinsaye 2011; Tesfazghi et al. 2010). A total of 11 residents of the sub-city participated in the FGD including six women and five men. The key informants had diverse socio-economic characteristics and were selected according to their age, gender, educational and income level to represent all socio-economic and demographic groups in the Ketena.

After in-depth discussion the participants ranked the following QoL domains from 1st to 7th in order of importance: housing, access to public services, family income, access to green space, safety, family life and, neighbourhood satisfaction. Based on this rank and the

relevance observed during the FGD the first three domains were selected to manage the data collection and further developed into eight indicators for inclusion in the questionnaire for household survey. It was decided to further develop the first three domains as they clearly emerged as more relevant in the local context than the other four and it was a manageable number for planned data collection. From 210 households, selected with a random sampling strategy, heads of households, male or female and over 18 years old, were interviewed according to the structured questionnaire.

3.2 To Establish Quality of Life Indicators

In the second step, eight indicators are used to quantify objective QoL in each Ketena and they represent the three selected domains of housing, access to public services and income. All these indicators emerge from the FGD and are operationalized based on the literature and adjusted to the local context.

    With the exception of access to public services all the indicators were sourced from the interviews. Shortest distance to public services from each household was measured using a Geographic Information System. Secondary level data was obtained for the geo-location of existing public services in Mekelle and the 6,822 households in the sub-city area.

- *Housing unaffordability*, percentage of households who spend more than 30 % of their total family income for housing (Hulchanski 1995).
- *Housing overcrowdedness,* percentage of household where three or more persons were sharing the same bedroom (UN-HABITAT 2009).
- *Room for rent*, percentage of households having a dwelling with extra rooms to let.
- *Access to primary education facility*, percentage of households living within 1 km (walking distance) from a primary school (Green and Argue 2011).
- *Access to secondary education facility,* percentage of households living within 2 km (walking distance) from a secondary school.
- *Access to health facility,* percentage of households within 40 min walking time from a health facility (Amer et al. 2007) .
- *Access to public transport*, percentage of households within a distance of 500 m from a mini-bus stop (Guihaire and Hao 2008).
- *Adequate family income,* percentage of households earning more than the official poverty line (BoFED 2011).[2]

    In the third step, subjective QoL was constructed based on the household's level of satisfaction for each of the eight indicators using a six point Likert-scale (1 = very satisfied to 6 = very dissatisfied). The mean score at Ketena level was computed for each indicator and this was used to measure the subjective QoL.

3.3 To Assess Quality of Life States

To identify the states of QoL (step 4 in Fig. 2) a two by two matrix adapted from Tesfazghi et al. (2010) was developed to combine the measured objective and subjective QoL. The matrix is prepared based on good and bad objective and subjective QoL (Table 1). For the subjective QoL—where higher values indicate more dissatisfaction and lower QoL—a Ketena with a mean score of less and equal to the mean score of the sub-city for any given indicator is considered to have a good subjective QoL. A Ketena which has a higher mean

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[2] The income poverty line for 2011 was of 2,508 birr (=146 USD).

score than the sub-city it is consequently considered to have a bad subjective QoL. For the objective QoL it was decided that if more than 50 % of the residents of a Ketena had unaffordable housing, overcrowded living space and not have rooms for rent, that Ketena was considered to have a bad objective QoL for each indicator. If less and equal to 50 % of the residents of the Ketena are living in unaffordable housing, overcrowded living space and do not have rooms for rent, that Ketena was considered to have a good objective QoL with each indicator. Accordingly, when both subjective and objective QoL are good there is *wellbeing*; when both are bad the state is of *deprivation*; when subjective QoL is good but objective QoL is bad there is *adaptation* and when the subjective QoL is bad but the objective QoL is good there is *dissonance*.

3.4 To Identify the Reasons for the Divergence Between Objective and Subjective Quality of Life

In the last step qualitative methods were used to capture data pertaining local perception and opinions on the reasons behind adaptation and dissonance using open ended questions during household surveys and in particular during walking interviews.

Walking interview is a participatory method of data collection and is important for QoL studies because it explores the relationship between people's perception and place. There is a relation between what people say and where they say it (Evans and Jones 2011). The route for the walking interview can be set by the interviewer or interviewee, and it depends more on the knowledge of the interviewer about the place under study and the nature of the study. In this study the route was set by the interviewer since the preselected neighbourhood needed to be covered and the interviewer had detailed knowledge about the place.

In this study the interviews were digitally recorded while walking and later transcribed. Thirty subset samples, 15 from both adaptation and dissonance, were selected for the walking interview. These subset samples were selected based on pre-defined criteria such as ability to walk, having a good knowledge of the neighbourhood, and interest to be interviewed again after the household survey. There were no pre-formulated questions and at the beginning of the walking interviews the respondents were asked about what they feel about their neighbourhood in general. Based on their responses they were further interviewed to understand what brought adaptation and dissonance in the study area.

Content analysis was applied to identify the reasons behind adaptation and dissonance based on the compiled opinions gathered from the individual respondents. Hsieh and Shannon (2005) summarized three approaches for content analysis based on ways of developing initial codes. These are conventional, directed and summative content analysis. For the purpose of this study conventional content analysis is used. This approach better fits to our study as its categories are derived from the data during data analysis by fully understanding the responses (Hsieh and Shannon 2005). Defining unit of analysis, reducing data, developing system categories, coding and revising categories are the steps applied in the analysis.

The interviews were conducted by the first author in the regional language (Tigrigna) and the selected quotes translated into English. The unit of analysis used in this study was phrase. The aim of applying content analysis was to identify and interpret the reasons behind adaptation and dissonance on each specific domain and indicators. The codes are structured for each domain following two main categories: "Adaptation" and "Dissonance". The codes are derived by listening and reading several times the transcriptions. Several words were identified as expressing satisfaction (e.g. happy, good, interesting) or dissatisfaction (e.g. unhappy, bad, disgusting). Example quotes were pre-selected for the

main identified reasons that were characteristic across the interviews, and they were further discussed and agreed among the authors.

During the analysis a marginal number of respondents experiencing dissonance with some of the domains were found in areas classified as reflecting adaptation (and vice versa). Since they were not representative across the interviews they were not considered for further analysis.

3.5 Limitations of the Methodology

Apart from known limitations of including subjective measures in QoL such as the variation of values from person to person (Veenhoven 2002 in: Santos et al. 2007), and the influence of individual aspirations on the satisfaction with personal income (Cummins 2000 in: Santos et al. 2007), there are some specific caveats to note on this mixed method approach.

Focus group discussion gives a good knowledge about the current issues in the study area but they cannot guarantee a comprehensive overview of all the issues affecting QoL. In addition, even though key informants and interviewees can be carefully selected according to a pre-defined criteria they cannot represent the view of the whole community. One of the difficulties experienced during the walking interviews is that the selected interviewees may not be interested to walk and talk. Content analysis requires high analytical knowledge which if it is not carefully done it may result in wrong interpretations. In this research, the first author has extensive local knowledge which not only facilitated the access to the field but also helped in a critical and contextualized interpretation of the interviews.

4 Quality of Life in Mekelle

4.1 Objective QoL

In general, most of the households interviewed have adequate objective QoL conditions for most of the indicators in the three selected domains.

In terms of housing, whereas the majority of the households have sufficient living space (non-overcrowded) they are living in unaffordable housing spending more than 30 % of their family income on housing. Besides, they do not have extra rooms for rent which according to the FGD is an important income generation strategy in the area (Table 2).

According to the selected indicators of objective QoL, the majority of the households have access to public services such as primary education and health facilities and all have access to secondary education facilities and public transport (Table 2). Even though the majority of the residents have access to health facilities the percentage is low in comparison to the other indicators of public services.

As presented in Table 2, according to the official income poverty line of Ethiopia the majority of the residents of the study area are living with adequate family income.

4.2 Subjective QoL

In the housing domain, the majority of the respondents are slightly satisfied with housing crowdedness and room for rent but dissatisfied with the housing affordability (Table 3).

Table 2 Objective QoL measured with indicators of housing, access to public services and adequate family income domains at sub-city level

Domain	Indicator	Level	%	N
Housing	Housing affordability	Affordable	49.0	103
		Unaffordable	51.0	107
	Housing crowdedness	Not crowded	68.6	144
		Crowded	31.4	66
	Room for rent	Available	39.5	127
		Not available	60.5	83
Public services	Access to primary education facility	Have access	95.2	6,495
		Have no access	4.8	327
	Access to secondary education facility	Have access	100	6,822
		Have no access	0	0
	Access to health facility	Have access	69.3	4,725
		Have no access	30.7	2,097
	Access to public transport	Have access	100	6,822
		Have no access	0	0
Adequate family income	Adequate family income	Adequate	62.9	132
		Inadequate	37.1	78

Source: survey data 2011. N for public services represents number of households in the sub-city

Similar to other studies (cf. Eby et al. 2012) housing affordability is the main concern of the residents in this study.

In terms of access to public services there is a mixed picture. Most of the respondents are satisfied with the access to primary education facility, slightly satisfied with access to secondary education facility and public transport but slightly dissatisfied with access to health facility (Table 3).

The reason why the majority of the respondents are satisfied with the access they have to primary schools could be related to the increasing number of primary schools built in the past few years. Even though the number of secondary schools is also increasing and the accessibility is improved, the respondents are slightly satisfied with the access they have to the secondary schools.

The majority of the respondents are satisfied with the family income. This indicator has the highest standard deviation and is dispersed to almost all ranges of the Likert scale applied (Table 3).

In general, none of the respondent is very satisfied with all domains of life and the level of satisfaction is relatively better with family income. Besides, there is more diversity in the level of satisfaction with access to public services than with housing.

4.3 States of Quality of Life

As a result of combining the objective and subjective QoL, four states of QoL are identified for each of the indicators of the domains. It should be noted that not necessarily all states are present in the case study area.

A good example of a mismatch between objective and subjective QoL was found in the indicator of housing affordability. In Ketena 1, 3 and Hossena even though the objective

Table 3 Subjective QoL

Level of satisfaction	Housing						Access to public services								Adequate family income	
	Affordable housing		Housing crowdedness		Room for rent		Access to education facility				Access to health facility		Access to public transport		Adequate family income	
							Primary		Secondary							
	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
Very satisfied	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	1.4	3
Satisfied	1.0	2	17.6	37	19.5	41	80.0	168	48.0	101	11.0	23	5.2	11	24.3	51
Slightly Satisfied	25.7	15	44.3	93	42.4	89	18.0	38	50.0	105	16.0	34	60.0	126	48.6	102
Slightly dissatisfied	18.0	54	11.4	24	11.4	24	1.0	2	1.0	2	37.0	77	8.6	18	19.0	40
Dissatisfied	63.0	132	26.7	56	26.7	56	1.0	2	1.0	2	36.0	76	24.3	51	6.7	14
Very dissatisfied	3.3	7	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0
Mean (6 point Likert scale)	(4.6) dissatisfied		(3.2) slightly satisfied		(3.3) slightly satisfied		(2.2) satisfied		(2.6) slightly satisfied		(4.0) slightly dissatisfied		(3.0) slightly satisfied		(2.8) slightly satisfied	
Standard deviation	0.39		0.54		0.53		0.49		0.56		0.96		1.4		0.98	

Percentage of respondents with different levels of housing, access to public services and adequate family income satisfaction. *Source* survey data 2011

1 = very satisfied and 6 = very dissatisfied

QoL is good regarding housing affordability, the perception of the respondents is bad which indicates a state of dissonance. The opposite occurs where there is adaptation such as in Ketena 7, May Degene and Lemlem Daero. Maebel is the only Ketena which is experiencing dissonance in housing crowdedness and none of the Ketenas experience dissonance in room for rent.

No adaptation is shown for access to primary education and transport. Because 100 per cent of the households are within the objective proximity threshold for access to secondary schools and mini-bus stops only wellbeing and dissonance are found.

As presented in Fig. 3, the identified states of QoL for the indicator access to health facility are spatially clustered.

According to the result of the analysis; Ketena 1, 3, 5, 8 and 9 show wellbeing in general and residents of Ketena 4, Endaba Aneniya and Maebel are experiencing deprivation.

Residents of the Ketenas Hossena and Lemlem Daero experience adaptation with the indicator family income. Four of the 14 Ketenas (6, 7, May Degene and May Baekel) are in general dissonance.

Mapping the four states of QoL helps to target problem areas by identifying spatial patterns, clusters and areas of deprivation, adaptation and dissonance (Fig. 3). However, it should be interpreted carefully since not all the residents per se have the same condition within the Ketenas.

In the sub-city the majority of residents experience wellbeing with the domains of access to public services and family income. However for the domain housing an equal number of Ketenas (four in each case) are respectively in wellbeing and deprivation. This shows that in the sub-city there are contrasting objective QoL conditions related to housing.
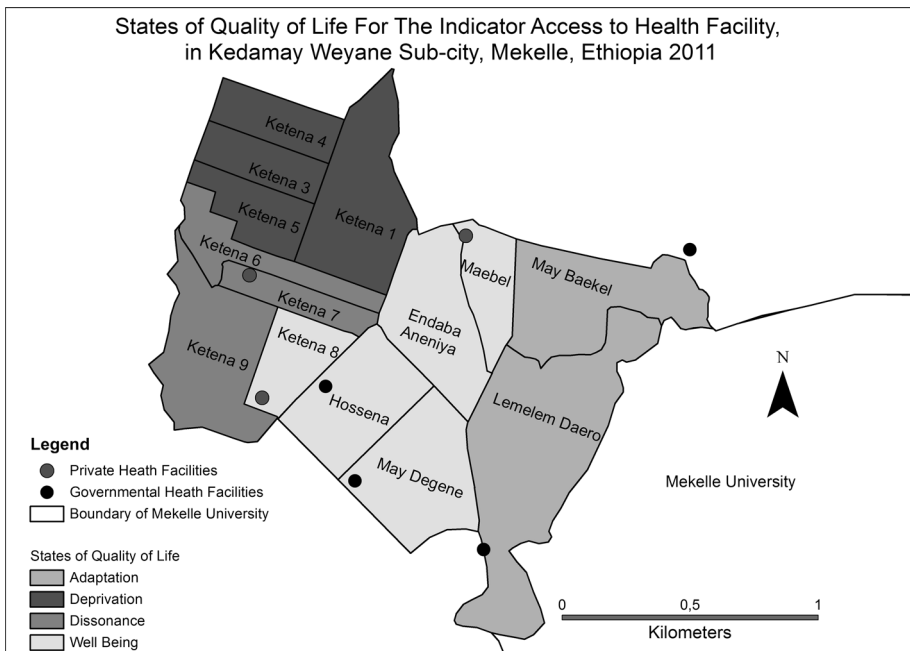
Fig. 3 States of QoL for access to health facility and available health facilities

5 Adaptation and Dissonance in Mekelle

This section presents the main reasons behind adaptation and dissonance for each of the three QoL domains starting with a summary in Tables 4, 5 and 6. The reasons presented in the tables are the most cited reasons and they are not ranked.

5.1 Housing

The main reasons behind adaptation and dissonance for the indicators of housing are presented in Table 4.

5.1.1 Reasons for Adaptation in Housing

As presented in Table 4 some of the residents of the sub-city despite having an objective unaffordable housing condition are satisfied and therefore they are adapting for a reason. Some of them prioritize location, access to basic services or housing ownership over housing affordability.

Some respondents are satisfied with their house not because it is affordable but because it has basic infrastructure specially piped water and improved sanitation. These respondents set availability of basic infrastructure as criterion for spending more money on housing. This was explained by the interviewee as follows:

> Even though the house rent is very expensive, I am satisfied because the house has all basic services, in addition it is very clean, and it has a playground for my children and I do not have additional costs of transport since it is located at the centre of the city. (Ketena 7, Interviewee 1)

Table 4 Main reasons for adaptation and dissonance in housing

Domain	Indicator	Reasons for adaptation	Reasons for dissonance
Housing	Housing affordability	Having access to basic infrastructure	Having no access to basic infrastructure
		Having playground within a house	
			Living style
		Housing ownership	Getting less money from rent
		Housing condition	
		Sufficient living space	Mixing of residential and commercial houses
		Location of a house	
		Social connectedness	
	Housing crowdedness	Unable to pay rent for houses with sufficient living space	Using the rooms as a means of income
		Difficultness of finding a house with fair rent in the sub-city	No place for visitors
			Rules set by the house owners
		Ownership of housing related with not paying rent every month and freedom of children.	
		Social connectedness	
	Rooms for rent	Getting money	Not receiving
		No interaction with tenants	Enough money for rent

Source: survey data 2011

Table 5 Main reasons for adaptation and dissonance in access to public services

Domain	Indicator	Reasons for Adaptation	Reasons for dissonance
Access to public services	Access to primary education facility	N/A	Low quality of the government school available
			Unaffordability of private primary schools
			Safety problem related to physical location of schools
			The teachers are inexperienced
			Unavailability of teaching aid materials
	Access to secondary education facility	N/A	Lack of experienced teachers
			Poor students controlling mechanism of the school
			Unavailability important materials like books, laboratory chemicals
			Unaffordability of private secondary school
	Access to health facility	Affordability of the service	Lack of experienced doctors
		Physical condition of health facility	Lack of medicine
		Availability of medicine	Unethical take caring of patient
		Availability experiencing doctors and other medical staff	Unaffordability and inadequacy of private health facilities
	Access to public transport	N/A	Seats are not available
			No schedule and standard station
			Unfair payment
			Bad behaviour of service providers

Source survey data 2011

Table 6 Main reasons for adaptation and dissonance in adequate family income

Domain	Indicator	Reasons for adaptation	Reasons for dissonance
Family income	Adequate family income	Spending little time at work	Spending much more time at work
		Having a permanent job	Having large family size
		Having an income from other source like house rent (this reason is for old people, sick and for people with low educational background)	Having unaccepted jobs by the society

Source survey data 2011

Others are satisfied with unaffordable housing because of the availability of a backyard within the house. Since public green space is unavailable in the sub-city; as explained in the FGD children used to play on the main roads which is unsafe and causes many traffic accidents. All these respondents have children. Some other respondents are adapting to unaffordable housing because they have sufficient living space. These residents have large families and they are willing to spend more money on sufficient living space. There are also respondents who are satisfied with their unaffordable housing because the house they

have is in a good condition. Besides that, some residents are adapting to unaffordable housing because they owned a house. Regardless of the condition of their house, these residents are getting more money from renting out the house since rent is high in the area.

> Since house rent is expensive in this Ketena especially if it faces the road; I get enough money for my family, for this reason I am satisfied. (Ketena May Degene, Interviewee 2)

Social connectedness is also one reason for adapting to housing unaffordability. These respondents are satisfied with unaffordable housing because they are strongly connected to their neighbours and neighbourhood. Mostly these residents do not even perceive the unaffordability of housing.

On the other hand as presented in Table 4 some of the residents are adapting to overcrowded living conditions as they are unable to pay rent for sufficient living space and housing ownership. These residents are satisfied since they have a house that they can afford regardless of its sufficiency. As explained by one respondent:

> Although my family size is big and the house is small as well as it is in a bad condition, however I am satisfied because the rent is cheap. For us it is not about comfort; it is about having a shelter with less rent. (Ketena 1, Interviewee 3)

Since the sub-city is the most important place for economic activities in the city, getting a house there is very difficult. Some residents are satisfied that they get a house even if they are living in an overcrowded situation. These residents do not want to move to other places with sufficient living space since the area is a means of income for their family. Social connectedness is also another reason identified for adapting overcrowded living condition. These respondents have lived in the area for long time and have strong connection with their neighbours and neighbourhood and they do not want to move to other places.

Housing ownership is also a reason for adapting overcrowded living condition in the study area. These residents are satisfied for two main reasons. Since they are living in their houses they believe they have full freedom in life and they are getting money from rent. These residents initially had sufficient living space. Some interviewees even indicate that they opt to shrink their family living space to free rooms to let:

> Even though we have overcrowded our family living space to get extra rooms for rent; we are satisfied because the income we are getting from house rent is adequate for our family since house rent is very expensive in the Ketena. (Ketena Endaba Aneniya, Interviewee 5)

Irrespective of affordability and crowdedness, housing ownership and social connectedness are the main reasons identified for adaptation.

Findings of the research clearly show that two opposite reasons are influencing residents of the sub-city to experience adaptation with the indicator room for rent. The first reason is related to getting additional source of income. This reason explains why respondents are satisfied with the extra rooms they have for rent, since house rent is expensive in the sub-city. However these residents have overcrowded their family living space to get these extra rooms for rent. To the contrary respondents that do not have rooms for rent also display some adaptation to this fact. They state that having no interaction with tenants avoids possible problems. One of these satisfied residents explains the situation as follows:

> We don't have extra rooms for rent but I am satisfied because we don't have problems related to tenants. As I usually heard from relatives and neighbours most of

the tenants are irresponsible and they create problems related to use of water, toilet and electricity. (Ketena Lemlem Daero, Interviewee 6)

From the walking interviews carried out in Ketena 1, it was found that the central location of the neighbourhood, the availability of affordable recreational areas and social connectedness are the main reasons identified for adaptation. Because the neighbourhood is located in a central area they do not have additional cost of transport to different places including work, market, school and health facility. Availability of affordable recreational areas including cafés, pool house and bars selling local drinks known as *Tej* and *Tela* are also a reason for satisfaction for the respondents.

5.1.2 Reasons for Dissonance in Housing

The main reasons of dissonance with housing affordability identified in this research are having no access to basic infrastructure, getting less money from house rent and mismatch with desired living style (Table 4).

Even though less attention was given to basic infrastructure including piped water, improved sanitation, electricity and a telephone line during the FGD, the majority of respondents were in dissonance with housing affordability because of access to piped water and improved sanitation. These residents, even though their housing is affordable, have additional spending on water and medical services. As piped water and proper sanitation is unavailable especially children often get sick and they need to see a doctor frequently.

Housing prices are not high in every Ketena. Some respondents who have extra rooms for rent are dissatisfied because housing is cheap in their Ketenas. These residents believe that they have good quality rooms but are getting less money from rent compared to other Ketenas.

My house is in a good condition and it has electricity, piped water, toilet and backyard but since the house rent is cheap in this Ketena I am not satisfied. The amount of money I am getting from rent is much smaller than in other Ketenas with the same type of house in the sub-city. Ketena Hossena, Interviewee 7).

Others are in dissonance with the indicator because the house does not match with their living style. These are mostly those who are living in agency houses. This is because the agency houses do not have a garden which is perceived very important in the culture of the society. This was explained by an interviewee as follows:

I am not satisfied with the house which I rent from the housing agency because the houses are constructed without considering the living style and culture of the society. I think how much you spend for housing is not the only reason for satisfaction but does it fulfil the needs of the occupants. (Ketena 3, Interviewee 8).

The main reasons for dissonance with the indicator housing overcrowdedness are: using rooms as a means of income, no place for visitors and rules set by the house owners (Table 4).

Some residents are dissatisfied because they had sufficient living space but to get money from rent they overcrowded their family living space since they do not have any other means of income. These residents cannot go to work due to age, low education status and sickness.

Initially the house was enough for our family but when I became old and stop working; we over crowded our family living space in order to get rooms for rent since there is no other means of income (Ketena Maebel, Interviewee 10).

On the other hand, some residents are dissatisfied with the house they have because of rules of the house owners and the wish of being homeowners. Some of these rules are not to use water more than 25 l per day, not to turn on the light after midnight, not to have many guests and not to use the backyard. This is explained by the interviewee as follows:

> The house is affordable, sufficient and it is in a good condition but we are dissatisfied due to some unofficial inhuman rules from the house owners: I always wish to own a house regardless of its location and condition (Ketena Maebel, Interviewee 11).

Having often many guests and having no extra rooms to accommodate these visitors is also a reason underpinning dissonance. This is more related to the culture and social connectedness of the residents. For these respondents the living space is sufficient for their family members but because of the many visitors their living space is overcrowded.

5.2 Access to Public Services

5.2.1 Reasons for Adaptation in Access to Public Services

Regardless of the poor physical accessibility of health facilities in their area, some respondents of the research are satisfied with the access they have to health facility. The reason of satisfaction of these respondents is not proximity but affordability, physical condition of the health care facility, availability of medicine and experienced doctors as well as other medical staff members (Table 5).

Some of these respondents are satisfied with the access they have to health facility even though they have access not within their neighbourhood but in an adjacent Ketena. The main reason seems to be that it is affordable for them comparing with the family income they have. One respondent explains the situation as follows:

> The health facility we have access to is governmental which is located in the neighbouring sub-city. We are satisfied with the service we get because it is affordable (Ketena May Baekel, Interviewee 12)

As identified in this study even if people have physical access to health facilities if they do not give good service they are willing to travel more distance to get better service. These reasons are explained by the following respondent:

> When I need health service for myself or my family members I usually prefer go to Ayder referral hospital because it is neat and has good medicine supply above all it has well experienced doctors and other medical staff. For this reasons I am satisfied no matter how far it is (Ketena Lemlem Daero, Interviewee 13).

5.2.2 Reasons for Dissonance in Access to Public Services

In relation to access to primary schools, the main reasons for dissonance identified in this study are low quality of government primary schools, unaffordability of private primary schools, safety problem related to school location, inexperienced teachers and unavailability of teaching aid materials (Table 5). In general the reasons of dissonance relates to issues of affordability rather than physical accessibility, adequacy or availability. This is explained by the respondents as follows:

> Even though we have access to primary education facility I am not satisfied because it is expensive since it is private (Ketena Endaba Aneniya, Interviewee 14).

The location of the school is at a side of highway which is inappropriate especially for primary school. I am always worried about my children's safety because I feel as they are exposed to traffic accident, for this reason I am dissatisfied (Ketena May Degene, Interviewee 15).

Being exposed to traffic accidents due to the location of the school is a reason for dissatisfaction not only for those who have access to government schools but also private schools. However, in general more reasons for dissonance are identified by the respondents with access to government schools than with private primary schools. The additional reasons for their dissatisfaction are low quality of the government schools or the fact that there are no experienced teachers available. These schools often have limited teaching materials like books, overcrowded class rooms and insufficient playgrounds. The increasing number of private schools in the sub-city is affecting the governmental schools as they lose experienced teachers to the private schools.

Some respondents are dissatisfied with the access they have to secondary schools because of the lack of experienced teachers. Since secondary school is the place where students take their national exam a lack of experienced teachers could affect the results of the students. As explained by one of the respondents:

Since there is a shortage of experienced teachers in the school we have access to; result of the students in the national exam is poor. For me the school is almost like empty box which produces nothing, generally speaking I am not satisfied with the access we have to secondary school (Ketena Maebel, Interviewee 16).

Although the physical accessibility of secondary schools is good in the area some residents are in dissonance because of lack of teaching aid materials. The schools have laboratory and library rooms but they do not have books, chemicals and other important materials. This situation explained by one respondent as follows:

Actually I cannot say there is a secondary school in this sub-city, even though physically it exists but it does not have teaching aid materials, including books, computers and chemicals (Ketena May Degene, Interviewee 17).

In addition, some reasons behind dissonance were related to the lack of control on students attendance and that there was no fence around the school preventing students to come in and go out any time they want. These reasons are mostly related with the governmental secondary schools in the sub-city. Some respondents who have access to private schools are in dissonance because of unaffordability of the schools. High spending in education can affect the family life especially for households with more children and middle level family income. A final reason for dissatisfaction related to private secondary schools is the competition of dressing and school meals between the students. Since most of the children who go to private schools are from relatively richer families there is also a class difference between the students.

In terms of private health facilities it seems that the main reasons for dissonance are related to affordability of private healthcare and adequacy of government medical services. The number of beds available in the private health facilities are inadequate compared to the number of patients they give service to every day. In addition they have limited supplies of modern surgery equipment. The unaffordability of the private services is explained by one of the respondents as follows:

In this Ketena there are hospitals and clinics which are all private. They are neat, have good medicines and experienced doctors but the payment is very expensive

which is unaffordable for us. If we go once we spend more than half of our monthly family income (Ketena 7, Interviewee 18).

In relation to access to mini-bus stops it seems that being close to it is not enough to be satisfied. Other issues such as timetables, reasonable tariffs, comfortable seats and respect from service providers are perceived important. Majority of the respondents are dissatisfied with public transport for these reasons. People have to wait more than 30 min because no regular schedule is provided. In addition due to poor control by the government, the service providers do not use the proposed tariff and passengers pay the same price for short and long distances. The situation is explained by two respondents as follows:

If we do not go to the main station usually getting a seat is difficult. Even if we get a seat they mostly force us to share it with someone while it is one person's seat. In addition if we want to get services out of the main station we do not have any idea on what time the mini bus can come; I am totally dissatisfied with the service I am getting from the public transport (Ketena Lemlem Daero, Interviewee 19).
In most cases there is no difference between long and short distances in payment. Even though there is a tariff for each stop. The government controlling system is poor in this issue (Ketena May Degene, interviewee 20).

Some of the reasons behind dissonance in access to public services are explained during the walking interviews. Rather than availability and proximity to the services it is unaffordability, unacceptability and inadequacy of the services what generates dissatisfaction. Similarly, the presence of unwanted facilities and the lack of desired affordable facilities are pointed out. In the case of Ketena Endaba Aneniya some of the residents are dissatisfied with their neighbourhood because the number of bars is increasing with the consequent related safety problems. The other reason for dissatisfaction is unavailability of public green space. Even though there is a small private park in the Ketena the respondents are dissatisfied due to unaffordability. The other reason of dissatisfaction is related to absence of government primary school in the Ketena. The residents have access to private schools but they are dissatisfied due to its unaffordability.

5.3 Income

5.3.1 Reasons for Adaptation in Income

Some respondents are satisfied with their inadequate family income because they value and appreciate having a permanent job, the time they spend at work or getting money "without going to work" (Table 6).

The respondents feel secure and satisfied with their permanent job even though their family income is inadequate since there is no fear of losing their job. This was explained as follows by one of the respondents:

The family income is inadequate but regardless of the amount of money I earn; I am satisfied that I have a permanent job (Ketena Lemlem Daero, Interviewee 21).

Others are satisfied with their inadequate family income by comparing with the time they spend at work. Having much more spare time is very important, particularly to women, to take care of children, managing a household and participate in social activities.

On the other hand; having no job but getting an income from other sources like having rooms to let or rent out is also a reason for satisfaction. Usually this is a survival strategy

for those who are old, sick and low educated. One of the respondents explained the situation as follows;

> The main source of our family income is house rent. As you can see I am old and I cannot go to work. I am satisfied at least we have an income. Without this income think how could be our life (Ketena Hossena, Interviewee 22).

5.3.2 Reasons for Dissonance in Income

The main reasons underpinning dissonance in income are spending much more time at work than desired, having large family size and having unacceptable jobs (Table 6). Working for additional hours to fill an income gap is a reason for dissatisfaction. This reason is mostly identified by women respondents. This situation is explained by one of the respondents as follows:

> Our income is adequate but the diverse need of the family members makes it inadequate. I am totally dissatisfied because I am forced to work for more hours since I have to fill the gap (Ketena 7, Interviewee 23).

Having socially stigmatized jobs such as prostitution is also a reason for dissatisfaction for some respondents due to the consequent social exclusion; this was explained by one interviewee as follows:

> Even though the income is enough for my family but I am totally dissatisfied because the job I have now is unacceptable by the society and I am feeling shame I know also as my children feel the same (Ketena May Baekel, Interviewee 24).

6 Conclusions

The findings of the study clearly show that some of the reasons for adaptation and dissonance identified are similar which reflect the trade-offs that residents are faced with. For example the reason for having access to basic infrastructure is a as well a reason for adaptation for those who are living in unaffordable housing in the sub-city as it is a reason for dissonance for those who are living in affordable housing. Another example is having a permanent job; some respondents adapt because they have a permanent job even though they have inadequate family income, while on the other hand there are respondents which are in dissonance because they have a temporary job at the same time that their family income is adequate.

The combination of quantitative and qualitative methods proves to be useful to understand the reasons behind adaptation and dissonance. This approach can be used to refine some of the objective QoL indicators in order to reflect actual concerns of the local community. This is particularly the case of proximity as a measure of objective access to public services which is not necessarily reflected in a positive perception of accessibility by the residents. Another case is that spending more than 30 % family income for housing is regarded as unaffordable but according to this study it does not make residents dissatisfied since there are other aspects which are related to housing that are more important such as access to basic services. Having a family income above the official income poverty line alone does not make citizens satisfied. Also here there are other conditions identified in this study that make residents dissatisfied.

Policy design and implementation can be revised with the new evidence obtained from analysing subjective and objective QoL and the reasons underpinning adaptation and dissonance. As an example, the case of access to public services show how important is to look into other issues apart from availability and proximity to infrastructure. As identified in this study issues of affordability, acceptability and adequacy of public services explain dissonance. In addition, it is also important to distinguish between private and government provided services while measuring objective QoL since the issues underpinning dissonance are different. For example according to this study for government primary school the issue is about education quality whereas in private primary schools the issue is about affordability.

One of the recommendations for further research is to analyse how inequalities in the community influence subjective assessment. From the results obtained in this research it seems that subjective assessments and dissonance in many cases is based on comparisons with others in the community. Respondents usually relate to others QoL condition while assessing or evaluating their individual condition. They compare rent prices among Ketenas or dressing characteristics among classmates. This show how people compare themselves to those that are better off in the community. The level of inequality in the community most probably will also explain why subjective QoL indicators in a highly unequal society would reflect more dissonance than a subjective QoL in a more equal society.

From this research it can be concluded that the formulation and implementation of public policies and strategies could be better informed by identifying the reasons for adaptation and dissonance. One of the identified reasons of dissonance related to domain housing is affordability. In this case a policy for the housing agency could focus on providing houses to citizens according to their income level. Another example is that since physical accessibility of secondary schools is not a concern any more in the area, the policies need to focus on providing teaching aid materials and experienced teachers. Objective QoL is usually measured using indicators that consider official norms and standards. Consequently, revising those norms and knowing the reasons underpinning the mismatch with subjective QoL can help improving the QoL of the citizens and their satisfaction.

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