

**Analyzing variation of urban  
quality of life using participatory  
approach in Addis Ababa, Ethiopia  
A case study of Kirkos Sub-city**

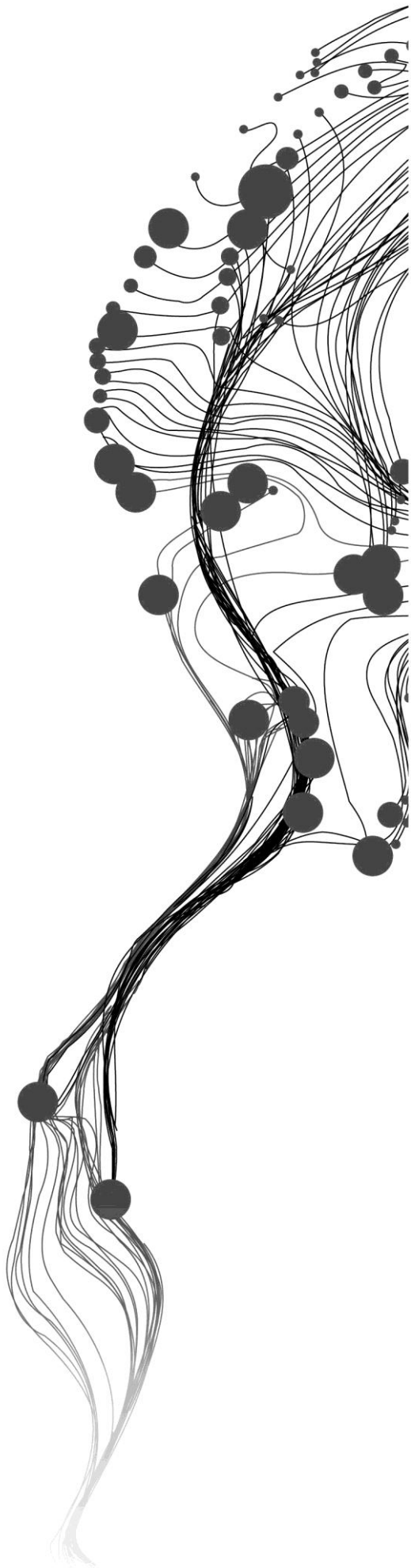
SINDU GETU

February, 2011

SUPERVISORS:

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# **Analyzing variation of urban quality of life using participatory approach in Addis Ababa, Ethiopia A case study of Kirkos Sub-city**

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Enschede, The Netherlands, February, 2011

Thesis submitted to the Faculty of Geo-Information Science and Earth Observation of the University of Twente in partial fulfilment of the requirements for the degree of Master of Science in Geo-information Science and Earth Observation.

Specialization: Urban Planning and Management

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## ABSTRACT

One of the most important political and societal problems of today is how to improve and secure the quality of life in cities. Urban quality of life (QoL) has been the focus of numerous studies although the concept has no universally accepted definition due to the fact that depending on the discipline the concept is defined in a different way. One of the important reasons for such an interest in quality of life is the question of effective allocation of scarce resources. Urban quality of life variation in a Kebele of, - Kirkos Sub- City, and Addis Ababa was analysed using a participatory approach. Participatory mapping, focus group discussion, field observation and household survey were employed. A comparison was made between the results of the sketch mapping exercises, and household survey in order to understand the value of participatory approaches in identification of quality of life in the Kebele. The study reveals that with this approach quality of life domains based on residents perception and priority can be identified in small scale administrative units. The result indicates that housing condition, sanitation, healthcare facilities, safety, roads and air pollution are the most important domains of life that affect the resident's quality of life in the area. The study also demonstrates that the analysis of spatial variation of quality of life at the smallest administrative level can help to understand the quality of life variation in the Kebele. The comparison result demonstrates participatory mapping can be useful tool for analysing the spatial variation of quality of life. In general the findings of this study indicate participatory approach proven to be useful for identifying of domains of life and spatial variations; as it provided valuable visual representation of what a resident's perspectives, opinions, priorities and ideas in quality of life which in turn has the potential to effectively influence decision makers.

Keywords: Quality of life, participatory approach, sketch mapping,

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## ACRONYM

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QoL	Quality of Life
PGIS	Participatory Geographic Information System
FGD	Focus Group Discussion
RRA	Rapid Rural Appraisal
ISK	Indigenous Spatial Knowledge
GPS	Geographic Information System
NGO	None Governmental Organizations
PSP	Participatory Spatial Planning
IFAD	International Fund for Agricultural Development

# 1. Introduction of the study

## 1.1. Introduction

One of the most important political and societal problems of today is how to improve and secure the quality of life in cities (Malkina-Pykh & Pykh, 2008). Urban quality of life (QoL) has been the focus of numerous studies. But the concept QoL has no universally accepted definition due to the fact that depending on the discipline the concept is defined in differently way. For instance, Senlier, et al. (2009) defines as “the relation between the individual perceptions and the feelings of people, experiences within the space they live in”. Tuan Seik (2000) and Ibrahim & Chung (2003) defines QoL as individuals all over satisfaction. Bowling & Windsor (2001) define quality of life in terms of what one has lost, or lacks, rather than what one has.

Quality of life relates to description and evaluation of conditions of life of people in a certain country or region. Thus, despite many research attempts have been made to study the elements which determine QoL and to propose the mechanisms which could contribute to its improvement, they vary on the domains of life considered; such domains include safety, housing and built environment, and the scale of the study. QoL is a multidimensional concept and it is context dependent (Bramston, et al., 2002; Shin, et al., 2003). For this study, a definition is adapted from Senlier, et al. (2009) that defines urban QoL as the relation between the individual perceptions and the feeling of people, and their experience within space they live in.

In this study, the participatory approach is used in order to analysis the variation of quality of life within smallest administrative unit (Kebele). The approach involves a comprehensive analysis of variation of quality of life based on different stake holder priorities as well as structured interview.

## 1.2. Background and justification

Quality of life has been topics of social science research since decades (Lever, 2000). One of the important reasons for such an interest in quality of life is the question of effective allocation of scarce resources (Lotfi & Solaimani, 2009). The process of urbanization often intense and disorderly is also another reason in itself inductive of a set of problems, whose influence in the conditions of life of citizens is essential to know and to evaluate (Santos, et al., 2007). In addition, it is assumed that the prospect of generating improvements to quality of life at local community level and individual level stimulates local development effort (Fahy & Ó Cinnéide, 2008).

Quality of life is often measured using either subjective (qualitative) or objective (quantitative) indicators, which are assumed to be distinct identities (Pacione, 2003; Shin, et al., 2003; Tuan Seik, 2000). Subjective indicators, usually called perceived indicators, represent the individual’s appraisal of objective conditions of life, and are derived from resident’s perception, evaluation and satisfaction with urban living. Objective indicators represent the external conditions of life that are often derived from secondary data. As indicated by Lee (2008), during the early stage of the development of quality of life measurement, most social indicators were based on governmental statistics followed by objective living environmental condition. However, the all over perspectives has led to the neglect of subjective perspectives. While recent studies that have been done on the quality of life emphasise that the quality of life is very much connected to the

perceptions, feelings, and subjective values of the persons (Bowling & Windsor, 2001; Lee, 2008; Michalos, 1997; Senlier, et al., 2009; Tuan Seik, 2000).

Thus, it is vital to analyse perceptions of quality of life domains reflecting attitudes, preferences, or priorities of the inhabitants. Participatory approaches are used to provide qualitative insights in to local QoL issues with a great depth and detail. For example, how the inhabitants view their own quality of life or how is satisfied. They have an important contribution to make in defining the quality of life, and ensuring that we do so in ways that genuinely reflect people's own perspectives (Pettit, 2004). In particular, these methods can bring added value and insight to more complex and context-specific issues (ibid). Participatory mapping (p-mapping) has proven to be useful methods in such areas where local communities are empowered to produce their own maps based on their spatial knowledge. P- mapping and PGIS are well suited to assessing needs and analyzing problems, local perceptions and priorities for communicating to planners and policy makers (McCall, 2003)

Accordingly, analysing inhabitants' satisfaction of quality of life is very useful to planners and government departments involved in the planning and implementation of public policies. This is because such studies can assist in the formulation of strategies and policies to improve quality of life by identifying the problem areas, causes of dissatisfaction, demographic influences and the citizens' priority in life. Besides, the effectiveness of policies and strategies can also be evaluated and monitored against the results from such studies(Ibrahim & Chung, 2003). Furthermore, the spatial representation and analysis of quality of life of human being becomes important instrument for investigating and discussing social, economic and environmental problems (Brereton, et al., 2008; Henninger & Snel, 2002). Thus, quality of life studies has become a major input and reference for local officials to improve inhabitant's QoL.

### **1.3. Research problem**

Quality of life studies have been a growth area in the developed world and similar researches in the developing countries are very limited especially which have used the participatory approaches for quality of life. Many studies on quality of life were done in developed countries, as many of the authors attempted to find a comprehensive set of indicators which they think will suffice to adequately measure the quality of life. However, most of these studies were very general in nature in that they attempted to measure the overall quality of life in a particular city or state and only a few studies have been done on the quality of life of at small scale level (Ibrahim & Chung, 2003).

Researches which are specifically oriented toward quality of life and which have done at small scale level in developing countries are very limited. Especially in Ethiopia, studies on the quality of life, which incorporate GIS and participatory methods, appear to be limited. Consequently, the main factors that affect the QoL of individuals' are not clearly identified. In terms of the scale of the studies, usually quality of life studies are conducted at regional and country level. However, macro-scale quality of life assessments can hide enormous spatial variation at province, or district level (Teshfazghi, et al., 2010). As a consequence local variation is often overlooked in macro scale vulnerability studies. Therefore, studies that attempt to investigate QoL at a higher resolution are needed to illustrate the importance of this variation.

This research will analyse the variation of urban quality of life at a lower scale, within the smallest administrative unit, to provide the much needed information to the stakeholders about perceived quality of life, which can form the basis appropriate development interventions for improving urban QoL. Understanding the spatial variability of QoL based on inhabitant's priorities (participatory approach) will provide useful formulation and implementation of appropriate policies addressed to improve the quality of life.

## 1.4. Research objectives and questions

### Main objective

The main objective of the research is to analyze the urban quality of life and its spatial variation within the smallest administrative unit (Kebele) of Kirkos sub-city, Addis Ababa, using a participatory approach. To achieve the main research objective following specific objectives and research questions were formulated.

- To identify the domains of life that affects the quality of life according to the residents in the study area using a participatory approach.
  - What are the quality of life domains within local context according to different stake holders?
  - Which domains of life are prioritized by stakeholders from the different domains of quality of life?
  - How well stakeholders can represents their priorities of quality of life on sketch maps?
  
- To analyze the spatial variation of perceived quality of life within a Kebele.
  - How is the spatial variation of the quality of life with in a Kebele?
  
- To study how the participatory mapping tools can be used in analysing the variation of the quality of life.
  - How do the results of the participatory mapping comply with that of information gathered during household survey?
  - What is the strength and weakness of the participatory method?

Table 1-1: Research matrix

No	Specific objective	Research question	Methods	Data requirement
1	To identify the domains of life that affects the quality of life according to the residents in the study area using a participatory approach.	<ul style="list-style-type: none"> <li>- What are the quality of life domains within local context according to different stake holders?</li> <li>- Which domain of life are prioritized by stakeholders from the different domains of quality of life?</li> <li>-How well stakeholders can represents their priorities of quality of life on sketch map?</li> </ul>	<ul style="list-style-type: none"> <li>- Focus group discussion this includes administrators, planners, community representatives and key informants )</li> <li>- Field Observation</li> <li>-Participatory mapping (sketch mapping</li> </ul>	<ul style="list-style-type: none"> <li>- Quality of life domains (From the literature)</li> <li>-Aerial photograph</li> </ul>
2	To analyze the spatial variation of perceived quality of life within a Kebele.	<ul style="list-style-type: none"> <li>- How is the spatial variation of the quality of life with in a Kebele?</li> </ul>	<ul style="list-style-type: none"> <li>- Participatory mapping</li> <li>- Spatial interpolation</li> </ul>	<ul style="list-style-type: none"> <li>- Participatory sketch mapping results</li> <li>- Data from house hold survey</li> <li>-Primary spatial data from field observation</li> <li>-Administrative boundary</li> <li>-Location of services</li> </ul>
3	To study how the participatory mapping tools can be used in analysing the variation of quality of life	<ul style="list-style-type: none"> <li>- How do the results of participatory mapping comply with that of information gathered during household survey?</li> <li>- What is the strength and weakness of the participatory method?</li> </ul>	<ul style="list-style-type: none"> <li>- Comparison (participatory mapping with household survey)</li> <li>- Interpolation</li> </ul>	<ul style="list-style-type: none"> <li>- Sketch mapping result</li> <li>- Household survey</li> </ul>

## 1.5. Conceptual frame work

Urban quality of life is associated with several components of domains of life (van Kamp, et al., 2003). Life satisfaction is the sum of satisfaction with different environmental domains (ibid). The conceptual frame work in figure 1-1 shows, urban quality of life comprises a number of domains of life and these domains of life reflects the perception of the residents/ stake holders perspective/. These domains of life can be categorized as Housing: housing condition, housing availability, and housing affordability. In addition Accessibility to public services, such as health care facilities, schools, recreational areas, shopping, transport. Built environment which includes air pollution, noise pollution, sanitation, housing congestion and neighbourhood are one of the domain. The Safety in neighbourhood such as crime rate, streetlights, police station availability considered in the domain. Subjective approaches to urban quality of life measure the satisfaction level of citizens regarding their life and to collect a 'perception' based on the personal and introspective experience of each person (Santos, et al., 2007). The observed quality of life such as locations of the service facilities can help to understand the quality of life of certain place. Thus combing the two dimensions the urban quality of life analyzed.

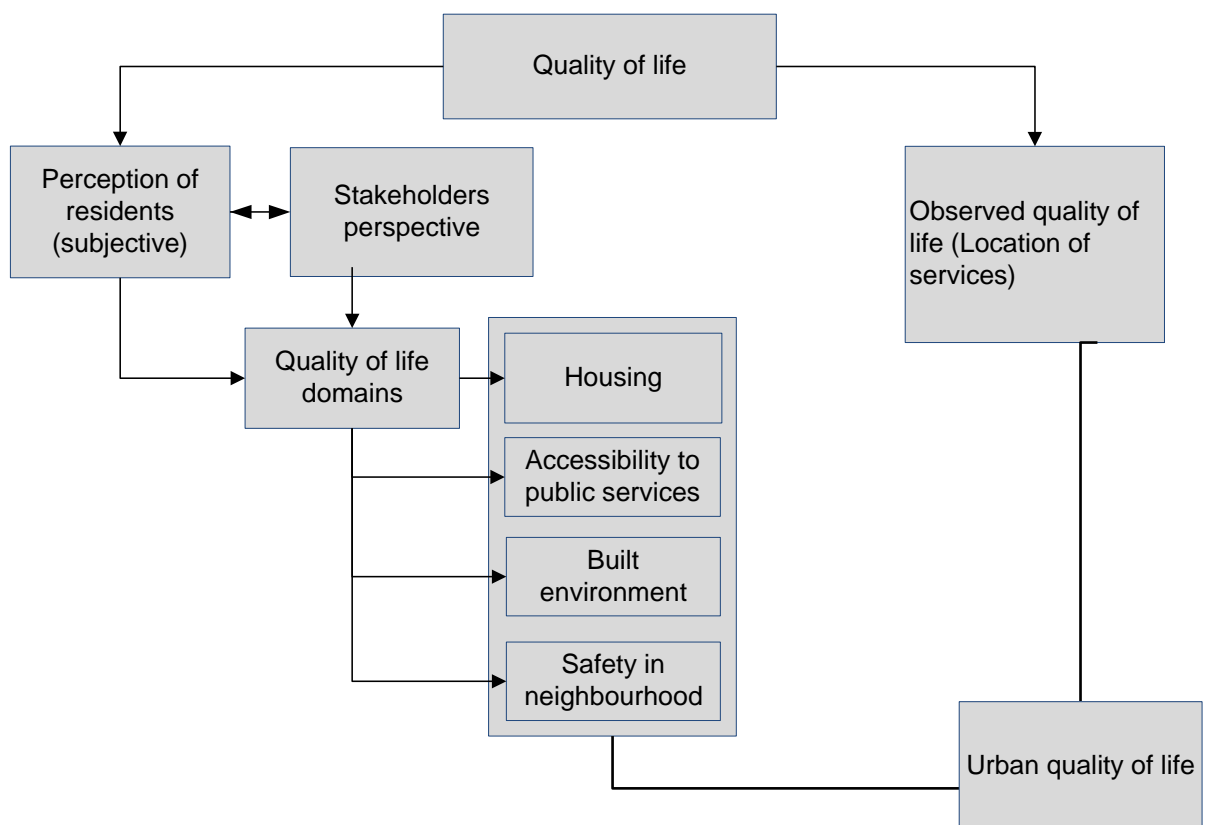


Figure 1-1: Conceptual frame work

## 1.6. Structure of the thesis

**Chapter one:** This chapter is the introductory chapter of the thesis. It provides the introduction to quality of life, the background and justification and discusses the research problem. The chapter discusses the theoretical background which was the base for the objective and research questions are defined.

**Chapter Two:** This chapter explains the theoretical foundation of the study, concept of urban quality of life and participatory approach by reviewing and commenting on the literature on the urban quality of life.

**Chapter Three:** chapter is a narration of how the research was conducted. It gives an overview of the study area specifies the study approach adopted for the research. The detailed explanation is given on the methods, tools and techniques applied for this study.

**Chapter Four:** The chapter presents the finding of the study in terms of outlined research objectives. It begins with the analysis of quality of life domains identified through participatory approach. It includes stake holders (community representatives and experts) views of quality of life in the study area. And the variation of quality of life in the study area

**Chapter Five:** Provides the comparison analysis of the results of sketch mapping with household survey have done in order to understand the participatory approach in QoL. In addition the usefulness of the participatory approach, the strength and weakness of the approach are presented

**Chapter Six:** Provides conclusion and recommendation.

## 2. Concepts of Quality of Life and Participatory GIS

### 2.1. Introduction

This chapter discusses and reviews works done by other scholars on the area of urban quality of life and the participatory approach and its application in identification of urban quality of life variation. The first section deals with the concepts of urban quality of life; definition, measurements and the limitation of the measurements of quality of life. The second section deals with participatory methods and how they have been adopted in this context.

### 2.2. Urban quality of life

Quality of life is a multidimensional concept and it is context dependent (Bramston, et al., 2002; Shin, et al., 2003). The theoretical definition of the related concepts of happiness, wellbeing, the 'good life' and quality of life attracts much conceptual confusion, and preoccupies a wide range of disciplines (Bowling & Windsor, 2001). Thus, many researchers define quality of life differently. Tuan Seik (2000) defines QoL as individuals all over satisfaction. Senlier, et al. (2009) defines as "the relation between the individual perceptions and the feelings of people, and their experiences within the space they live in". Bowling & Windsor (2001) define quality of life in terms of what one has lost, or lacks, rather than what one has. Other scholars defines as the subjective feeling that one's life overall is going well (Ibrahim & Chung, 2003; Malkina-Pykh & Pykh, 2008; Narvaez, et al., 2008)

Researchers from a variety of disciplines have studied QoL from several disciplines (Marans, 2003). They tried to identify the elements of QoL and compared various geographical areas such as cities, states and nations by means of QoL indices that they developed. For example, Diener & Suh (1997) studied correlations of the wealth of nations and social indicators between Israel and Tunisia; Senlier, et al. (2009) studied a comparison of European cities with life satisfaction (Turkey and European city). Hardi & Pintér (2006), studied City of Winnipeg Quality-of-Life Indicators. Santos, et al. (2007), made a survey to Porto's residents.

### 2.3. Domains of quality of life

Studies that have done in urban quality of life tend to divided life in to a number of domains (Apparicio, et al., 2008; Sirgy, et al., 2000; van Kamp, et al., 2003). These domains are assumed to answer a number of questions on the various aspects of life. Quality of life is multi dimensional , comprising a number of life domains which people weight differently according to how important each is in their life (Bramston, et al., 2002; Malkina-Pykh & Pykh, 2008). Although the range of domains of life varies with different scholars, some domains have used in a number of studies. Among these are: accessibility to public services, housing, safety, built environment, psychological, social, and physical. Several studies on urban quality of life emphasized the importance of these domains. As van Kamp, et al., (2003) the choice of domains is related to the discipline (perspective) from which the subject is approached. Thus, in this study the following domains are considered.

**Accessibility of public services and facilities:** This involves access to health care facilities, schools, recreational areas, public transport, and access to shopping. Access to public services and facilities play a



major role in disadvantaged neighbourhoods as means of improving quality of life. Besides, there is a growing interest by policy makers and urban planners in the analysis of spatial distribution of urban recourses. Accessibility of public services and facilities can be expressed in terms of proximity and quality.(Apparicio, et al., 2008; Cicerchia, 1996; Das, 2008; Sirgy, et al., 2000; Tesfazghi, et al., 2010).

**Housing:** This domain involves housing condition, housing availability to buy or rent, housing affordability, crowding in dwelling and number of rooms (Møller, 2007; Santos, et al., 2007; Senlier, et al., 2009).

**Built environment:** The built urban environment contributes to the way people feel about where they live and impacts strongly on the sustainability of the natural environment. It encompasses the housing congestion in surroundings and environmental pollution (Malkina-Pykh & Pykh, 2008; Santos, et al., 2007; Senlier, et al., 2009; Tesfazghi, et al., 2010).

**Urban Safety:** This involves the prevention of events that could endanger the safety of the urban dweller. Safety includes crime rate, availability of police stations, feeling of safety in neighbourhood (Barton, et al., 2005; Santos, et al., 2007).

## 2.4. Measurement of quality of life

A number of scholars in the fields of the social science, planning and other design professions have argued that quality of any entity has both subjective dimension as well as objective reality (Marans, 2003). However, most studies during the early stage of the development of quality of life measurement, were based on governmental statistics followed by objective living environmental condition(Lee, 2008). Thus, the all over perspectives has led to the neglect of subjective perspectives. On the other hand, studies which have done on the quality of life emphasised that the quality of life is very much connected to the perceptions, feelings, and subjective values of the persons (Senlier, et al., 2009). Quality of Life is a concept which can be explored from a variety of perspectives (Lever, 2000).

Despite the absence of a single definition of quality of life, there are many similarities and correlations among the concepts which are applied by scientists for measuring this concept. Quality of life is usually measured with subjective and objective indicators. As many researchers stated, Subjective indicators represent the individual's appraisal of objective conditions of life, and are derived from surveys of resident's perception, evaluation and satisfaction with urban living. For instance, satisfaction of people from health care accessibility, access to job, satisfaction of urban security or access to green spaces. Objective indicators represent the external conditions of life that are often derived from secondary data (Lotfi & Koohsari, 2009; Pacione, 2003; Shin, et al., 2003; Tuan Seik, 2000). For instance, the number of hospitals in a city, unemployment rate, the volume of crime and the area of urban green spaces. This indicates the two aspects of quality of life are mainly accepted by the researches and are used for measuring quality of life.

## 2.5. Limitation of the measurements

There are some limitations to the measurement of the quality of life. As Solaimani (2009) describes the citizen satisfaction from different aspects of urban life would not be study by objective indicators. The author explained that empirical research provides support for the generalization that correlations between objective indicators and relevant life satisfaction domains are often weak and generally lower than correlations between life satisfaction domains and overall life satisfaction. Das (2008) indicated that

objective indicators are very often imperfect by under reporting or over reporting the quality of life in the area. As stated in Tuan Seik (2000), objective indicators themselves may not express the true quality of life since these indicators have high measurement reliability but low validity in assessing human wellbeing.

While objective measures have limitation as discussed above, studies which have done on the quality of life emphasised that the quality of life is very much connected to the perceptions, feelings, and subjective values of the persons (Lee, 2008; Santos, et al., 2007; Senlier, et al., 2009; Tuan Seik, 2000). In this case the participatory approaches to elicit the local knowledge communities have on quality of life enables to gather more aspects of quality of life. Participatory approaches have an important contribution to make in defining well-being, and ensuring that we do so in ways that genuinely reflect people's own perspectives (Pettit, 2004). Participatory approach methods has demonstrated strong potential as a tool for analyzing and mapping indicators of 'poverty', quality of life within rural and urban communities (Barton, et al., 2005; Fraser, et al., 2006; McCall, 2003). As stated in Pettit, (2004) the Pathways to Participation research experiences in eight countries found that the methods were useful in identifying improved quality of life according to local standards.'

## **2.6. Participatory mapping**

As defined by IFAD (2009) participatory mapping is 'the creation of maps with local communities often with the involvement of stakeholders engaged in development and land related planning'. P-mapping facilitates the representation of local people's spatial knowledge using two or three-dimensional maps (Kumara, 2008; Rambaldi, 2006). Participatory mapping uses a range of tools including data collection tools that are commonly associated with Participatory Learning and Action initiatives. These tools include participatory sketch mapping mental mapping, ground mapping, and transect mapping and participatory 3-dimensional modelling (IFAD, 2009; Wang, et al., 2008).

Participatory maps present spatial information at various scales. They can depict detailed information of village lay out and infrastructure (e.g. roads, transport or the location of individual houses) (IFAD, 2009). These map products can be used to facilitate decision-making processes as well as support communication and community advocacy (ibid). It often relies on the combination of 'expert' skills with local knowledge (ibid). P- mapping has been applied to Participatory Spatial Planning (PSP), community mapping, participatory land use planning, awareness-raising, and efforts to build people's empowerment (McCall, 2003). Unlike traditional GIS applications which focus on outcome; P- mapping practice tends to emphasize the process by which outcomes are attained (Rambaldi, 2006).

### **2.6.1. Participatory mapping in urban planning**

P- mapping methods are widely used in urban community neighbourhood identification, problem prioritization and participatory planning (McCall (2003). Senlier, et al. (2009) illustrates that in the planning policies to be developed for sustainable development of the city, policies aiming to increase the urban QoL should be handled in a comprehensive approach, together with the policies for economical and social development of the city. In the line with this, during the process of determination of spatial development strategies of the city, collaboration and consensus of opinion of the regional public authorities, private enterprises, nongovernmental organizations, and the residents, become very critical and important (ibid). Participatory mapping is hence a very useful tool to get first overview of where the largest problems regard to urban issues are found (Lienert, 2009). It allows both local stakeholders and external planners to explore current situation in a simple, but comprehensive way (ibid).

McCall (2003) illustrated that for p-mapping to be a participative it must make use of local information, specifically indigenous spatial knowledge (ISK). The geo-information tools used in these applications include collaborative spatial data collection using RRA methods, participatory maps, aerial photos and remote sensing images; and p-mapping analyses and representations (McCall, 2003).

Participatory methods are used to provide qualitative insights into local poverty issues with a greater depth and detail (Hargreaves, et al., 2007). They can be more rapid than the conduct and analysis of ordinary surveys (ibid). As a participatory approach, participatory mapping has two fundamental functions: firstly it is a spatial tool which is used to combine both official expert and local stakeholders' spatial knowledge into a mapping process for the exploration of issues; secondly it is a communication medium for spatial learning, discussion, information exchange, analysis, advocacy and decision making (Hargreaves, et al., 2007; Wang, et al., 2008). Furthermore the tools used by in Chua and Wong (2002), indicated, these tools have seen effective in quality of life in the identification of crime, housing, poverty, and on a study in Philadelphia. (Barton, et al., 2005)

P- Mapping has proven to be useful practice in such areas where local communities are empowered to produce their own maps based on their spatial knowledge. These maps have contributed a great deal to understanding how people experience their living condition, and to its measurement (Pettit, 2004). They can also being combined with conventional methods, for example to identify appropriate criteria and to design better surveys (Adams, et al., 1997; Hargreaves, et al., 2007; Pettit, 2004)

### **2.6.2. Public participation in participatory approach**

Public participation is very fundamental in participatory approach. As McCall, (2004) indicated participation is the key and the essence to participatory mapping. Studies which have focused on public participation in planning process emphasized that the more people involved in developing the plan, the more likely that the plan will appropriately address issues that are important to the community. Craig (1998) emphasized that plans that have engaged many people have the support that is needed to bring the plans to fruition. Participation by residents in planning and implementation of practical improvements in the areas where they live and work, and in local plan preparation has positive outcomes and can be scaled up to play a role in city level planning (Habitat, 2009). Citizens' knowledge provides a rich source of updated information that helps to improve the quality of the analysis, leading to different solutions than when using traditional forms of data (Bugs, et al., 2010). This is because (ibid) local people usually know their local areas better than anyone else and so can reasonably expected to provide detail insights into local phenomena that are not normally available via ordinary geographic information data set.

As Kumara (2008) describes participation in community development is significant factor which can help to achieve the development goal. Some of the benefits of public participation he has mentioned are given below;

- Community interest in the development process.
- Community interest in the localities in which such a project is planned.
- Empower the communities in the decision making process
- Communities able to fully contribute their own local knowledge to the repository of expert environmental and social data
- Facilitation, investigation, analysis, presentation and learning by local people and sharing of information and ideas.

## **2.7. Relevance of participatory approach for this study**

Participatory mapping offers innovative and participatory-oriented approaches in collection of spatial qualitative data (Elwood, 2006). As mentioned by Elwood (2006) the new participatory practices of participatory mapping are closely linked to qualitative methods. Thus, qualitative methods allow an in-depth study of a phenomenon, capturing the richness of people's perceptions and experiences (Blackstock, et al., 2007), and in this case, quality of life in the study area. Research on qualitative approaches showed that efforts to integrate qualitative data and techniques with GIS have been building in recent years (Cope & Elwood, 2009). Many researchers use GIS based spatial analysis for qualitative research, such as focus groups, interviewing or participatory action in order to strength research findings (Dennis, 2006). Qualitative methods allow the study of a case in detail, capturing people's perception. Participatory approaches have an important contribution to make in defining the quality of life, and ensuring that we do so in ways that genuinely reflect people's own perspectives (Pettit, 2004). The applications of participatory mapping and PGIS for spatial information include spatial extent and degree of air pollution, unsafe urban sites, mapping the realities and the perceptions of social dangers and safety and lifestyle hazards, crime and security (IFAD, 2009). As many studies indicated, perceptions of quality of life domains reflecting attitudes, preferences, or priorities are not easily captured by other methods. Thus, it is possible using participatory tools and methodologies to identify issues or obtain information on variables not obtained by other methods.

In addition, participatory methods have been cited as an effective process towards implementation and sustainability of development. (Chaure, 2010) Participatory GIS has demonstrated strong potential as a tool for analyzing and mapping indicators of 'poverty', quality of life within urban communities. (Barton, et al., 2005; Fraser, et al., 2006; Lemma, et al., 2006; McCall, 2003).



### 3. Study Area and Research Methods

In this chapter the study area and the methodology used in this study are presented. For this study primary and secondary data collection were used based on their applicability and usefulness towards achieving the research objectives. Criteria for the selection of the study area and descriptions of the study area are also explained under this part.

#### 3.1. Criteria for the selection of Study Area

Criteria for selection of the study area is mainly based on previous studies (Tesfazghi, et al., 2010) conducted in quality of life. Tesfazghi et al., (2010) studied variability of QoL in Kirokos sub-city and demonstrated high level of variability in Kebele 08/09. Aerial photograph 2005 of the study area in Figure 3-1 also illustrated heterogeneity in housing and road infrastructure.

For the purpose of this study, the study area was divided into three Sub-Kebele divisions (site A, B & C). The purpose was to develop intra-urban quality of life analysis, based on relative homogenous criteria, (Santos, et al., 2007). And in order to facilitate the smooth flow of the participatory approach. The division of the sites were based on location characters, which emanate from local knowledge. These areas share common facilities and fall in same social associations.

#### 3.2. Description of the city Addis Ababa

##### **Addis Ababa**

The city of Addis Ababa is the capital city of Ethiopia and is a Chartered City having; three layers of Government: City Government at the top, 10 Sub-city Administrations in the middle and 99 localities called 'Kebeles' at the bottom. It is one of the fastest growing metropolitan areas in Ethiopia located almost at the geographic centre of the country at an altitude of about 2,500 meters above sea level.

The capital city Addis Ababa is also one of the fast growing cities in the World. Based on the 2007 population and housing survey, the population of city of Addis Ababa is estimated to be about 2.74 million. The Urban-rural distribution of population in Addis Ababa indicates that the overwhelming majority of the population is living in urban areas (CSA, 2008).

Addis Ababa has emerged as a city that has both international and national significance. It serves as seats of various international organizations and embassies. The fact that it is the seat of African Union (AU) and Economic Commission for Africa (ECA) enables her to be called the capital of Africa. Addis Ababa is the major commercial, industrial, educational and political centre of the country.

##### **Kirkos Sub-city**

Kirkos Sub-city is one of the Sub-cities found under Addis Ababa City Administration. The sub city is an inner city of Addis Ababa. The inner cities in Addis Ababa are old cities characterized by heterogeneity in terms of the physical and socio economical condition. For the purpose of administration, the Sub city is divided in to 11 smaller administrative units (Kebeles), namely Kebele 08/09, 11/12, 02/03, 04, 10,

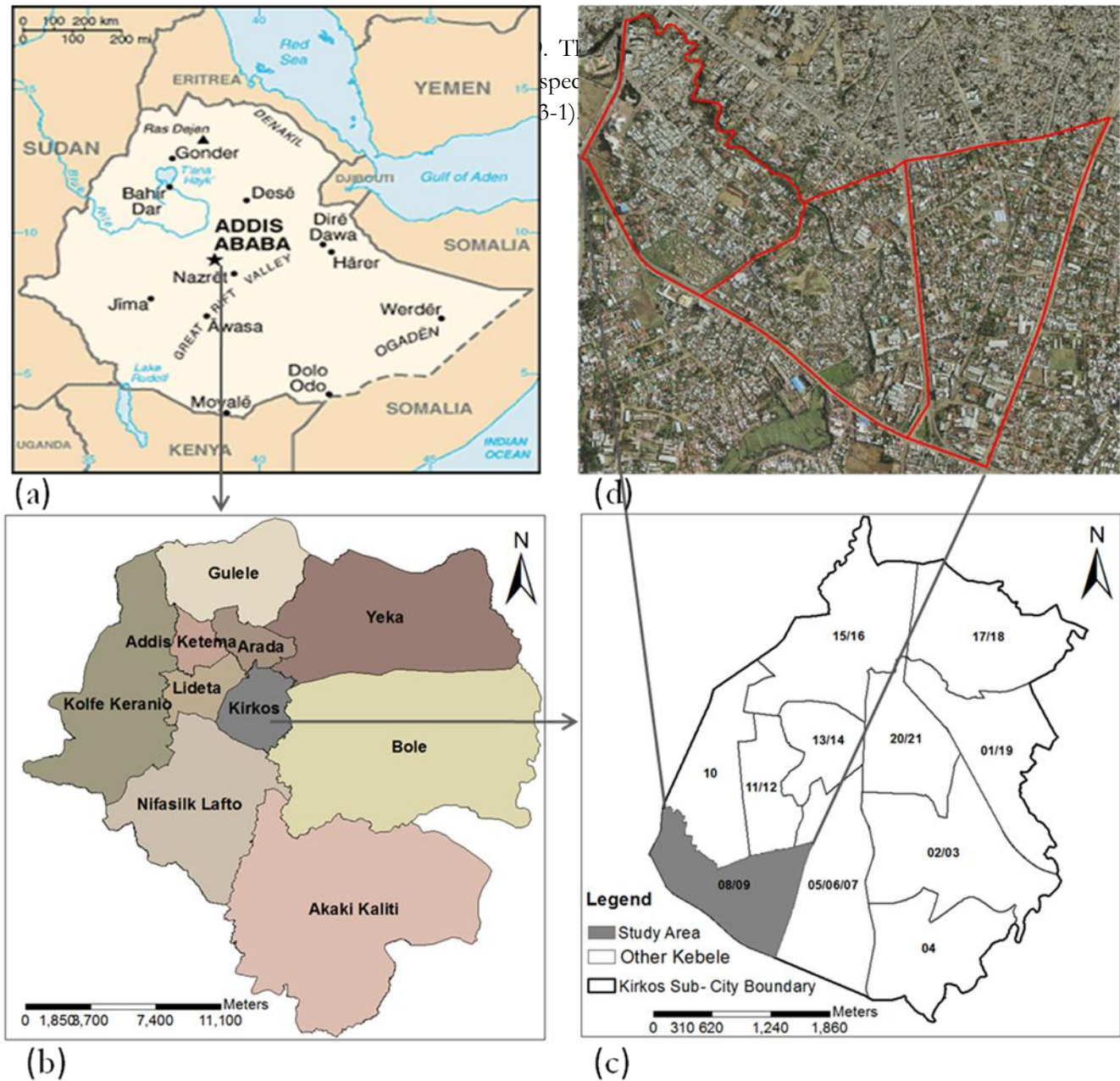


Figure 3-1: Map (a) Map of Ethiopia (b) Addis Ababa City boundary (c) Kirkos Sub- city boundary (d) Study area (Kebele 08/09)

### Kebele 08/09

Study area, Kebele 08/09 covers about 122 hectare. Most of the land use in the Kebele is residential. However, in some parts of the Kebele, there exist commercial, government and private organizations. The population of the Kebele is 20,925. The density is 172 per hectare. The Kebele is bounded by a road in the south, west, and partly in eastern part as well as by a river in the Northern part. Like other inner city Kebeles of Addis Ababa, the poor and rich peoples are living side by side.

Table 3-1: Characteristics of 11 Kebeles of Kirkos Sub city

No	Name of Kebele	Population in (2007)	Kebele area	Population density
1	08/09	20925	122	172
2	11/12	22842	72	317
3	02/03	24991	195	128
4	04	12784	133	96
5	10	11042	118	94
6	5/06/07	28450	161	177
7	13/14	22688	68	334
8	15/16	17002	188	90
9	17/18	21484	163	132
10	20/21	20557	105	196
11	01/19	18226	140	130

Source: Municipality of Kirkos Sub city based on census 2007.

### 3.3. Research design and methodology

The research was initiated with a literature review. The review was carried out with the purpose of establishing a theoretical framework to more fully understand the concept of urban quality of life, and the principles and criteria' used to examine the different dimensions of urban quality of life. The process of the research approach is illustrated in Figure 3-2. The research process included three phases; Pre field work, Field work and Post field work.

#### Pre field work

This entailed the development of the research proposal which includes problem definition, the formulation of research objectives and associated research questions and developing assessment criteria's for urban quality of life so as to achieve the research objectives. The pre-field work phase was also focused on selection of domains of life that are relevant for urban planning in developing countries from literature review. The sampling strategy and the sampling points for the house hold survey was also prepared.

#### Field work

Data was collected in the ground based on participatory mapping methods. This includes focus group discussion, field observation, participatory sketch mapping GPS, GIS and household survey. In addition other secondary data a also collected.

#### Post field work

In the third phase, the data collected on indicators of urban quality of life were analyzed against the intended objectives.



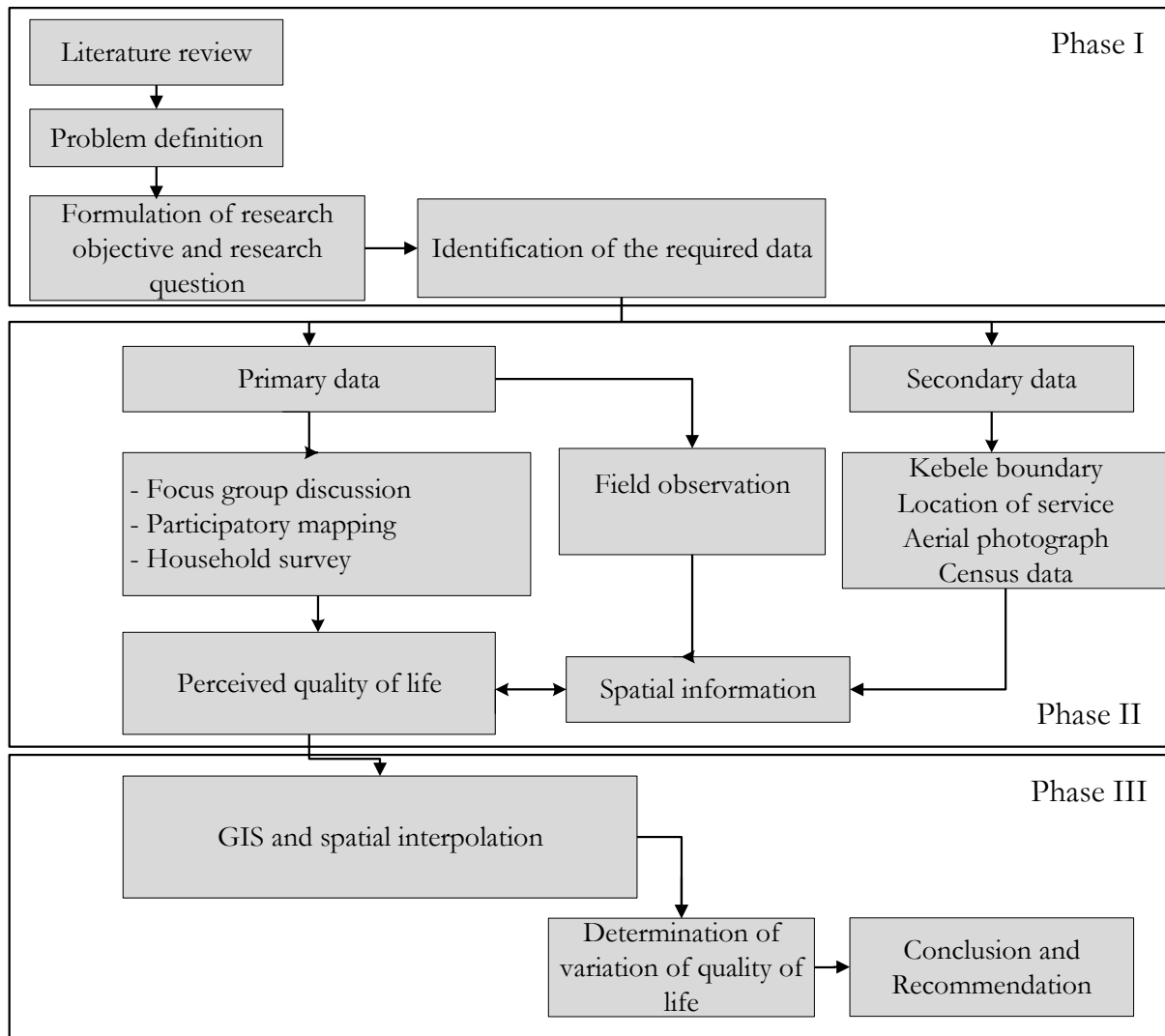


Figure 3-2: Research design

### 3.3.1. Sampling methods

Structured interview was conducted by employing systematic random sampling approach for selecting sample households. One unit at random and then selects additional units at evenly spaced intervals until the desired sample size has been reached. The interview was conducted by taking 10% of the household in the study area which is 410 sample points. A 50 x 50 grid was constructed in order to cover the whole study area. Then a random point is assigned for the whole study area in the image (aerial photograph 2005). Every household in 50ms is taken as a sample point. Although the study area as it is previously mentioned is divided in to 3 Sub- Kebele Sites, the grids are applied for the whole study area. Sample points taken in site A,B and C are 119, 113 and 178, respectively. The points that have fallen down outside the residential place are assigned to the closest household. The sample points were identified in the image of the study area before field work.

Additionally, purposeful sampling is done in order to get the participant who can best give the required information. The selection of respondents is largely determined by the nature of the study and the characteristics of the population (Groenendijk & Dopheide, 2003). Also, the author indicates that most significant dimension a research needs to consider in selecting respondents is whether they consist of a heterogeneous and homogenous. Thus, by considering the heterogeneity of the Kebele, the focus group participants are selected from different parts of the study area.

### 3.3.2. Data collection

For the purpose of achieving the objectives both primary and secondary data sources are used. To generate the required data from the primary sources, different methodological approaches basically participatory approaches have been employed, such as focus group discussions, participatory sketch mapping, and field observation. In addition, a separate household survey has been employed. The main purpose of focus group research is to draw upon respondents' attitudes, feelings, beliefs, experiences and reactions in a way that which would not be feasible using other methods (Gibbs, 1997). The discussion is held using a prepared checklist (Appendix 1). As it is mentioned previously, the study area is divided in to 3 Sub- Kebele sites (A, B &C). Thus, the discussion is conducted in three Sub- Kebele sites with the community representatives in the study area. Another discussion is also conducted with the experts found in the Kebele. Community representatives, local municipal officials, bureau of urban planning experts, education and health department officials and key informants are involved. The numbers of participants for each focus group discussion are eight. In addition, different age group which ranges from 25 to 70 of diverse educational and employment status and gender as well as residents who can fulfil eligibility requirement of two years minimum life spent in the Kebele are also considered. Before the discussion introduction is given to participants. For more details on focus group discussion and participatory sketch mapping, see chapter 4. and 5.

Individual households are interviewed using structured questionnaire (household survey) in the Kebele . The purpose of the of the survey is in order to compare the results of the participatory sketch mapping with The questionnaire is revised after the focus group discussion and some variables of the domains of life are added to capture relevant of the questions for the study area. Later, the questions are translated in to Amharic, the commonly spoken and official language of the city (country). Data is collected from residents (head of household) who have lived more than two years in the Kebele. The questionnaire has covered different topics to captured relevant information about the characteristics of the households, age, sex, ownership, service facilities, employment condition, income and education. Detailed questions were asked about domains of life that affect the quality of life in the study area. These include, housing, built environment, safety, and public service (See appendix1). The quality of life domains in the study area is assessed in terms of 6- Likert scales.

Secondary data is gathered from municipality of Addis Ababa. Thus, basic indicators of the urban quality of life such as data on population, demographic characteristic, population density, and spatial data; location of services, aerial photograph 2005 and geographic boundary of the sub-city is also collected.

### 3.4. Data analysis

Up on gathering all relevant primary and secondary data, the task of data analysis was to determine the variation of urban quality of life within the Kebele. The research uses both qualitative and quantitative methods as a research strategy. Qualitative data gathered from participatory approach, and the review of documents is compiled, organized, summarized and interpreted on the basis of urban quality of life. The quantitative data are collected from the household survey. Accordingly data that are collected from different discussion of participants of the priorities of residents is first transformed from qualitative perceptions into quantitative values, using Likert scale, which is a scaling method between qualitative perceptions and quantitative values. Then the data was linked with in the database. For the analysis, the participatory mapping tools, GIS and the spatial analysis technique, interpolation is employed to analyze the spatial variation of perceived quality of life within Kebele. The participatory mapping is used to is used in order to analyse the stakeholder's perception in quality of life. Whereas the spatial interpolation technique is used to visualize the perception of the residents of the data captured through household

survey. Furthermore to compare the result of the participatory mapping and the household survey visually. Descriptive statistics is used to compare the results of the participatory mapping and the household survey.

### **Spatial interpolation method**

Interpolation is a procedure used to predict the values of the attributes at a location that lack sample points (Childs, 2004). Spatial interpolation techniques are used to visualise the continuity and variability of observed data's across surface. A set of sample points representing changes in the environment can be visualize through interpolation tools (Childs, 2004) . There are different interpolation techniques used to for visualization of point data such as, inverse distance weighted, kriging, natural neighbourhood and thiessen polygons. Each method uses a different approach for determining the value of the attribute in un sampled area. The most appropriate method will depend on the distribution of the sample points and the phenomenon being studied (Childs, 2004).

Thus, in this study inverse distance weighted method was used to visualize the perception of the residents from the data captured through household survey. This technique uses an “averaging function”. The output value of the pixel is calculated as the sum of the products of weights and point values, divided by the sum of weighs. Weight values are calculated in such a way that point close to an output pixel obtain large weights and points further away obtain smaller weights (Huisman & de By, 2009).

### **3.5. Limitation of data collection**

Due to time constraint it couldn't to prepare a feedback section with the stake holders in order to validate after the mapping exercise.

## 4. Analysing Variation of Urban Quality of Life in Different Sites

The main concern of this chapter is on the description and analysis of the results that are captured through participatory approaches. As it is previously mentioned on the first chapter, the main objective of this study is to analysis variation of quality of life in the Kebele through participatory approach. Specifically, in this part the participatory mapping techniques such as focus group discussions, participatory sketch mapping, and field observations are applied in order to identify the quality of life domains and there variation. Thus, first the identification of domains of life within the local context for the study area described. Then the variation of results that are captured in each three different Sub-Kebele sites are analysed.

### 4.1. Domains of Life Identification by the stake holders

The domains of quality of life are identified by the stakeholders. The main purpose for the identification is in order to analyse the variation of quality of life in the Kebele. The specific participatory tools and are applied to identify those domains which are considered useful in the study area to know those which affect the quality of life based on usefulness line with the situation in the study area and their priorities. For identification purposes focus group discussion, participatory sketch mapping and field observation are used in order to determine those domains of life in the Kebele.

#### 4.1.1. Focus group discussion

Focus group discussion in this particular study is applied in order to gain insights into citizens' perspectives of quality of life. This is, in another way, to draw upon respondents' attitudes, feelings, beliefs, experiences and reactions which would not be easily obtained using other methods, for example interview, observation, or questionnaire surveys (Gibbs, 1997). This technique, in our specific case, is employed to identify the domains of life that affect quality of life in the Kebele from the residents' point of view. The second purpose as to the use of focus group discussion is to identify and sketch on the scale map the priorities of the domains of life attribute that can be expressed spatially. This in fact depends on their usefulness and also takes the situation of the study area into account.

During the discussion, at first the participants were asked what they think that determine their quality of life. This was an attempt to find out the domains of life in the study area based on the residents' perception. After that the stakeholders were asked about other domains of life which were identified from the literature based on their usefulness in line with the study area. This is to know if domains of life from other areas have any relevance to the stakeholders in the study area.

As the result of the focus group discussion, the domains of life were identified by the stakeholders (residents of Kebele 08/09 and the experts) within local context in the three different Sub- Kebele sites. Totally 22 domains of life are identified from both discussions. These domains of quality of life are shown in Table 4-1. These domains of attribute are categorized as Access to public service, housing, built environment and safety.

Table 4-1: Domains of life identified by stakeholders

<b>Domains of life</b>	<b>Attributes of domains of life</b>
<b>Access to public service</b>	Health care facilities
	Schools both primary and secondary
	Public transport
	Shopping place
	Sport and recreation areas
<b>Housing</b>	Housing condition
	Crowding in dwelling
	No of rooms
	Housing availability/ to buy or rent/
	Housing cost
<b>Built environment</b>	Air pollution
	Noise pollution
	Housing congestion
	Sanitation described as toilets sewerage and drainage system
	Living place attractiveness
	Road availability
	Road quality
<b>Safety</b>	Safety in the neighbourhood
	Crime rate
	Street lights availability
	Police station

#### 4.1.2. Priorities of domains of life and their variation

The stakeholders were also asked to identify the first four domains of life attribute in the study area. In each discussion the first four priorities were identified (Table 4-2). Focus group discussions were carried out with residents of the Kebele for two purposes. First, to better understand the perception of the residents' quality of life and to know the domains of life those define their quality of life. The second idea was to identify which domains they consider the most important according to their priority in their quality of life. The purpose of prioritization of the quality of life was to identify variables which determine the quality of life in the study area and to indicate the areas of the quality of life based on the importance in the study area.

Thus priorities of quality of life in each area were identified through the discussion. The community representatives were asked to indicate the importance they attach to each domains of life by applying a likert scale. Although the stakeholders identified totally 22 domains of life for this study the first four priorities were identified in each discussion. It has become clear that out of the six domains of life identified from the discussion, housing condition and sanitation have come on top of the priorities in all sites by the community and experts. This indicates that the two domains are perceptibly accepted as

quality of life indicators for the whole Kebele. Access to health care facility was considered as useful domain of life attribute by the participants of site A, C and experts. It is also observed that, although the two domains appeared in all sites the priority they have been given in each site is different except for housing in the site C and by the experts. This indicates that the resident's give different weight to housing in each site: for instance housing comes as third priority in site B and as the fourth in site A.

Table 4-2: The stakeholder priorities of domains of life in Kebele

Priority	Priorities of domains of life by the stakeholders			
	Residents			Experts
	Site A	Site B	Site C	Whole sites
1	Sanitation	Access to health care	Housing condition	Housing condition
2	Safety in neighbourhood	Air pollution	Sanitation	Sanitation
3	Access to health care	Housing condition	Road	Road
4	Housing condition	Sanitation	Safety in neighbourhood	Access to health care

#### 4.1.3. Participatory sketch mapping

Community sketch mapping was done after the identification of the domains of life attributes with the stakeholders. The stakeholders were asked to map of attributes of domains of life according to the priorities they defined on the transparency paper. Aerial photographs of 2005 with scale 1:3500 were used for the sketch mapping. The mapping was done in order to get overview on how participatory mapping can help in identifying the quality of life domains. A three point Likert scale (Poor, Moderate and Good) was used to qualify the identified domains. The process of sketching was found to be very important for generating active participation and as a communication tool.



Figure 4-1: Stakeholders sketch mapping for the domains of life identification in the Kebele

#### 4.1.4. Field observation

Field observation was conducted to have a better grasp of the physical and socio-economic situation in the area. This would provide valuable contribution to the understanding of the existing situation of urban quality of life. Beside the discussion with stakeholders, field observation was also conducted with the community representatives and the experts in order to verify what they have sketched on the map. This includes the housing condition, sanitation facilities, roads and health care facilities. In addition to these, they have marked place where air pollution is identified as poor by the participants and safety concern is raised due to absence of street lights are identified. This in-field verification process was performed to understand what the stakeholders have drawn.

#### 4.2. Variation quality of life according to residents

In this part the variation of the quality of life in the Kebele was analysed and discussed according to the priorities defined in three sites by the stakeholders. Three scales were used for each discussion for example; Good, Moderate and Poor depending on the domain identified in the site. As a separate discussion was made in the three sites in the Kebele, the results are also indicated relative to the particular site except for the experts approach. Here, the experts approach is not confined to one particular site rather it is done for the whole Kebele. Six priorities of domains of quality of life have been identified by the stakeholders in the Kebele. These are housing condition, sanitation, health care facilities safety, air pollution and roads. The analysis of the variation of quality of life is done on the residential areas. Thus for the analysis purpose the results of sketch map is overlaid with the houses found in the Kebele. The reason is during the sketch map the stake holders some organizations and commercial centres were included.(see Appendix 3)

## Housing condition

Housing remains for long period as a critical problem for most of the cities of developing countries. With regard to the physical condition most of the houses located in the inner city of Addis Ababa are in need of complete replacement because of dilapidation (Azeb, 2006). Housing condition in the Kebele is considered as the priority domain for the quality of life in the three Sub Kebele sites. In the focus group discussion the participants expressed the housing condition in terms of the material the housing units are made of and the age of the houses in service. In all the three sites, as the participants expressed, most of the housing stocks are built up of mud, corrugated iron sheet and wood. They are dilapidated and most of them are in a poor condition. Besides, these houses are in service for quite a long time without proper maintenance.

As the participants in site A have indicated most of the houses in the area as described above are characterized as dilapidated and served for more than 50 years. In addition overcrowding and housing congestion characterize the neighbourhood. As ORAAMP (2011), indicates 60% of the inner city of Addis Ababa is dilapidated. Overcrowding and deterioration are widely prevailing. Particularly the area which is locally called ‘Adams Babylon’ was identified as the ‘poor’ area. Although the local NGO Known as Integrated Holistic Approach Urban Development Project in Addis Ababa has made upgrading project in order to improve the living quality in the area, till the physical condition of the houses have remained poor. The participants were also identified the area where housing condition is termed as ‘good’. The residents living in the area called ‘Oromia’ are identified as having ‘good’ housing quality and with low level of congestion. Figure .4-2 shows the housing condition in the three Sub Kebele sites as identified by the community.

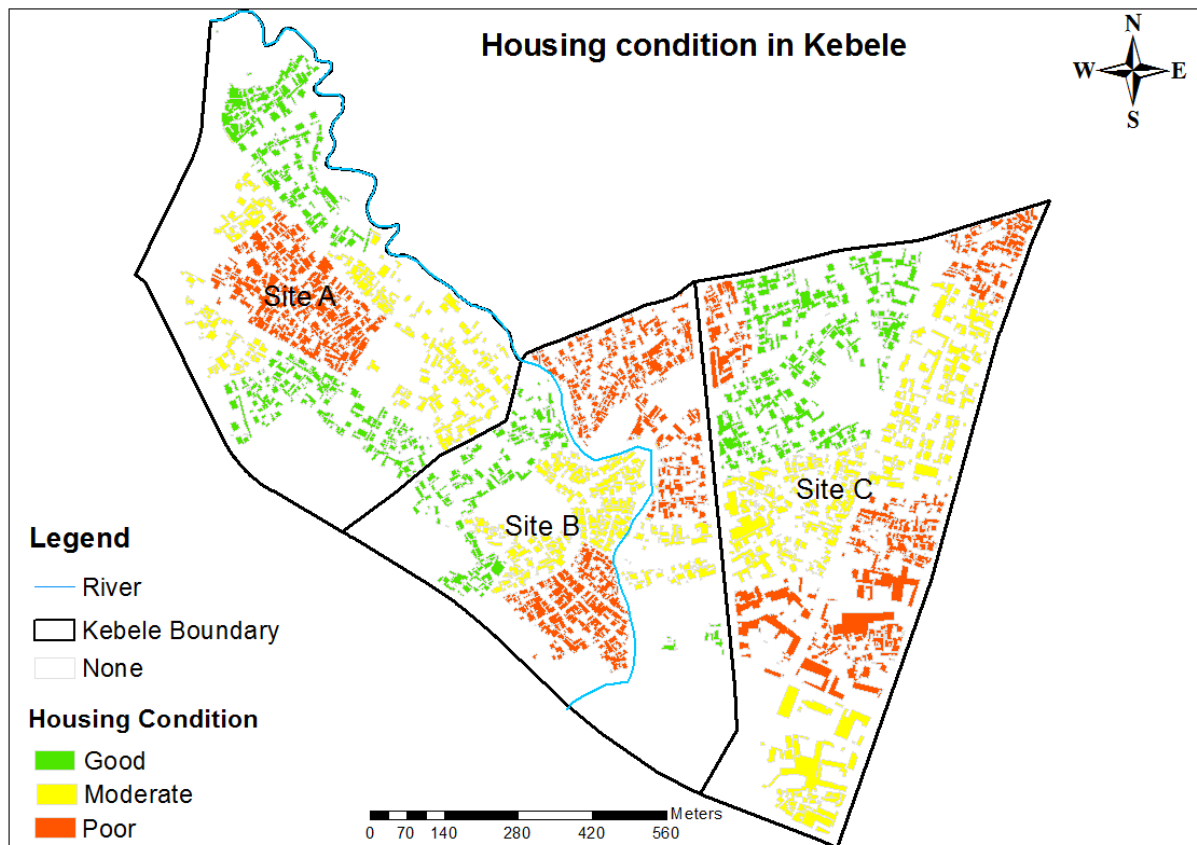


Figure 4-2: Perception of housing condition in the three subdivisions according to residents of Kebele 08/09, derived from sketch mapping exercise (Annex 3)



The housing quality of the site by looking at physical condition of the houses and adequate space for privacy, most of the dwellings in the site B are termed as of low level of quality. As the participants of site B have mentioned the houses are characterized as very small (in terms of size), dilapidated, highly congested and served without maintenance for long time. Maintenance service is never made to these houses. Some houses are covered with plastics to protect residents from wind, sun and rain since the roofs are leaking and perforated. There is no intervention program to improve the housing condition in the area following the housing development plan of the city in the long run in the area. Owners cannot afford to make necessary maintenance as the focus group discussion has revealed that most of the residents living in the area are economically poor.

According to the participants of site C, about 10% of the houses are private owned and with good housing quality and less congested, the rest 90% are government owned. It must be noted here that government-owned rental units are, for the most part, in poor condition due to decades of disrepair. And they are mostly characterized as highly congested place and very dilapidated.

Similar to the houses found in site A, the houses in site C are served without maintenance for more than 50 years. The participants have identified places where housing condition is 'poor' especially the places which are locally named as "Zero zetegn", "Heya hulet" and 'Farase meda'. Figure 4-3 shows an example of residential areas with Poor, and good housing condition in the Kebele.

The result concurs with the findings by Tesfazghi, et al., (2010) that reported the satisfaction on housing condition of the Kebele compared with the other Kebeles is perceived as negative. In addition as indicated by B. Lodamo (2006) "Among the socio-economic problems of Addis Ababa city, housing is the prior one".



Poor housing condition



Good housing condition

Figure 4-3: Residential areas with poor and good housing condition in Kebele

## Sanitation

Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and the maintenance of hygienic conditions, through services such as garbage collection and wastewater disposal (WHO, 2011). In this study sanitation according to focus group discussion includes toilet, open ditches and solid and liquid waste disposal. Similar to housing condition, in all three sites it has become clear that sanitation is one of the domain that affect the living condition of the residents of the Kebele and it is also one of those top four identified priority areas.

Although the sanitation problem exists in the three sites of the Kebele, the level of the quality of sanitation is described differently among the three sites. This is due to the fact that the discussion was conducted separately in the three sites. Hence, in site A toilet facilities, open ditches and solid waste disposal are the main sanitation problems in the area. According to the participants places that are identified as having 'poor' quality sanitation are characterized by lack of private toilet in the vicinity and bad smell that comes from the open ditches and the river which passes through the neighbourhood (Figure 4-5). Many of the residents living in this area use communal toilets. There is no proper means of removing solid waste in the area. The solid waste produced in this area usually is dumped on open ditches, sites, in the river as well as on the streets. The same is true for the other two sites.

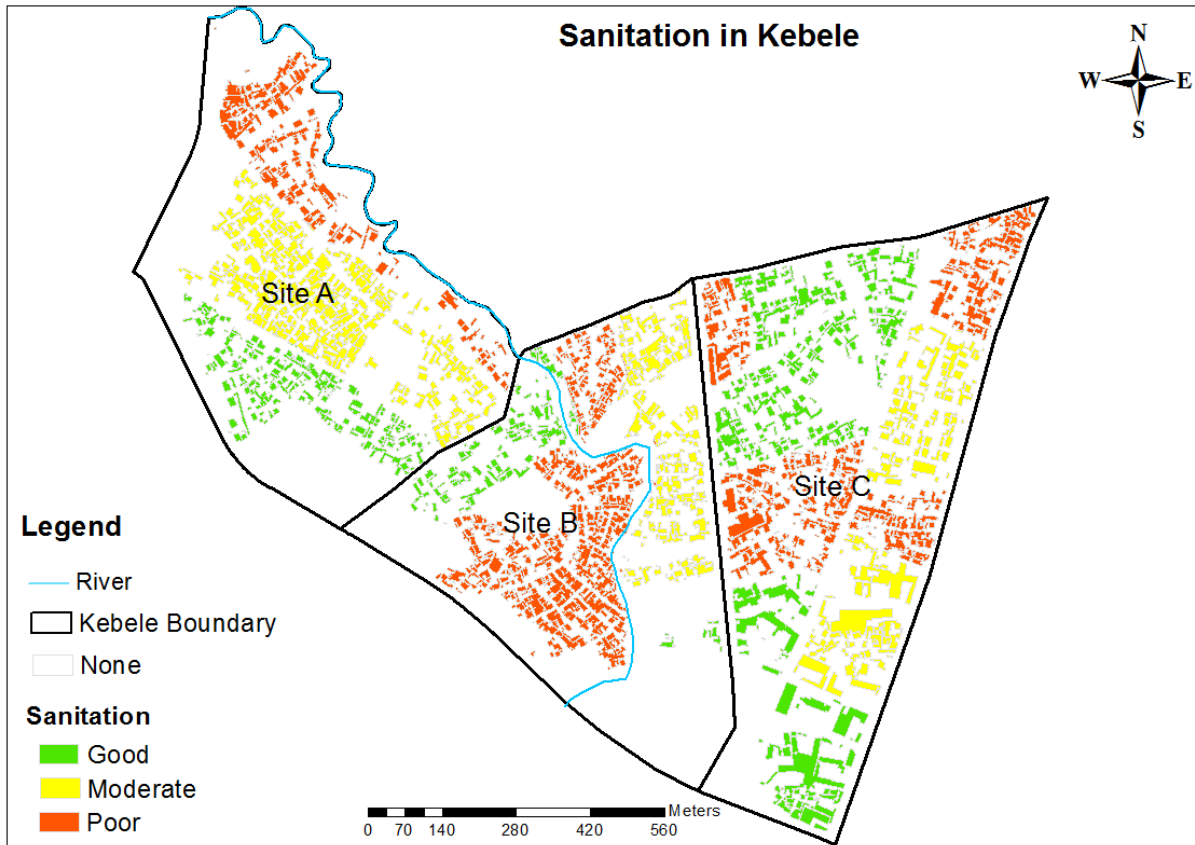


Figure 4-4: Perception of quality of sanitation in the three subdivisions according to residents of Kebele 08/09, derived from sketch mapping exercise

In site B, the participants have expressed the sanitation problems are mostly associated with the government rental houses where its condition is in a poor condition. In the place where private households are found the sanitation is better. CARE Ethiopia, local NGO which operates in the environmental sector, is also involved in the upgrading of environmental sanitation system after realizing the severe impoverishment of the area. CARE Ethiopia has given due attention to this kebele mainly because of its poor sanitation conditions. The upgrading included the construction of paved road, water drainage and water points and latrines. Although the sanitation problem still exists, the upgrading program reduced the sanitation problem in some parts of the area.

The focus group in site C has made clear that seven years ago there was community participation in order to improve the sanitation system in the area. But now there is no community organization for improvement of sanitation system in the area. Specifically, places where low income residents live do not have access to hygienic toilet and they use the common toilets. In the neighbourhood drainage and

sewerage system are also poor. As the participants expressed, especially when the rain season comes, large amount of liquid waste is discharged to the environment without adequate treatment and this has adverse impact on their quality of life. It was also found that mostly in the area where housing condition is poor the quality of sanitation is also poor.

As shown in the Figure 4-2 and 4-4, it was observed that in site B and C where housing condition is poor mostly sanitation is also poor. This shows positive correlation between the two. Moreover, those places where government houses are found mostly are characterized by low quality housing. In site A the place where housing condition is identified as poor the sanitation is identified as 'moderate'. This is because of specifically in this area the upgrading project which includes the improvement of quality of sanitation has done by the NGO which was mentioned previously, Integrated Holistic Approach Urban Development Project.

### Health care facilities

Absence of health service is found to be the main issue for the quality of life in the site A and B. Since government health care facilities do not exist in Kebele 08/09, the residents usually go to the health care facilities available in the other Kebeles. Usually, the government is the major health care service provider in the city of Addis Ababa. Private sectors also involve in health care service provision however the fee is unaffordable to poor families. Hence most of the members of low income group have no access to health care service. However, in the Kebele three private health clinics do exist (all in site C) and filling the gap as far as health service provision is concerned.

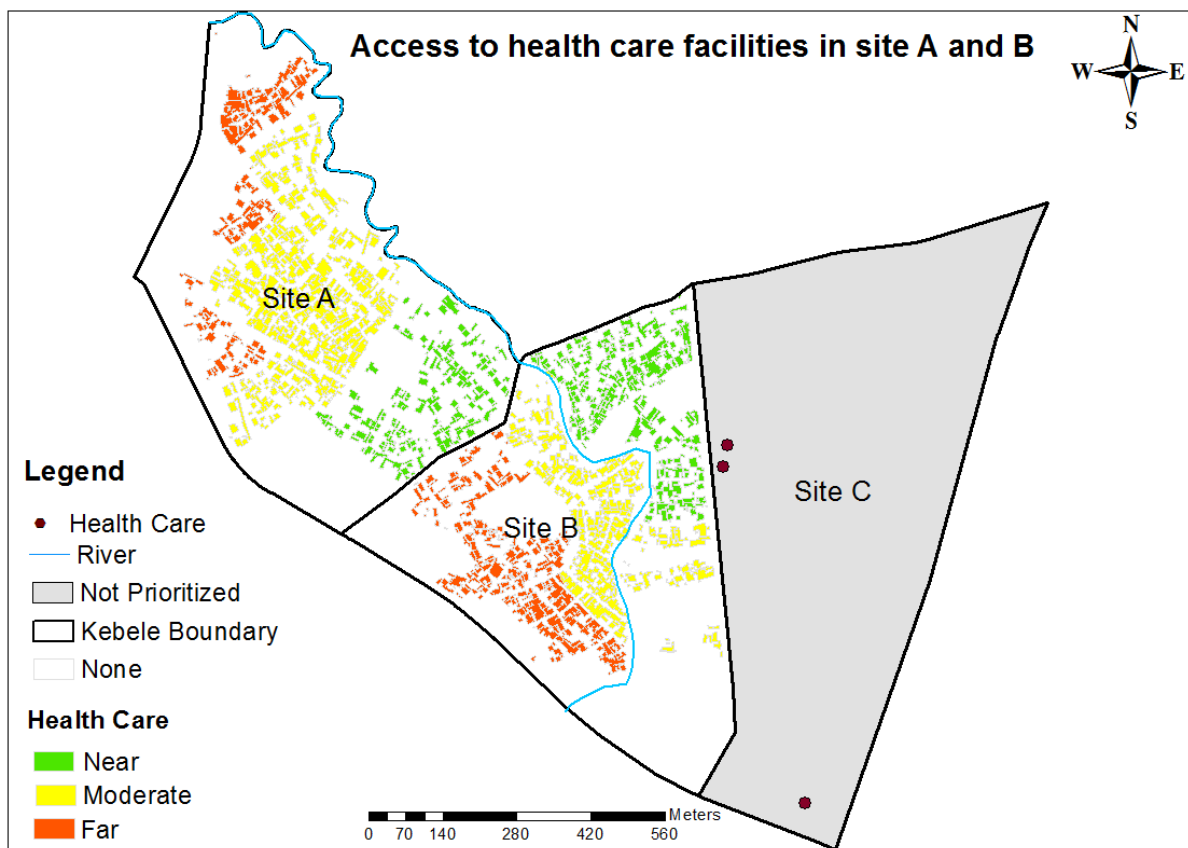


Figure 4-5: Perception of access to health care facilities in site A and B according to residents of Kebele 08/09, derived from sketch mapping exercise

In both focus group discussions it has become clear that the residents use the same facilities outside the study area. The residents have indicated that the health care facilities are located approximately 4km from the study area.

As participants in site A mentioned, although three private clinics are found in the Kebele, the residents can't afford the payments for the service due to the fact that most people in the area are categorized as low income group: the participants of the site B emphasized that residents get their means of livelihood from petty trade and daily labour. So in order to get the services they should go to the nearby government health care facilities. Figure 4-5 shows the accessibility of health facilities in the area. The participants were identified the areas which have access to health care facilities 'far', 'moderate' and 'low' by considering the closeness and availability of roads in order to go to the health care facilities. As ORAAMP, (2011) indicated public facilities and services in Addis Ababa are far and they are un evenly distributed.

### **Safety in neighbourhood**

Safety in the neighbourhood, as one of the important domain for the quality of life is identified by the participants in site A and C. This domain was identified in both sites because of the criminal records in the sites. From the focus group discussion it has been observed that the situation is created particularly due to the fact that there are no street lights in some parts of the neighbourhood. The researcher has also observed the absence of street lights in the mentioned area.

As the participants of site A have point out the crime rate in the area is high and is known by the municipality as a place where the highest crime rate is recorded in the Kebele. They have also mentioned, especially, at evening it is difficult for the residents to feel secure and move freely. Similarly, in site C the reason for safety problem is the absence of street lights as well. A research which has done In site B, safety has not received priority. The reason might be they have local security in the neighbourhood. The participants of site A and C have identified the place where the feeling of safety is relatively lower or higher than other parts of the Kebele (Figure 4-6). In the previous study of quality of life in the area, from 11 Kebels found in the Sub-city, only the respondents of this Kebele are expressed dissatisfaction with their neighbourhood safety (Tsfazghi, et al., 2010). This indicates that safety is an issue in quality of life in the Kebele.

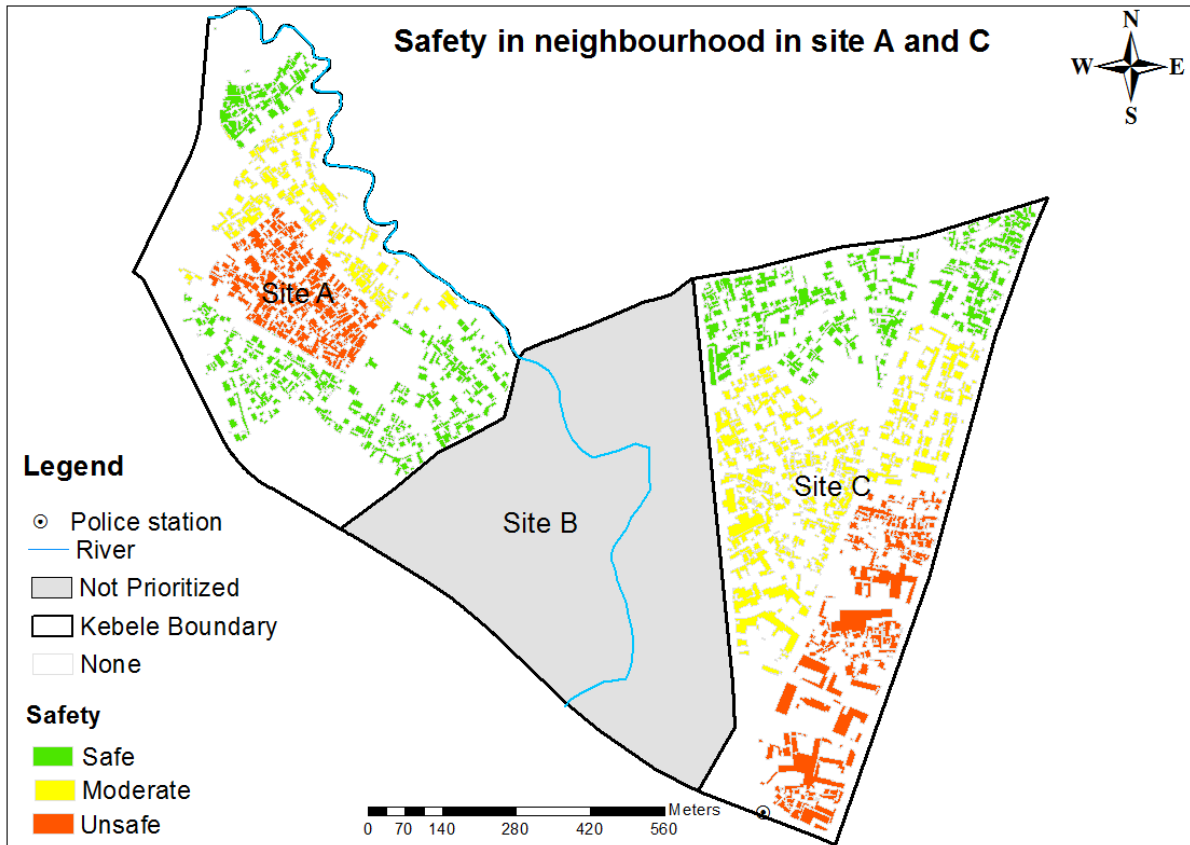


Figure 4-6: Perception of safety in site A and C according to residents of Kebele 08/09, derived from sketch mapping exercise

### Access to road

Access to road is only identified as one of the quality of life determinant by the FGD participants in site C. Access to road in the focus group discussion was mainly described as by considering the availability of accessible roads both internal and external roads. The internal roads that are found in the Kebele are mainly characterized by narrow. External roads are roads used for access to transport. The identification of the area as 'available', 'moderate' and 'unavailable' was based on the consideration of the above mentioned variables. Here it should be noted that the place where the availability of road is high doesn't mean that it complies with the above all consideration for road availability. Although roads are found in the site, according to the participants, they lack continuity and proper maintenance. Furthermore, in most places there are no internal and external roads. According to the focus group participants mainly those areas which are identified by the absence of road availability, the available roads are characterized by the above mentioned problems associated with road availability (Figure 4-8). In these places in case of emergency it is difficult to use any means of vehicles. Figure 4-7 shows an example of the place where proper road is not available in the area. It is observed that in the places where the roads are identified as poor, the roads are mostly narrow, lack continuity and proper maintenance.



Figure 4-7: The roads found in site C which are characterized as narrow and lack of pedestrian way

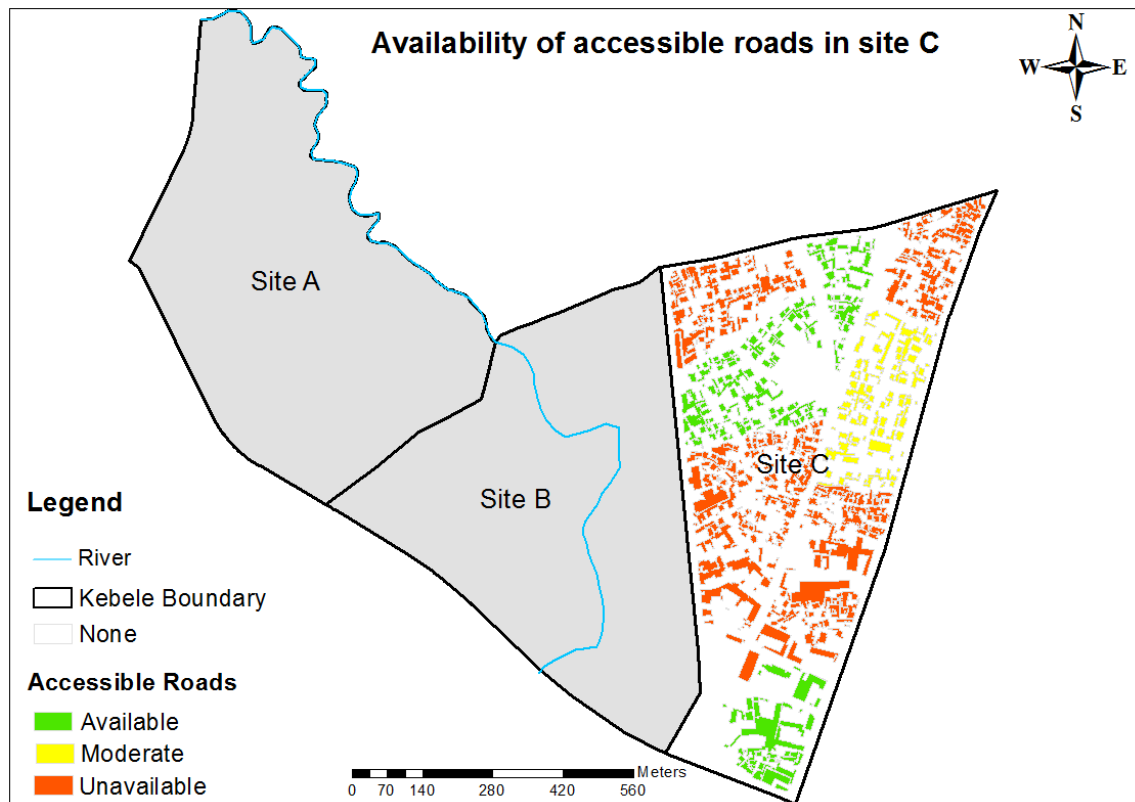


Figure 4-8: Perception of accessible roads in site C according to residents of Kebele 08/09, derived from sketch mapping exercise

### Level of Air Pollution

Air pollution was considered only by the focus group participant's of site B as one the determinant of quality of life domain. Air pollution according to focus group discussion is explained as bad smell. From the focus group discussion it was found that the bad smell which comes from slaughterhouse, 'Kera', is the main reason for air pollution in the area. In Addis Ababa administration there are four legally

registered abattoirs under an umbrella organization named “The Addis Ababa Abattoir Enterprise”. Kera is one of them. The slaughterhouse ‘Kera’ is the name given to a place where cattle or herds are slain on masse in Addis Ababa and this is located in the Site B (Figure 4-8). The enterprise has tried different ways to reduce the bad smell effect it produces. Nevertheless, the smell is not completely eliminated and the residents still face the challenge.

What has been identified from the focus group discussion and observed by the researcher is that the level of the air pollution differs from site to site. It is clearly shown on the map that residents closer to ‘Kera’ are more affected by the smell than those who are living further away (Figure 4-9). This shows as expected that the level of air pollution has something to do with proximity from the source of the pollution.

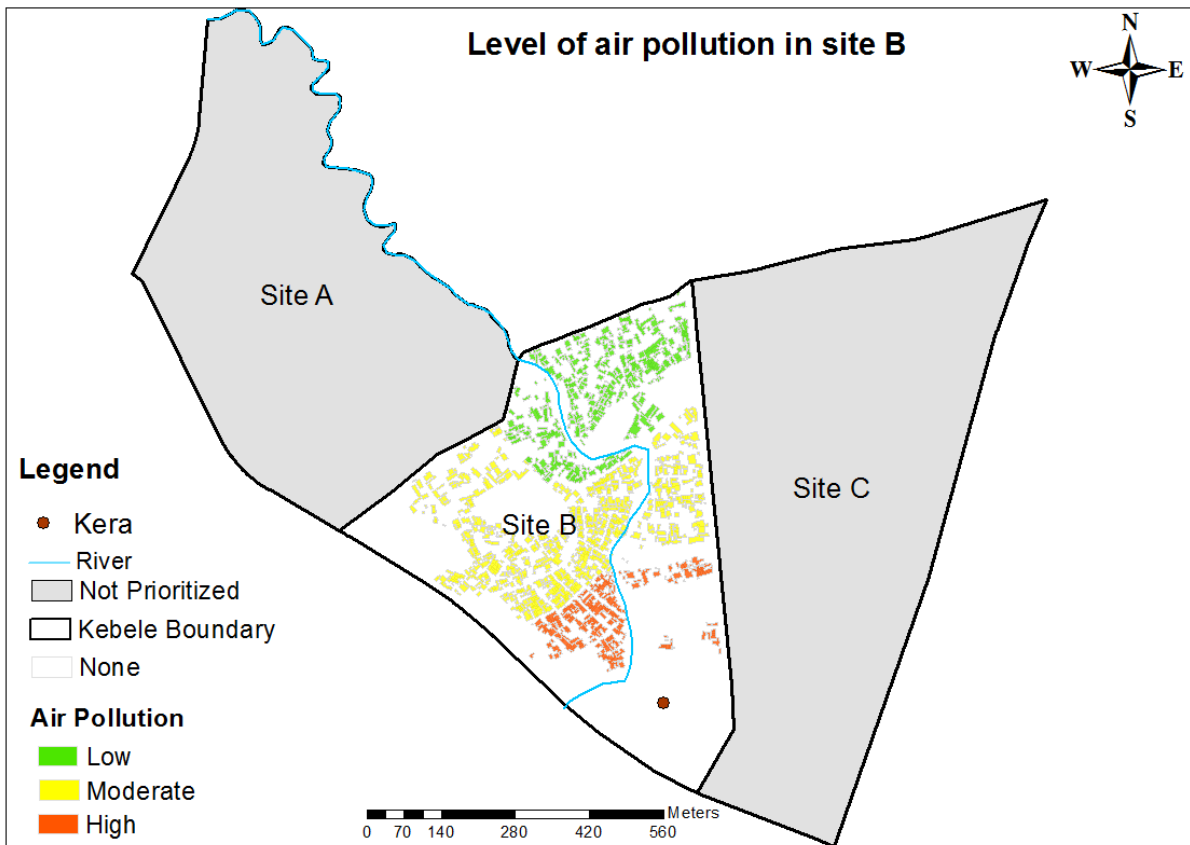


Figure 4-9: Perception of level of air pollution in site B according to residents of Kebele 08/09, derived from sketch mapping exercise

### 4.3. Variation of quality of life according to experts

The expert's focus group discussion was held for the whole study area. The experts that were involved in the focus group discussion were who have knowledge and work experience related to quality of life in Kebele 08/09. Eight participants were involved in the discussion. Local municipal officials, urban planners, education and health department officials and key informants were involved. Similar to the focus group discussion has done for residents, the experts were asked to identify the priority area in the quality of life in the Kebele. The experts at first were asked what thing determines the quality of their life (domai. Then secondly they were asked in the Kebele what looks like quality of life the Kebele.. purpose was in order to compare the view of experts of the quality of life in the Kebele with that of the community. Accordingly, they identified the domains of life, housing condition as main priority area followed by sanitation, road and health facilities. It was observed that the domains identified by both the community and the experts are similar.

#### **Housing Condition**

According to the experts housing condition is the main variable which determines the quality of life in the Kebele. Kebele 08/09 is located in one of the inner city in Addis Ababa. In this Kebele most of those houses are government owned (Kebele houses) and are mainly characterized by poor quality: old age and lack of maintenance.

The housing units in some parts are made of wood and mud wall and roofs are almost invariably made of corrugated iron sheets in the central and older parts of the city. According to the experts, considering housing condition in the Kebele, the municipality has prepared the local development plans in the area in order to improve the housing problem. These plans have not been implemented yet. In general the houses located in the inner part of city need complete replacement because of their dilapidated state. Figure 4-9 shows the expert view of the housing condition in the Kebele. In the identification of the housing condition it is observed that in site A and B, both the experts and communities have identified the same places where the housing condition is poor. As previously mentioned by the residents, the experts also specifically indicated the central area of site A as more dilapidated than other houses located in this site. The experts' agreement with the community in poor housing condition identification might indicate the severity of the housing problem in the site. In site C, the experts included additional areas as poor to what was identified earlier by the residents.



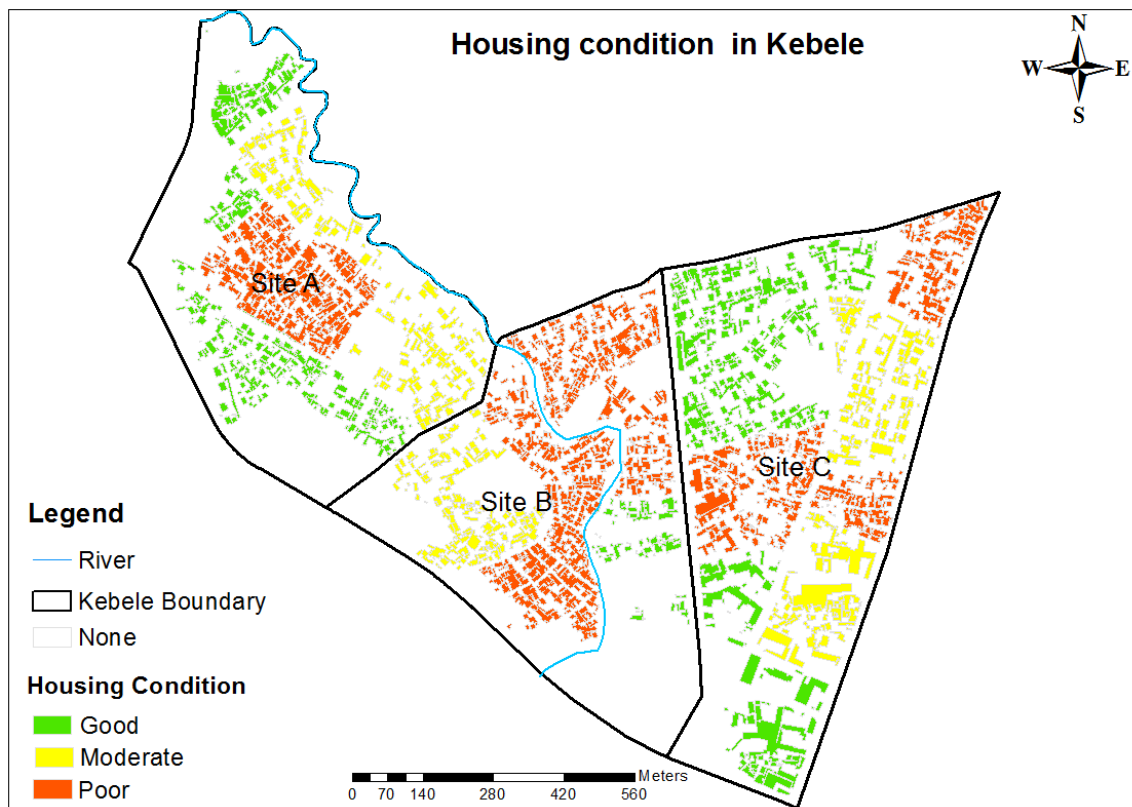


Figure 4-10: Perception of housing condition in Kebele according to experts of Kebele 08/09, derived from sketch mapping exercise

### Sanitation

Sanitation provision in the kebele is grossly deficient, as in most inner city areas in Addis Ababa. According to experts most of the households have no private toilet, the sewerage systems, and drainage systems hardly exist. It is observed that the community and experts definition for the sanitation is different in that the experts in addition have looked the sewerage and drainage systems. The experts were identified the areas where quality of sanitation is 'poor', 'moderate' and 'good' by considering the facilities found in the Kebele such as toilet, sewerage and drainage for solid and liquid waste management's. They also have mentioned in the Kebele the sanitation problems are mostly related to housing condition. The area where poor housing condition is found the quality of sanitation is also poor (Figure 4-9 and 4-10). The reason is that, in poor housing condition areas, according to experts most of the houses are highly congested and there are no sewerage and drainage systems.

Compared with the community approach, a significant difference was observed in that the area identified as poor and moderate. For most part the area where the community identified as poor quality of sanitation, the expert considered it as moderate and the reverses. One of the reasons could be the standard in consideration of the sanitation provision. For example, the community view for communal toilet and experts differ since the experts consider the maximum number of household should share toilet and other sewerage and drainage considerations.

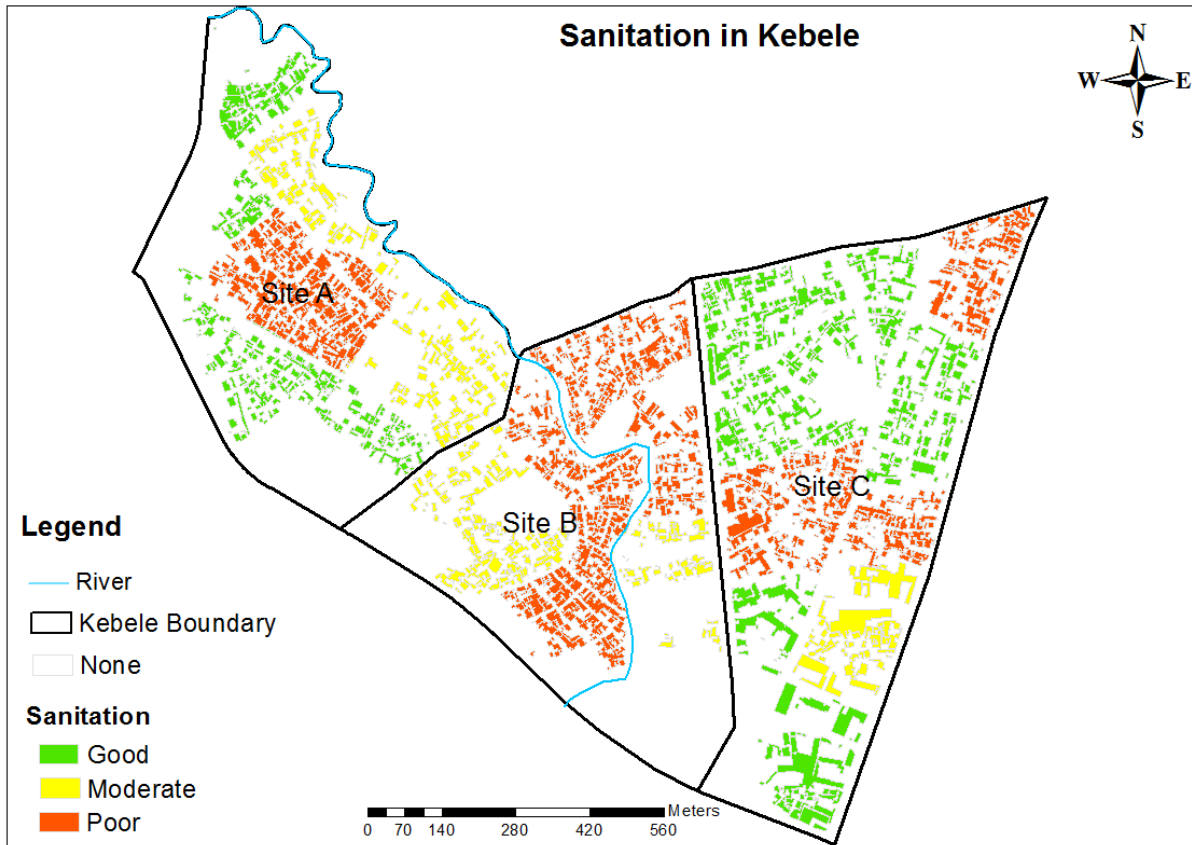


Figure 4-11: Perception of quality of sanitation in Kebele according to experts of Kebele 08/09, derived from sketch mapping exercise

### Access to road

The roads found in the Kebele characterised as poor quality and standard, shortage of pedestrians walk ways, lack of continuity and proper maintenance in the area identified as unavailability. The experts approach in road consideration differs from the community approach in that the experts further included availability of pedestrian /side walks/, quality and length of the roads. Figure 4-12 shows the experts view on the proper road availability in the Kebele. The considerations for the roads availability were the presence of access roads /internal and external/ roads pedestrian walk ways, road maintenance, quality and length of road. According to experts, in most part of the areas identified as site A and B, proper roads are not available. Most of the roads are below the standard. The roads found in the area are characterized as very narrow and served without maintenance for long time. Compared to the two sites the availability of proper road is high in site C. Compared with the community identification for roads in site C except for the area identified as no availability of roads by community, other areas show differences in the perception. This could be because of the experts consideration is influenced by the road standards and the roads found outside Kebele. Besides, they identified the areas as road, available, moderate and unavailable for the whole Kebele. Whereas, communities were identified the area of road availability based on the roads found in the area. It is also observed that although in sites A and B access to road was not ranked in the first four priorities, from the experts view these sites in most areas are considered as the areas where proper roads are un available.

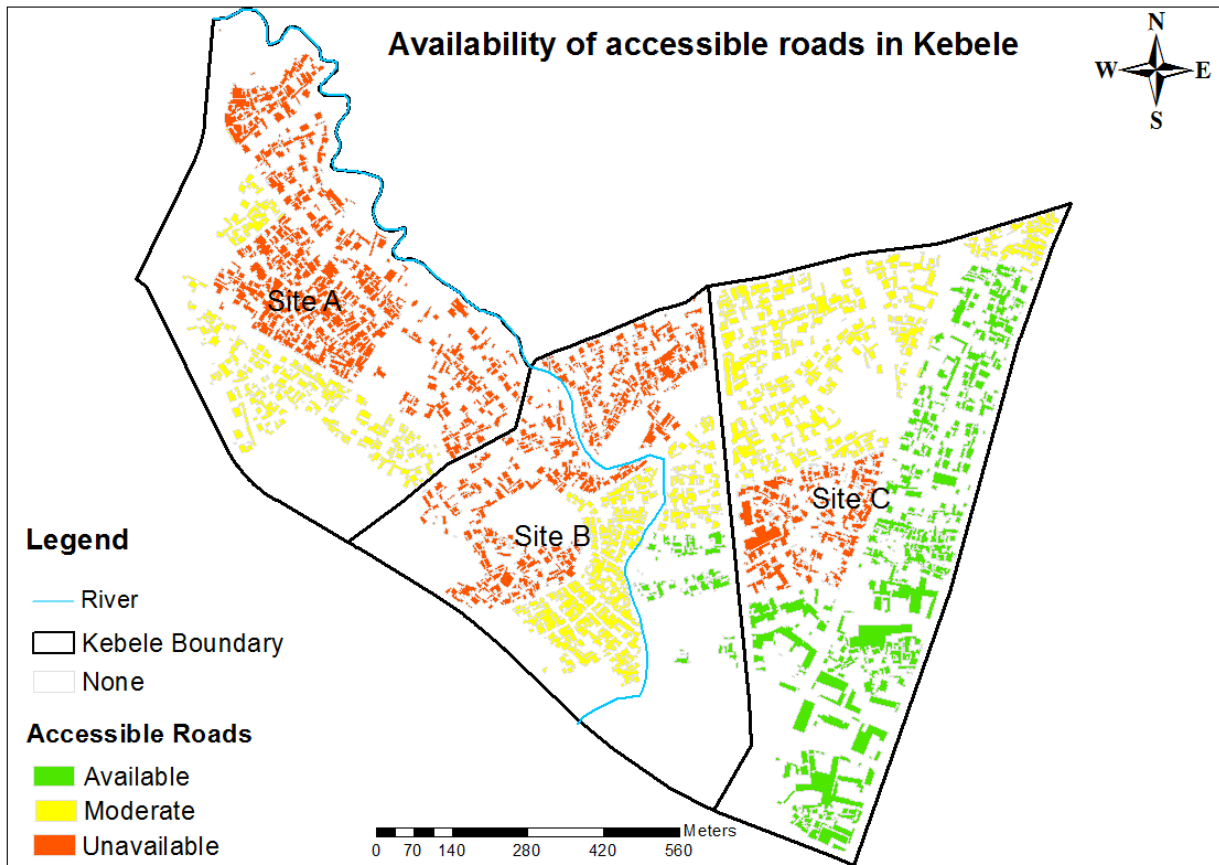


Figure 4-12: Perception of availability of accessible roads in Kebele according to experts of Kebele 08/09, derived from sketch mapping exercise

### Health care facilities

Accessibility of health care facilities varies among different peoples in the areas. Those who have the least access to health care services are low income groups, disabled, elderly and children's. In this particular case accessibility is largely depends on a distance from the public health service. This is mainly due to the fact that those who are mentioned above cannot afford transportation cost to travel to another Kebeles where public health services are situated. As previously stated government health care facilities are not found in the study area. It is only private clinics which are providing health care facilities. The experts were also indicated the absence of health care facilities in the sites. Following the absence of public health care facilities in the area, the experts have mentioned that there is one government health care which is under construction in the area. Figure 4-12 shows access to health care facilities in the area according to experts.

Based on the explanation from experts it is expected that it will reduce the health care facilities problem in the Kebele when started giving service. Figure 4-12 shows access to health care facilities in the area according to experts. The consideration for the delineation of the area was the closeness to the immediate government health care facilities. It is observed that both the community and experts considered the same healthcare service which is located outside the study area. Private health care facilities in site C were not taken in to account. According to experts the residents who live in site A are considered have no access to health care facilities.

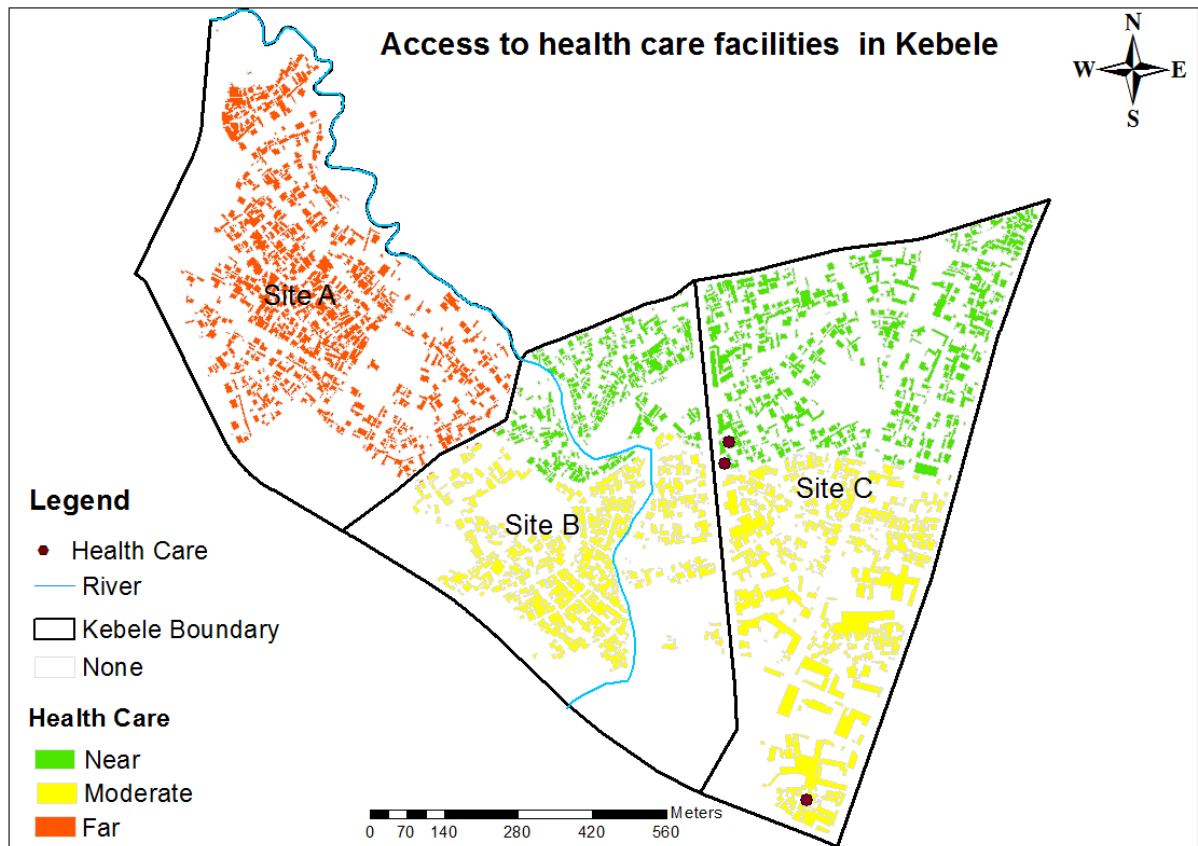


Figure 4-13: Perception of access to health care facilities in Kebele according to experts of Kebele 08/09, derived from sketch mapping exercise

#### 4.4. Summary

The domains of life that affect the quality of life in the study area were identified through the focus group discussion with stakeholders (community representatives and experts). It was found that domains of quality of life are well knit with **Access to public service domain**; health care facilities, schools, public transport shopping's and sport and recreational areas; schools, shopping; **Housing domains**; Housing condition, number of rooms, crowding in a dwelling, housing availability and housing costs; **Built environment domains**; air pollution, noise pollution, housing congestion, sanitation, road availability, road quality and attractiveness of living place and the last domain, **Safety domains**; feeling of safety in neighbourhood, safety street lights, and availability of police station were identified. Furthermore the participatory approach provided addition domains of life such as air pollution, safety issue which is related to street light availability in the neighbourhood and road availability which is previously were not included for the focus group discussion.

Findings on the relative importance of various domains of quality of life to residents, such as discussed above, can help urban planners ascertain the values and priorities of city residents. For example the domains of life which have got consistently high on the priority list of the residents in the study area such as housing condition, sanitation, safety, health and road merits higher consideration in public development plans in order to improve the living condition in the area than other domains of life.

It was observed that the priorities of the domains of life attribute identified by the communities living in the area and the experts in the municipality were similar in that both identified housing condition, sanitation, road and health care facilities domains. The domains of life attribute that have given priority by the community in the three site were (A, B& C) housing condition, quality of sanitation, health care facilities, safety, roads and air pollution. Experts also identified housing condition, sanitation, road and health care facilities as a priority attribute in the domain of life. The difference was seen in the sketch maps result. This could be the community perception of looking their neighbourhood is different from the experts views and some considerations in the area. For example the experts give emphasis more on the standards for each domain. Whereas the communities may not consider all the standards for the domains identification, may miss some parts. Besides, community sketch mapping was done on three separate sites so that each site sketches on the map by relating other areas within the site. On the other hand the experts was identified the areas by relating with the whole Kebele, since the experts focus group discussion was held for the whole Kebele.

However the difference in variation was expected since the residents of the Kebele are the one who knows more about their day to day living condition rather than the experts working in the municipality.

The spatial variation of the quality of life in the Kebele shows there is heterogeneity in quality of life in the Kebele. These result of variation is in agreement with the previous research has done in the area in 2010 which shows the heterogeneity of the quality of life in the Kebele (Tesfazghi, et al., 2010). The spatial variation in the Kebele for the above six domains indicated that the importance of provision of the primary needs and services in Kebele to improve the quality of life of the residents.

## 5. Comparison of the participatory mapping with the perception of the respondents (Household survey).

### 5.1. Introduction

The previous chapter presented results of the participatory sketch mapping, focus group discussion and the field observation applied in this research to elicit the local knowledge and perceptions about the quality of life in Kebele. In this chapter the results of the community sketch mapping gained through focus group discussion and the perception of the residents derived from household survey are compared from the point of urban quality of life domains. The aim is to study how the participatory mapping tools can be used in analysing the variation of the quality of life. Thus, in section 5.2, the socioeconomic characteristics of households and respondents interviewed, including age, sex, place of residence, educational status, and household characteristics are presented. In section 5.3, the comparison of the results of household survey with the results gained through participatory sketch mapping from the focus group discussion in the previous chapter is presented. In section 5.3 the usefulness of the participatory approach in identification of the variation of quality of life are presented. GIS is used to spatially map the addresses of 410 respondents throughout the study area. The responses from these locations were interpolated and overlaid with the residential areas in kebele.

### 5.2. House hold characteristics

The structured interview for the household survey questions were prepared at first from the literature which includes the domains of life that affect the quality of life specifically in developing countries. Then, after discussion with stakeholders these domains, their comments and suggestions were included and some attributes of domains of life were added.

A total of 410 households were interviewed. Some basic features of the household's interviewed in Kebele 08/09 are presented in Table 5-1. Among the 410 respondents household interviewed 38% are female headed and 62% are male headed households. The respondents age ranges from 20 to 86. It shows different range of age groups were involved in the interview. 66% of head of households are employed. Looking at the monthly household income earned by households the majority of the respondents (68%) income was fallen in category of 500-1500 Birr (Ethiopian currency) and < 500. One dollar is equal to 22 Birr.

Table 5-1: Characteristics of the interviewed residents

Description	Number	Percentage
<b>Sex</b>		
Female head of household	173	38
Male	282	62
<b>Age</b>		
20-35	139	30.6
35-50	143	31.4
50-65	133	29.2
>65	40	8.8
<b>Employment status</b>		
Employee	301	66
Unemployed	154	34
<b>Income /monthly/</b>		
> 3500 Birr	55	12
2500-3500 Birr	31	13
1500 - 2500 Birr	58	7
500 - 1500 Birr	146	32
< 500 Birr	165	36

### 5.3. Comparison of the community sketch mapping with the household survey

As previously have mentioned the household survey was conducted by using (10%) of household in Kebele. The comparison is based on the percentage of the household survey respondents with the same areas with the sketch maps from FGD. Thus; response of perception of the residents from survey for a specific domain of quality of life was overlaid with that of community sketch mapping identified by focus group discussion. The overlay was applied for the three likert scales for example 'good', 'moderate' and 'poor' that were used in focus group discussion to identify areas. On house holed survey were asked to choose based on six classes (extremely poor, very poor, poor, good, very good, extremely good) Then the comparison was done by using the percentage of responses in each category. In this comparison, the main attributes of the domains of life in Kebele, such as housing condition, sanitation air pollution, safety, health care facilities and roads are considered. The main purpose of the comparison was in order to study the participatory approach in the identification of quality of life in the study area.

#### Housing Condition

As it is indicated in the previous section, housing condition was considered as the main domain of attribute that affects the residents' quality of life in Kebele by the residents in focus group discussion. In the three sites housing has considered as the quality of life determinant in the study area. Figure 5-1 shows the perception of housing condition in the Kebele derived from survey. Residents sketch mapping results from focus group discussion was compared with the results of the survey. The comparison was done on areas identified by the FGD during sketch mapping exercise as 'poor', 'moderate' and 'good' housing condition.

Thus, in areas identified by sketch mapping as 'poor', site A 75%, site B 66%, and site C 62% of the residents living in the same area considered it as extremely poor/ very poor/ poor (Table 5-2). This indicates that majority of the respondents were in agreement with the QoL identified in sketch mapping by FGD (Figure 5-1 and 4-2).

Similarly, in the area identified as 'moderate' by the community sketch mapping was compared with the perception of residents living in that area. The result indicates that in site A 54%, site B 69% and C 41% considered it as extremely/very/poor. The interpretations of the moderate are limited in presentation only in range of extremely poor/ very/ poor and extremely good/ very/good are considered for the comparison. Since the 'moderate' was not included in the questionnaire.

Table 5-2: comparative analysis of perceptions on housing condition as reported by households' survey respondents versus focus group discussion participants

Housing condition		As identified by focus group discussion								
		'Poor'			'Moderate'			'Good'		
		Site A	Site B	Site C	Site A	Site B	Site C	Site A	Site B	Site C
Based on response of respondents (survey)	Level	Response (%)			Response (%)			Response (%)		
	Extremely Poor	12.5	13	28.5	27	8	5	10	–	–
	Very Poor	25	13	5	9	15	14	10	–	–
	Poor	37.5	40	28.5	18	46	24	30	60	28.5
	Good	25	27	19	36	15	33	20	20	36
	Very Good	–	7	9.5	9	15	14	30	20	7
	Extremely Good	–	–	9.5	2	–	9	–	–	28.5
Total	100	100	100	100	100	100	100	100	100	



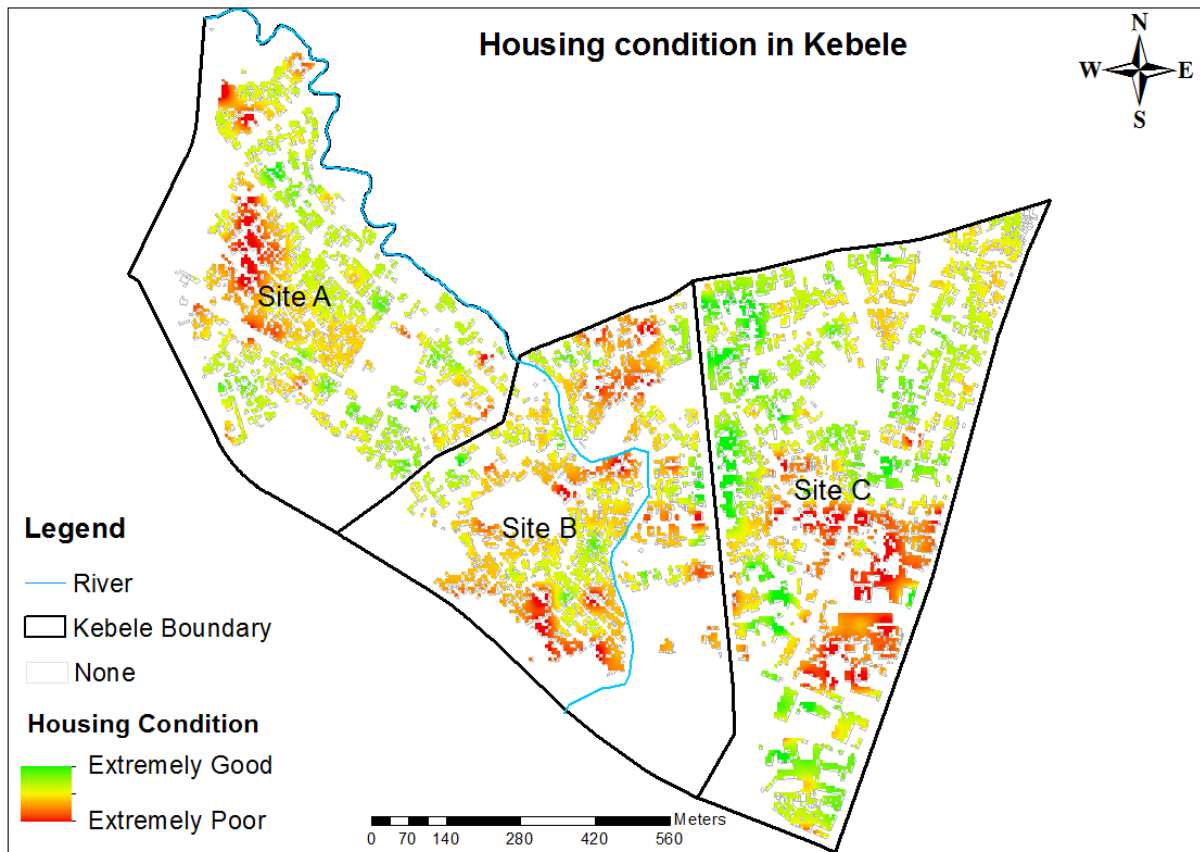


Figure 5-1: Perception of housing condition in the three subdivisions according to residents of Kebele

The residents that are found in area which is identified by the community sketch mapping as 'good' housing condition was also compared with the result of sketch map. The result shows that, in site A 50%, site B 40% of the interviewed residents considered their houses as very/ good. While in C 71% of the residents considered their housing condition as / very/good. The results in site A and B indicates that although in the community sketch mapping the area is identified as 'good', the majority residents living in that area are not satisfied with the housing condition. The map also shows the variation in quality of life in that area. This difference in perception may be attributed to how the individuals interviewed in the area perceive the housing condition. The individual perception may influenced by the houses found in other areas. Furthermore as previously mentioned, the identification of the areas as poor, moderate and good by the FGD was based on relative physical condition of the house in each site. For example the identification of one area as 'good' in the focus group discussion doesn't mean that the area complies with the standards and criteria's of housing conditions in Addis Ababa.

### Sanitation

As it is mentioned previously sanitation is described by the FGD as in terms of toilet facilities, sewerage and drainage, solid and liquid waste collections. Sanitation was also considered as a priority area in the three sites. As it is shown in figure 5-2, the perception of quality of sanitation varies within the three sites.

In the area identified by the community sketch mapping as 'poor' in the three sites, in site A 80%, in site B 70% and in site C 72% of the residents living in the same area also perceived the quality of sanitation as

extremely/ very/ poor (Table5-3). The result indicates that the quality of sanitation is one of the factors that affect the resident's quality of life in the area.

Similarly, in area identified as 'moderate' by the community sketch mapping, the perception of the residents in site B 50% very/poor and in site A 69% and C 78% of the respondents considered as extremely/very/poor.

There was a considerable difference in perception results between the community sketch mapping and the interview in the identification of the 'good' areas. The result indicates in site A 12% perceived as good. in site B 16% one perceived as good and in site C 46% good/ very good. Although the area is identified as good by the community sketch maps, the residents interviewed in that area perceived not well. This difference may be attributed to how the individuals interviewed perceive what is considered to be quality of sanitation. Since sanitation in the FGD was described as toilet, drainage and sewerage systems, solid and liquid waste system, open ditches. As Bramston, et al., (2002) indicates "Quality of life is multi dimensional , comprising a number of life domains which people weight differently according to how important each is in their life". As it is shown in the (figure 5-2 and 4-4) there is a variation in sanitation perception in both areas. However due to the nature of interpolation method since the interpolated points are influenced by the neighbourhood cells, it might not able fully to compare the community sketch maps and the interpolated maps.

Furthermore it was found that the quality of sanitation result in the study area indicates that sanitation is more related with housing condition. It was also observed that for most places where the housing condition is poor the quality of sanitation is also poor.

Table 5-3: comparative analysis of perceptions on sanitation as reported by households' survey respondents versus focus group discussion participants

Sanitation		As identified by focus group discussion								
		'Poor'			'Moderate'			'Good'		
		Site A	Site B	Site C	Site A	Site B	Site C	Site A	Site B	Site C
Based on response of respondents (Survey)	Level	Response (%)			Response (%)			Response (%)		
	Extremely Poor	19	11	6	12	–	14	14	10	8
	Very Poor	21	18	11	37.5	17	21	45	20	21
	Poor	40	41	55	19	33	43	29	54	25
	Good	20	30	27	31	50	21	12	16	42
	Very Good	–	–	–	–	–	–	–	–	4
	Extremely Good	–	–	–	–	–	–	–	–	–
	Total	100	100	100	100	100	100	100	100	100

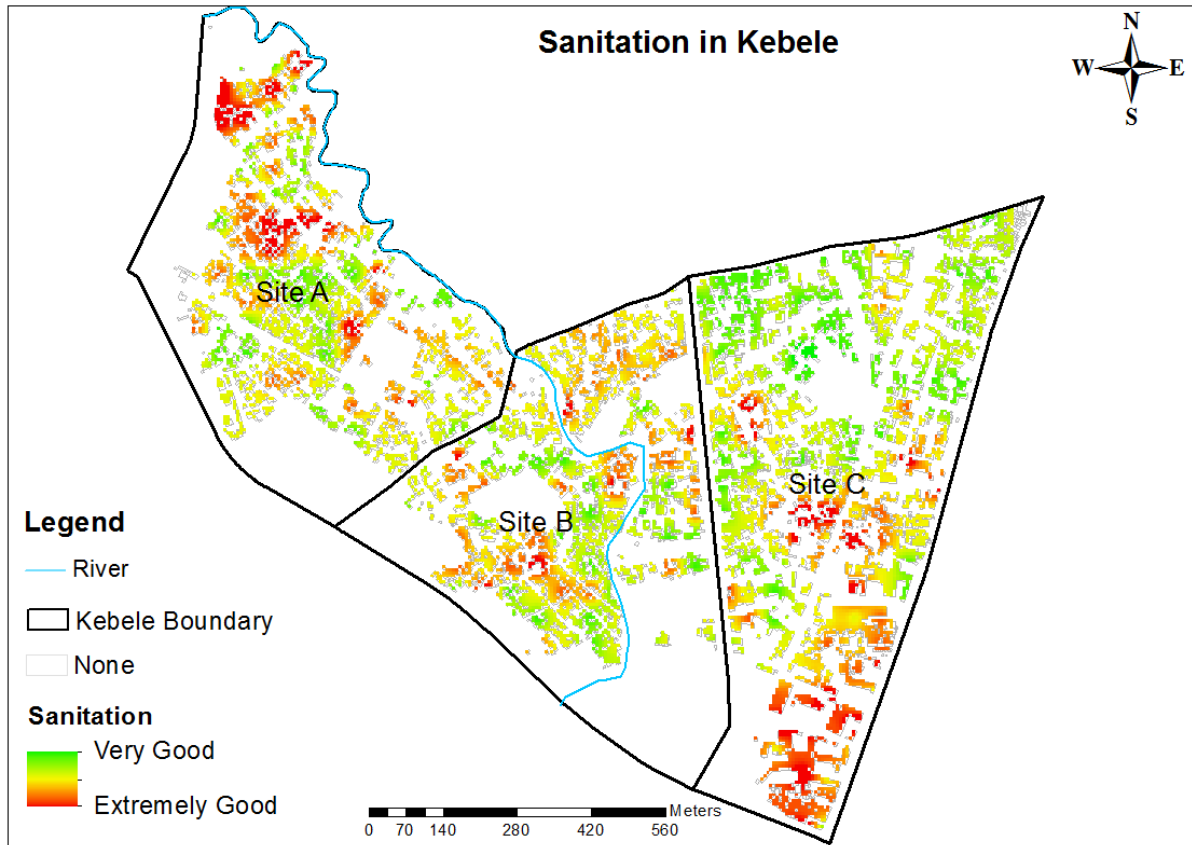


Figure 5-2: Perception of sanitation in the three subdivisions according to residents of Kebele 08/09, derived from household survey

### Health Care Facilities

Figure 5-3 shows the perception of access to health care facilities in the Kebele derived from survey. The health care facilities were raised as the priority area of the quality of life in the site A and B by residents in focus group discussion. Since in the focus group discussion health care facilities are not given priority, comparison was made for the two sites (A and B).

In area that was considered by the community sketch mapping access to health care facilities as 'far', in site A is 74%, in site B 72% of respondents living in the area perceived that access to health care facilities are extremely/very/ far . From the focus group discussion it was found that the majority of residents living in these areas are used government health care services which are located outside the study area. This might be the reason for the perception of health care facilities in that area considered as an accessible .Similarly in the area as identified by the community sketch mapping as 'moderate' the response of the residents was analysed. In site A 64% and in site B 80% perceived that access to health care as extremely/very/far.

A significant difference with the perceptions of respondents was found in the area identified as access to health care facilities as 'near' by community sketch mapping. The result indicates in site A only 14 % and site B 33% of respondents perceived the health care facilities as accessible. As it is also shown on the map for most parts of site A and site B access to health care facilities is not considered as accessible. This could be the cases that although the private health- cares are found in Kebele 08/09, from the focus group it was found that most of the residents rely on the government health care facilities. The immediate health-care facilities are located approximately 4Km from the study area. In order to prove this, respondent during survey were asked how far they considered the places of the health- care from their home. 66% of

the respondents considered as health care facilities to be located outside the study area, the rest perceived them as inside the study area. Also it was observed from the survey most of the residents living in the area (61%) are using government health care services from outside the Kebele. Furthermore, access to health care facilities may not only depend on the distance from health care facilities, affordability is also other factor. As it is previously mentioned affordability was one of the main factors for the accessibility of the health- care in the Kebele. As it is shown in the figure 5-3, in site A and B in most places access to health care facilities are perceived as negatively, which indicates the affordability as a major reason in the area. In most parts of site C the health care facilities are perceived as positive. This might be some of the residents may afford the cost of the private health care service and use those private health care facilities located in this site.

As it is shown on the (figure 5-3 and 4.5) as majority of the interviewed respondents answered health care facilities as far, it is also clearly shown on the figure 5-3 the perception difference.

Table 5-4: comparative analysis of perceptions on health care services as reported by households' survey respondents versus focus group discussion participants

Health care		As identified by focus group discussion					
		Far'		'Moderate'		'Near'	
		Site A	Site B	Site A	Site B	Site A	Site B
Based on response of respondents (Survey)	Level	Response (%)		Response (%)		Response (%)	
	Extremely Far	3	12	4	30	30	11
	Very Far	16	35	18	20	42	17
	Far	55	25	42	30	14	39
	Near	26	25	28	7.5	14	30
	Very Near	–	3	8	12.5	–	3
	Extremely Near	–	–	–	–	–	–
Total	100	100	100	100	100	100	

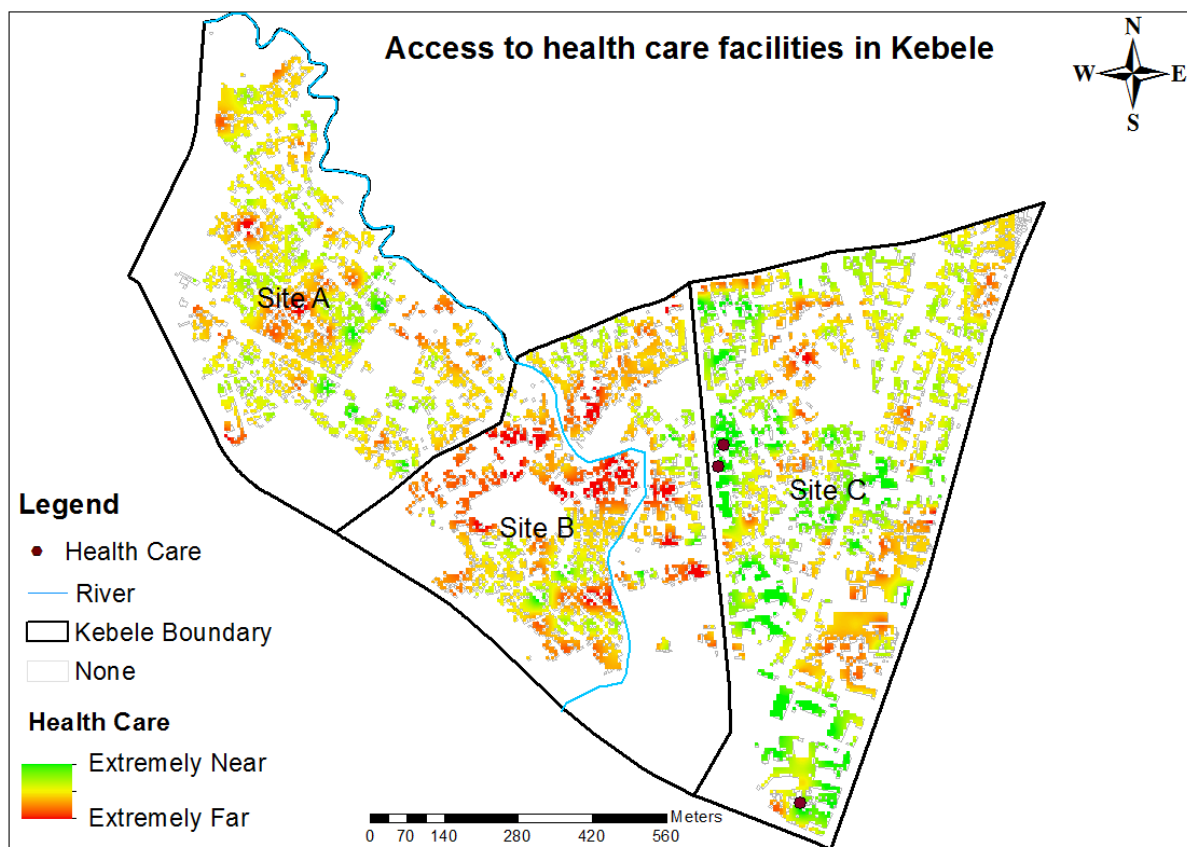


Figure 5-3: Perception of access to health care facilities in the three subdivisions according to residents of Kebele 08/09, derived from household survey

## Safety

Resident's perception of safety in their neighbourhood is shown in figure 5-4. Safety as a priority area for quality of life was identified in both sites A and C during the focus group discussion by residents. Residents were asked how safe do they feel in the neighbourhood in the survey. Then the comparison was made on the area identified by community sketch mapping 'unsafe', 'moderate' and 'safe'. In the area where the perception of safety is identified as 'unsafe' by the community sketch mapping, the result indicates that in site A 65% and in site C 36% of respondents expressed negative opinions (extremely/very/unsafe) in the neighbourhood.

With respect to the area where safety is 'moderate' as regarded by the community sketch mapping, majority of respondents in both sites site A 65% considered as Very/unsafe and in site C 64% considered it as /extremely /very / safe. This might be related with the presense of the police station in the area, although the FGD participant identified this area rerardless of the presense of the police station in the area (figure 5-4).

Similarly the areas which is regarded as 'safe' area by the community sketch mapping was also compared with the response of residents living in the same area. It was found that in site A 71% and in site 82C % of respondents expressed it as safe/very/. This indicates that majority of respondents living in the area perceived that they feel safe in neighbourhood. The result complies with community sketch mapping in the same area.

As it is identified from the focus group discussion the absence of street lights are the main reasons for the neighbourhood safety. To conform that, other attributes of domain of life of related with safety such as crime, police protection in the neighbourhood and street lights were also asked to residents how perceived this domains. It is found that majority of survey respondents (71%) in Kebele considered street lights as 'extremely/very/unavailable' in the area. The crime rate is expressed as extremely high/very/ high by 59% of respondents. The police stations in the area are also expressed as extremely/very/far by 81% of respondents. There is one police station found in site C.

Table 5-5: comparative analysis of perceptions on safety as reported by households' survey respondents versus focus group discussion participants

Safety		As identified by focus group discussion					
		'Unsafe'		'Moderate'		'Safe'	
		Site A	Site C	Site A	Site C	Site A	Site C
<b>Based on response of respondents (Survey)</b>	Level	Response (%)		Response (%)		Response (%)	
	Extremely Unsafe	12	–	–	–	–	–
	Very Unsafe	18	18	29	9	7	–
	Unsafe	35	18	37	27	21	6
	Safe	25	47	34	31	28	52
	Very Safe	10	18	–	29	36	30
	Extremely Safe	–	–	–	4	7	–
	Total	100	100	100	100	100	100

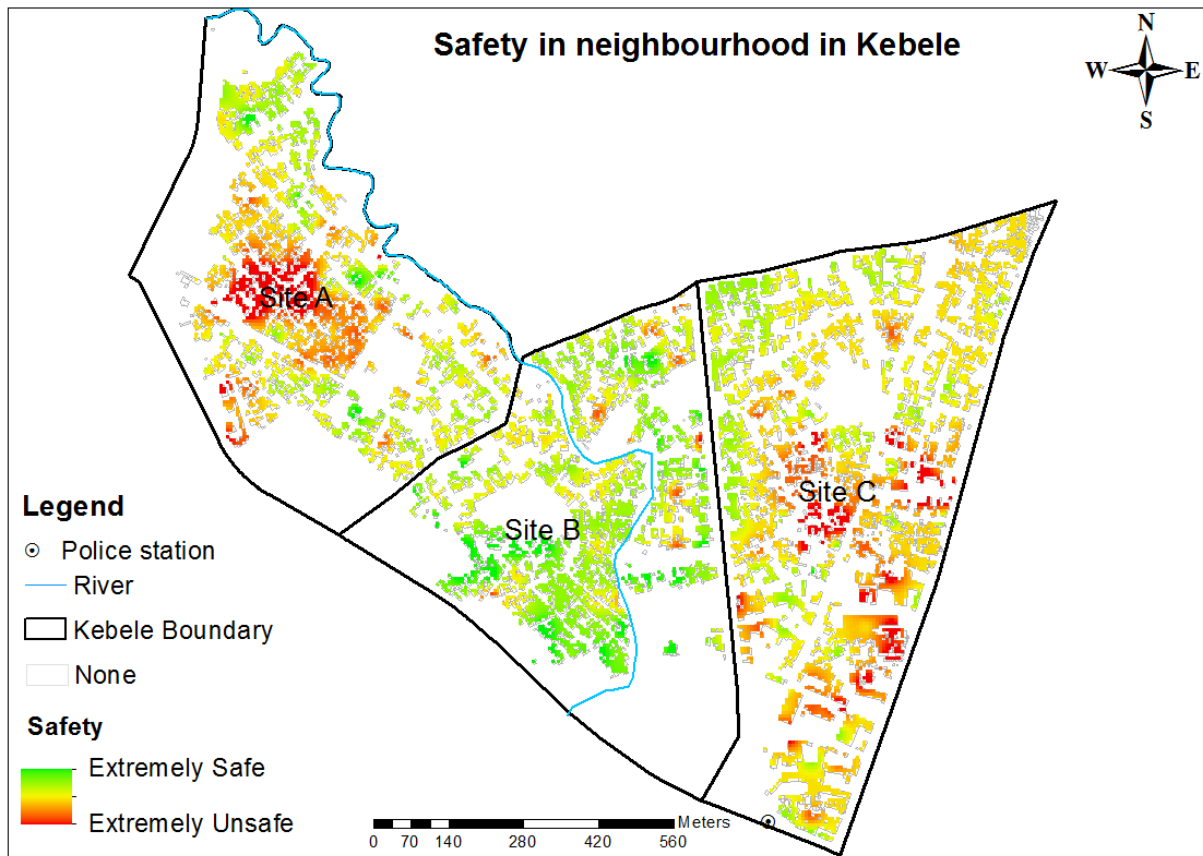


Figure 5-4: Perception of safety in the three subdivisions according to residents of Kebele 08/09, derived from household survey

### Access road

Figure 5-3 shows the perception of the residents of in availability of accessible roads in Kebele. Availability of accessible roads includes the access routes in the neighbourhood and the available roads for access to transportation. Since access to road was identified as priority area only by FGD participants in site C, the comparison was also done in this site. According to focus group discussion the places identified as 'unavailability' for the availability of accessible roads, the percentage of the respondents living in that area were analysed. The result indicates that 66% of the respondents expressed as extremely/very/unavailable. Similarly in the area identified as 'moderate' by community sketch mapping, 69% of respondents considered it as available/very available. In 'available' area as identified by community sketch mapping was also compared. The result shows that only 80% expressed positive opinions (very available/available). This result contradicts with the result of the community sketch mapping since the majority of the residents perceived as accessible.

Table 5-6: comparative analysis on accessible roads as reported by households' survey respondents versus focus group discussion participants

		As identified by focus group discussion		
		Unavailable'	Moderate'	Available'
Road		Site C		
Based on response of respondents (survey)	Level	Response (%)		
	Extremely Unavailable	12	–	7
	Very Unavailable	13	–	7
	Unavailable	41	31	7
	Available	34	52	60
	Very Available	–	17	20
	Extremely Available	–	–	–
	Total	100	100	100

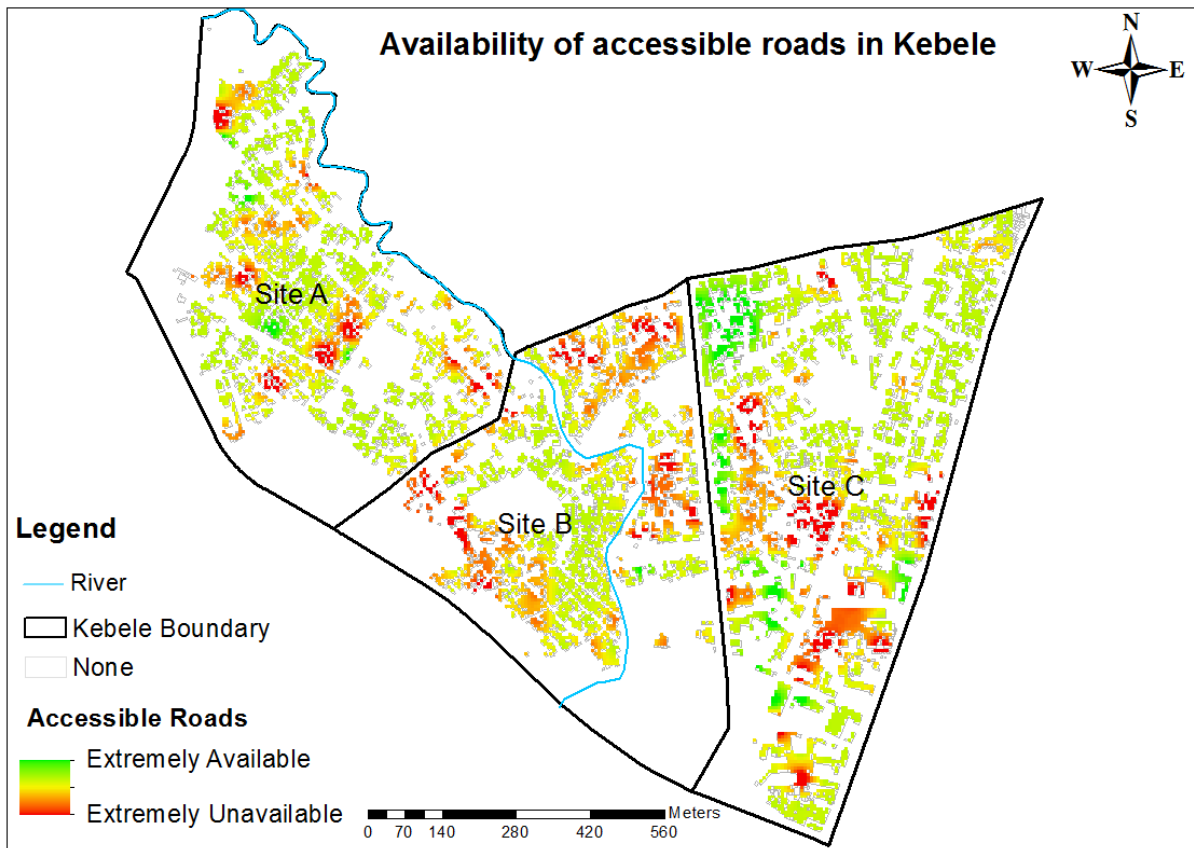


Figure 5-5: Perception of availability of accessible roads the three subdivisions according to residents of Kebele 08/09, derived from household survey



### Level of Air Pollution

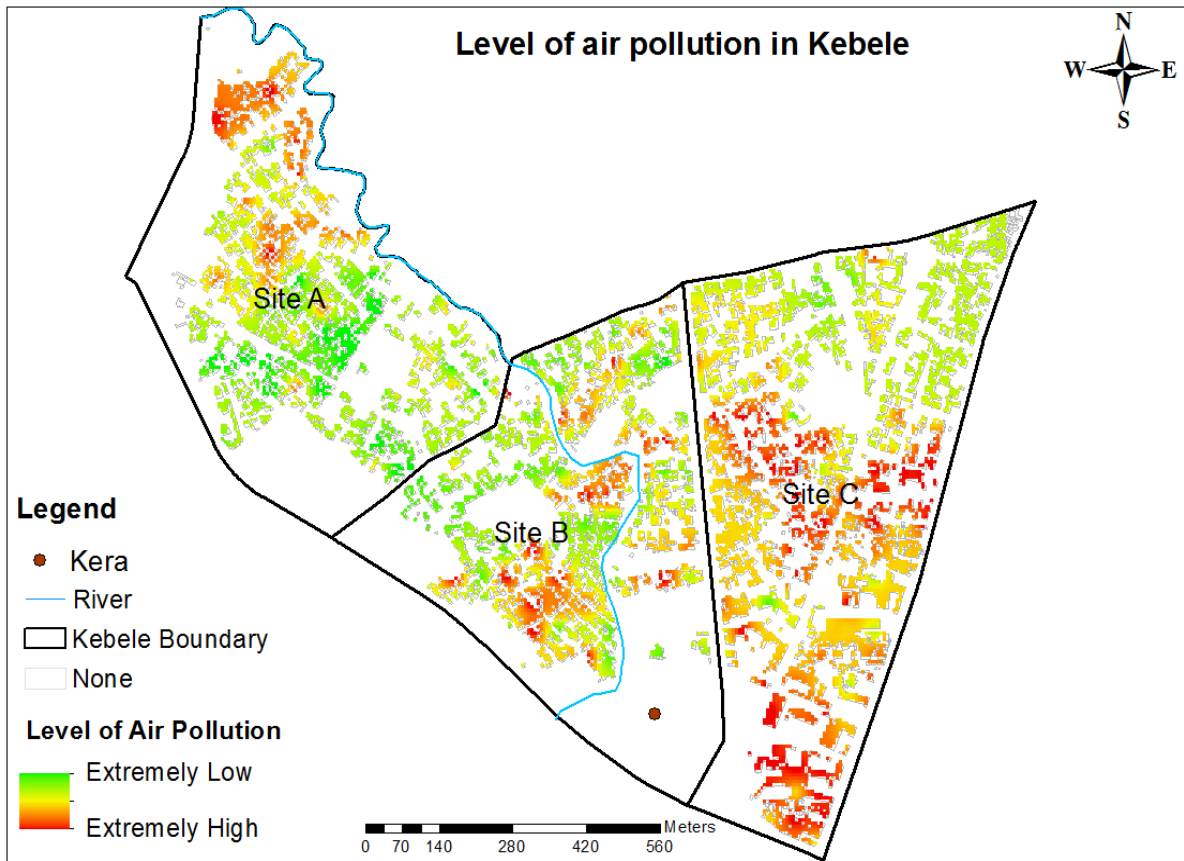
Figure 5-6 shows the perception level of air pollution in the Kebele. In site B in the East and Middle part the air pollution is perceived as negatively. This might be caused by the slaughter house called “Kera” is found in the area. As it is shown in the figure the area where “Kera” is found is perceived by the respondents to have extremely high air pollution. In this site, air pollution is prioritized by the focus group discussion. In site C most parts of the area according to residents perceived as high. This might be the reason that “Kera” is found around the boarder of site B and C.

Air pollution, was identified in the site B as a quality of life determinant with related to the bad smell which comes from the slaughterhouses, (Kera) as previously have mentioned. The residents who live in the same area as identified by the community sketch mapping as ‘High’, 65% of perceived the level of air pollution as extremely high/very high/ high. The residents living in the same place as identified by the community sketch mapping as ‘moderate’ 53% perceived as the air pollution relative to other places as it is low/very low. Similarly the area where community sketch identified the area where the air pollution level is ‘low’ was also compared. The result indicates that 80% considered the level of air pollution low/very low.

Table 5-7: comparative analysis of perceptions on level of air pollution as reported by households’ survey respondents versus focus group discussion participants

Air pollution		As identified by focus group discussion		
		High'	Moderate'	Low'
		Site B		
Based on response of respondents	Level	Response (%)		
	Extremely High	15	13	–
	Very High	18	13	10
	High	32	20	10
	Low	20	27	30
	Very Low	12	27	50
	Extremely Low	3	–	–
	Total	100	100	100

Figure 5-6: Perception of level of air pollution in the three subdivisions according to residents of Kebele 08/09, derived from household survey



#### 5.4. The usefulness of participatory approach

In the previous chapter using participatory approach identification of quality of life domains by focus group discussion (section 1) and variation of quality of life are discussed (section 4.2 and 4.3). These results are useful in such a way that it can enable to identify the most important which the residents need (domains of life). It also helps, in terms of local context, to analyze the heterogeneity or the variation of quality of life in Kebele by integrating local knowledge (people's perceptions and experiences) in to GIS. Furthermore, the result can be used if any intervention programme is made to quality of life in the specific area.

This chapter revealed how the participatory approach has the potential in identifying the quality of life of the residents by comparing the participatory sketch map results with the household survey. The comparison gives a better understanding on the knowledge and perceptions of the residents towards quality of life. This is useful in demonstrating the areas where the quality of life is 'good' 'moderate' and 'poor'. As Pettit (2004) stated, differences between findings from qualitative approach and other forms of data collection help to understand better the conditions in which both are produced, and what is actually being measured.

The comparison of the participatory mapping with the household survey indicates that for most of the domains perception of the residents in identifying areas with 'low quality of life' in the Kebele matches with the majority of the respondents perception with household survey. For all the six domains of life which are housing condition, sanitation, safety, health care, access roads and air pollution, except safety in

site C the perception with both approach is the same. This is proved by analysing the perception of the focus group discussion participants and residents who are interviewed in household survey in the same area. In some places both interviewed residents and the focus group discussion participants in the same area. It is also found out that in the area where in the sketch mapping by the FGD participants identified as 'low quality of life' for the six domains (housing condition, sanitation, health care, air pollution and roads) the perception of the majority of interviewed residents in the same areas is the same.

However, the areas in the sketch mapping it identified as 'High quality of life' for some domains the result found contradicts with the household survey. For housing condition in sites A, only 50% were perceived it as 'good' and in site B about 40% have perceived it as well. For the domain of quality of sanitation, in all the three sites, the household survey respondents have perceived it as 'poor'. For access to health care facilities, both sites A and B perceived it as 'far'. This is probably the quality of life is depend on the perception of the individual. Although the focuses group discussion participants it identified it as 'good' quality of life areas in the Kebele area, the perception of the individuals might be influenced by other facilities found outside the study area. As indicted by Marians (2003) quality of a place or geographic setting (city, neighborhood, or dwelling) is a subjective phenomenon, and that each person occupying that setting may differ in his/her views about it.

The comparison result indicates that for most of the domains in identification of the two extremes (high and low quality of life areas) perception of the residents in both approaches is the same. This indicates that participatory mapping demonstrated to be useful tool for analysing the spatial variation of quality of life in the Kebele. It provided valuable visual representation of what a resident's perspectives, opinions, priorities and ideas in quality of life which in turn has the potential to effectively influence decision makers.

#### **5.4.1. Strength and weakness of the method**

##### **Strength**

- The ability of providing a deeper understanding on the domains of quality of life. Perceptions of quality of life domains reflecting attitudes, preferences, or priorities are not easily captured by other methods. Thus, it was possible using participatory tools and methodologies to identify most important for the people to have in life (domains of their life) in local context. In this study it was able to identify the domains of life in local context from the residents of the Kebele 08/09 through the focus group discussion. For example the method provided addition domains of life, such as air pollution, safety issue which is related to street light availability in the neighbourhood and the availability of access roads. However, previously, these were not presented for the focus group discussion.
- This approach consists of the ability to visualize and investigates the social phenomena that cannot be represented by other methods. Through participatory mapping it was able to show the spatial variations according to resident's priorities and importance which they give to quality of life. The mapping process brought the community representatives together to share their ideas and express freely. The participatory maps provide a valuable and visual representation of what residents perceives about their quality of life in their place.
- The representativeness of participatory maps in showing the quality of life variation of the residents in problem areas. Although in comparison of the participatory sketch mapping with

household survey was not match with the perception for some domains of life, for most of the domains have worked.

**Weakness**

- When large number of topics to be included it is time consuming.
- Generalization; it is observed that in the focus group discussion grouping of the area with one category. In addition a specific attributes of the household cannot captured with this approach



## 6. Conclusions and Recommendations

### 6.1. Conclusions

This chapter presents conclusions of the study in line with the research objectives. The main objective of this research was to analyze the urban quality of life and its spatial variation within the smallest administrative unit (Kebele 08/09), using participatory approach. In order to achieve these objectives, mixed methods; participatory mapping specifically sketch mapping combined with focus group discussions, field observation and a separate household survey were used. In both approaches, it was able to analyse the spatial variation of quality of life in the Kebele. It was also possible to compare the participatory mapping results and the household survey.

#### **Domains of life that affects the resident's quality of life in Kebele**

The domains of quality of life were identified by the stake holders (both community representatives and the experts) by the focus group discussion within local context. These domains were categorized as access to public facilities, housing, built environment and safety. Totally 22 domains of life were identified in Kebele08/09. Additional domains of life were also identified in the area which was not previously included during focus group discussion. These were air pollution, safety issue which is related streetlight, and availability of access roads.

The top priorities of quality of life domains in each area were identified through focus group discussions. The community representatives and experts indicated how important they considered each domain of life. Six priorities of domains of life were identified in focus group discussion. It was found that from the six domains of life identified from the focus group discussion, housing condition and sanitation have received priority in all sites by the community representatives and experts.

#### **The spatial variation of quality of life within the Kebele**

The variation of the quality of life in the Kebele 08/09 was analysed and discussed according to the priorities given in three sites by stakeholders in the focus group discussion. Six domains of quality of life were identified by the stakeholders. These are housing condition, sanitation, health care facilities safety, air pollution and roads. The spatial variation of quality of life were analysed and discussed with these domains in each separate sites and for the whole Kebele 08/09. The residents of the Kebele 08/09 show different perception on different quality of life domains. The spatial variation of quality of life within the Kebele indicates the living condition of the residents in Kebele 08/09 is not homogeneous at all. The resident perception is shown to vary within different parts of the neighbourhood.

The spatial variation in the Kebele for the above six domains indicated that the importance of provision of the primary needs and services in Kebele to improve the quality of life of the residents. The spatial variation in quality of life can help policy makers to ascertain the values and priorities of residents. This result can assist in which area the administrators have to look to improve the quality of life of the residents. Therefore improvement of QoL requires in Kebele 08/09.

### **The use of participatory mapping in analysing the variation of quality of life**

The results of the community sketch mapping and the perception of the residents captured through household survey were compared. The domains of life used for the comparison were the top six ranked quality of life domains identified by the stake holders. The aim was to study how the participatory mapping tools can be used in analysing the variation of the quality of life.

The comparison was based on visual and percentage of survey responses in the same areas where identified in the sketch maps as 'poor', 'moderate' and 'good'. From the analysis it was found that for all the six domains the result of the community sketches maps coincides with the survey regarding areas with 'low quality of life' except the domain safety in site C. These six domains were housing condition, sanitation, health care, safety, roads and air pollution.

However for some domains, in identification of areas with 'high quality of life' there was difference in perception. For housing condition in site A only 50% perceived it as 'good' and in site B 40% perceived it as good. For the domain of quality of sanitation in all the three sites the surveyed respondents perceived this as 'poor'. Both sites A and B perceived 'far' access to health care facilities; the comparison was useful in understanding and identifying the major domains of life that determine the quality of life in the Kebele.

The results of the comparison of the two approaches indicated that the participatory mapping is useful tool for analysing quality of life and spatial variation in the Kebele since for most domains of life the perception of the residents of the focus group and the survey was the same which indicates the potential of participatory mapping as a useful tool.

It provided valuable visual representation of what a resident's perspectives, opinions, priorities and ideas in quality of life which in turn has the potential to effectively influence decision makers. The mixed method approach; participatory mapping, focus group discussion, field observation with household survey provided residents to put forward their own realities; the particular expertise gives 'added value', and the opportunities it can give them to influence policy.

### **6.2. Recommendations**

- The domains of life that were identified by the focus group discussion within the local context can be used for further research in quality of life in other regions of Addis Ababa.
- This research is limited in analysing the spatial variation of quality of life with three subdivision of a Kebele based on the six priorities identified by the stake holders. Future research can address other domains of life identified by the stake holders.
- Due to time constraint, this research was limited to conduct feedback section with the stake holders in order to do validation after the mapping exercise. It would be good if feedback section is prepared after the mapping exercise.
- Using the identified domains in general (housing, built environment, safety, and accessibility) it is possible to analyse overall quality of life domains in order to observe the spatial variability. These can be done through spatial multi criteria decision support system. Since urban planners and decision makers need to know how best to use limited resources to address the complex urban challenges and opportunities and to achieve this decision maker's need comprehensive

information and decision support system backed by public participation(Barton, et al., 2005). So the spatial multi criteria will help



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# Appendix

## **Appendix 1: Checklists and Questionnaire**

Purpose: This Discussion/ Interview is intended to be used for studying quality of life how the people living in Kebele 08/09 Kirkos Sub-City they feel about their life. The discussion/Interview you give will be kept confidential. Data were collected from residents (head of household) two years over living in the Kebele.

### **I. Checklist for Focus group discussion**

#### **Open ended question for focus group discussion**

1. What things /domains of life/ determine the quality of your living condition?
2. What do you like about your neighbourhood?
3. What don't you like about your neighbourhood?

#### **Discussion with other domains of quality of life**

After identification of the determinants of quality of life from the different stakeholders, they were asked about other domains of life that affect the quality of life which are identified from the literature with respect to applicability in the developing countries.

4. Which other domains of life that affect the quality of life in the Kebele do you want to include?
5. Rank the domains of life that have given priority in the Kebele
6. Can you identify the domains of life on the map according to the priority?
7. How do you see the community participation in the Kebele in the improvement of the living Condition in the area?

**Appendix 2 Household survey /Structured Interview/**

Sub City Name .....

Kebele Name .....

Date of Interview.....

**A. General Household Characteristics**

Gender	Female headed Male headed
Age	Please mention
Employment condition	Employee Un employee
No of family	Please mention
Household tenure	Private owned Kebele Rent
Health care facilities family use	Government Private
Income	< 500 500-1500 1500-2500 2500-3500 >3500

**B. Access to public Services**

1. How accessible are health care facilities from your home?	Extremely Far	Very Far	Far	Near	Very Near	Extremely Near
1.1. Where are health care facilities located	Outside Kebele	In side Kebele				
2. How accessible are primary schools from your home?	Extremely Far	Very Far	Far	Near	Very Near	Extremely Near
3. How accessible are secondary schools from your home?	>	>	>	>	>	>
3.1. Where are they located? (for both schools)	Outside Kebele	In side Kebele				
4. How accessible are main shopping from your home?	Extremely Far	Very Far	Far	Near	Very Near	Extremely Near
5. How accessible is public transportation facilities from your home?	>	>	>	>	>	>
6. How accessible are sport and recreational facilities?	>	>	>	>	>	>

**C. Housing**

1. How do you assess your housing condition?	Extremely Poor	Very Poor	Poor	Good	Very Good	Extremely Good
2. How do you assess the housing availability (to buy/rent) in your area?	Extremely Unavailable	Very Unavailable	Unavailable	Available	Very Available	Completely Available
3. How do you assess housing cost in your area?	Extremely High	Very High	High	Low	Very Low	Extremely Low
4. How do you assess crowding in a dwelling?	Extremely Crowded	Very Crowded	Crowded	Less Crowded	Very Less Crowded	Not Crowded at all
5. How do you assess the number of rooms?	Extremely Small	Very Small	Small	Large	Very large	Extremely Large
6. How do you assess purchase cost of housing utilities?	Extremely High	Very High	High	Low	Very Low	Extremely Low

**D. Built Environment**

1. How do you assess your neighbourhood as living place attractiveness?	Extremely Unattractive	Very Unattractive	Unattractive	Attractive	Very Attractive	Extremely Attractive
2. How do you assess the air Pollution in your area?	Extremely High	Very High	High	Low	Very Low	Extremely Low
3. How do you assess the noise Pollution in your area?	Extremely High	Very High	High	Low	Very Low	Extremely Low
4. How do you assess the neighbourhood congestion?	Extremely Congested	Very Congested	Congested	Less Congested	Very Less Congestion	Not Congested at all
5. How do you assess the availability of road?	Extremely Unavailable	Very Unavailable	Unavailable	Available	Very Available	Extremely Available
6. How do you assess	Extremely	Very Poor	Poor	Good	Very Good	Extremely

quality of roads?	Poor					Good
7. How do you assess quality of sanitation	Extremely Poor	Very Poor	Poor	Good	Very Good	Extremely Good

### E. Safety

1. How safe do you feel in your neighbourhood?	Extremely Unsafe	Very Unsafe	Unsafe	Safe	Very Safe	Extremely Safe
2. How do you assess crime rate in your area?	Extremely Unavailable	Very Unavailable	Unavailable	Available	Very Available	Completely Available
3. How do you assess police protection in your area?	Extremely Unsatisfactory	Very Unsatisfactory	Unsatisfactory	Satisfactory	Very Satisfactory	Extremely Satisfactory
4. How accessible are police stations from your home	Extremely Far	Very Far	Far	Near	Very Near	Extremely Near
5. How do you assess street lights in your area?	Extremely Unavailable	Very Unavailable	Unavailable	Available	Very Available	Completely Available

### Appendix 3: Photos related to method and sketch maps

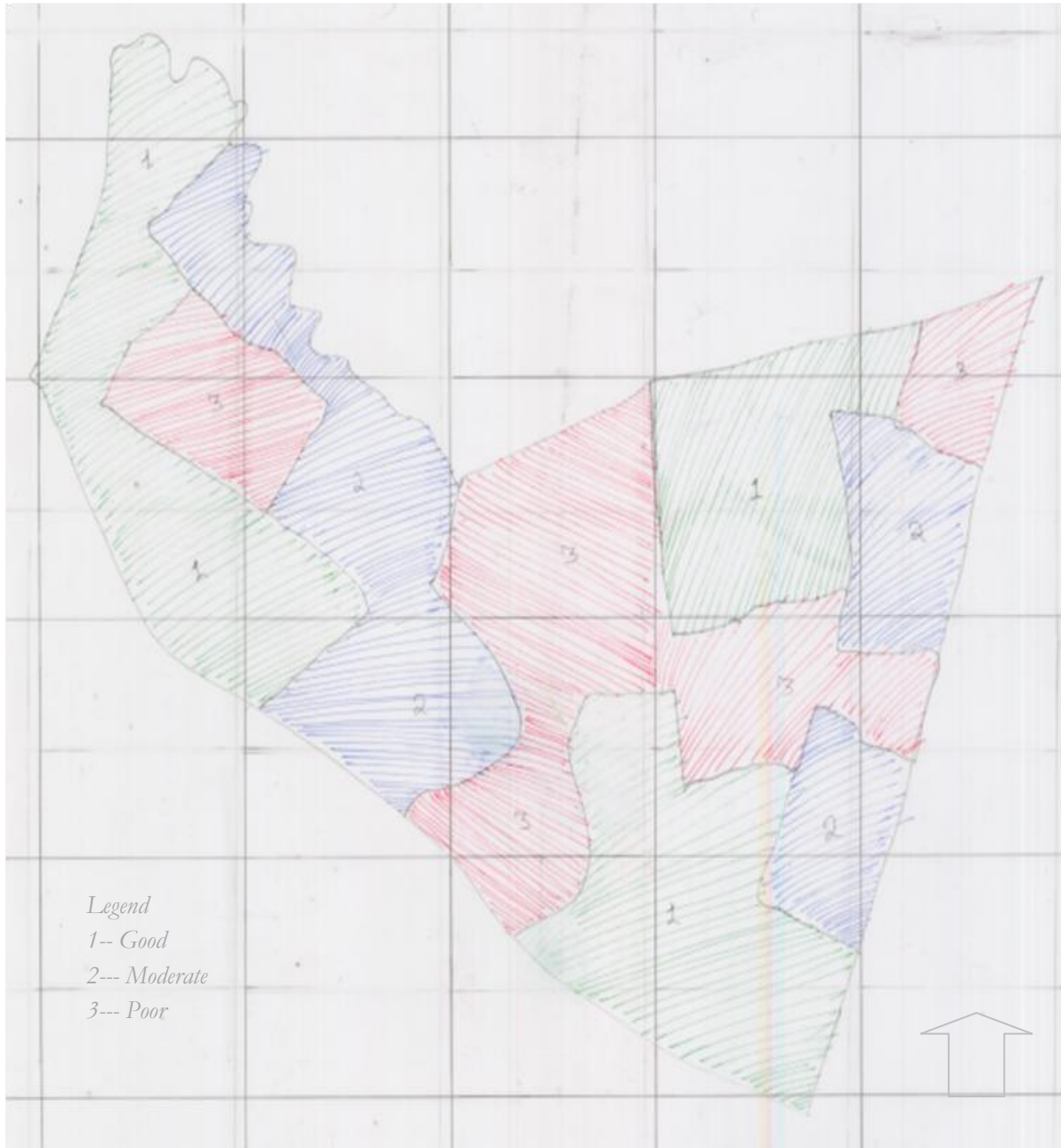
#### Community representatives and experts sketch mapping exercise



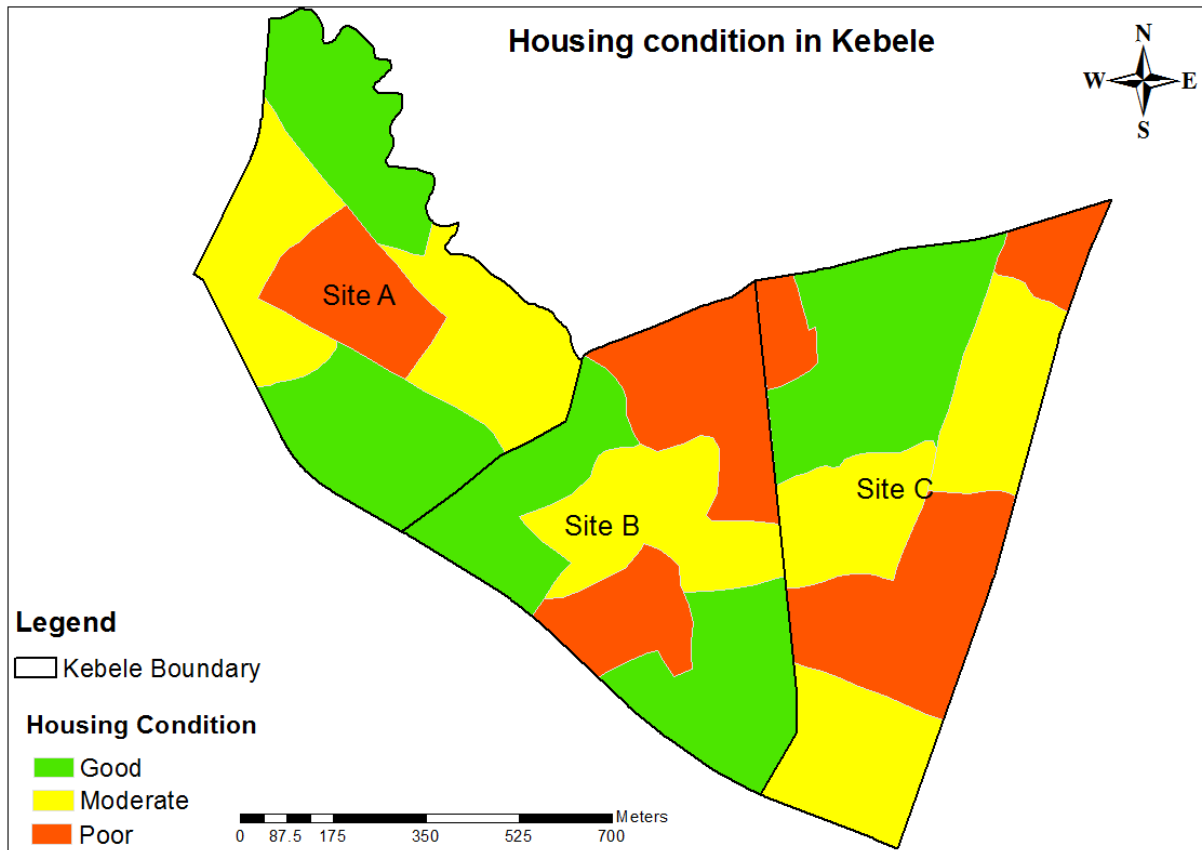


### Appendix 4 Sketch maps of the stake holders

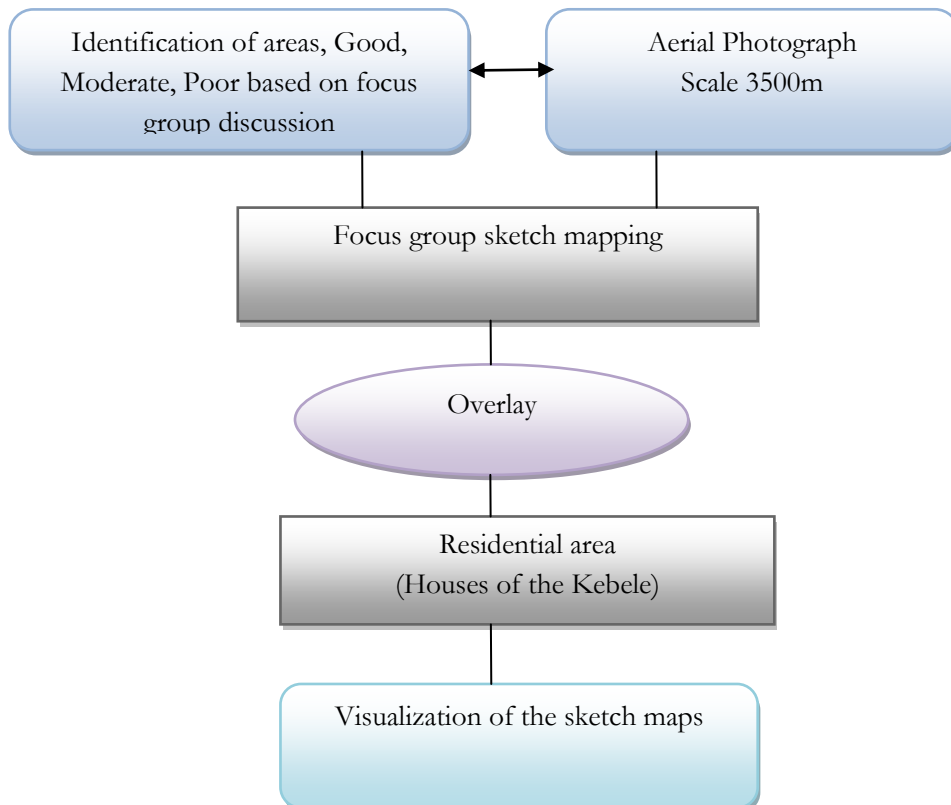
Sketch maps of the stakeholders



## Sketch maps of stake holders



## Extraction of buildings from sketch map



**Appendix 4** Prioritization of domains of life by the stake holders

Domain of life	Community priorities			Expert priorities
	site A	site B	site C	Whole study area
Access to health care facilities	3	1	6	4
Schools both primary and secondary		5	7	6
Public transport		5	5	5
Shopping place	6	7		
Sport and recreation areas	7	6	6	
Housing condition	4	2	1	1
Crowding in dwelling	7	6	8	
No of rooms	8	6	8	
Housing availability/ to buy or rent/		5	5	6
Housing cost	6	5	5	6
Air pollution		2	5	10
Noise pollution	8	7		
Housing congestion	5	5	7	5
Sanitation described as toilets sewerage and drainage system	1	4	2	2
Living place attractiveness	8	5	7	
Road availability			3	3
Road quality	10	8	5	5
Safety in the neighbourhood	2	10	4	7
Crime rate	5		5	7
Street lights availability	5		5	6
Police station	8	10		8

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