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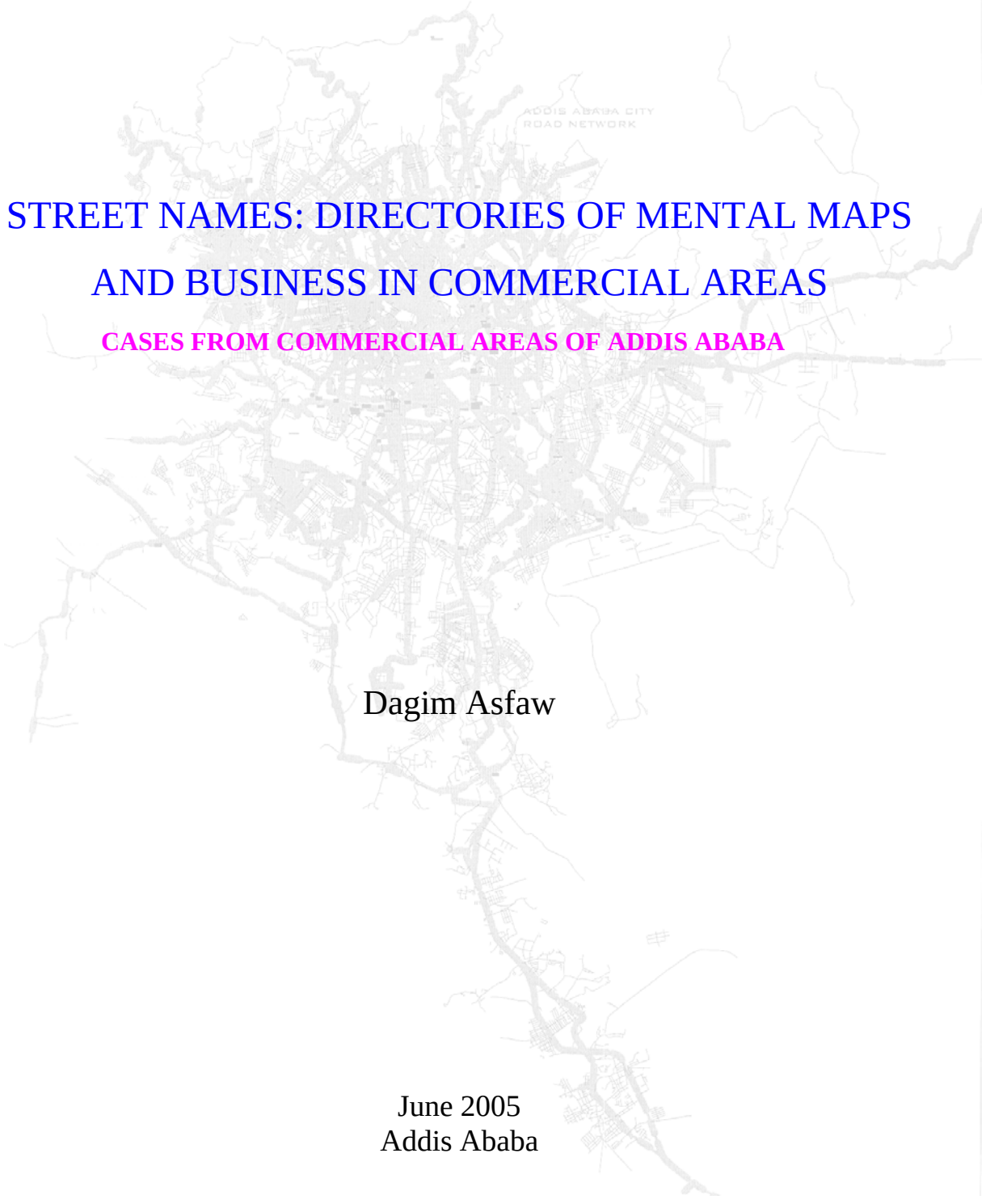

STREET NAMES: DIRECTORIES OF MENTAL MAPS AND BUSINESS IN COMMERCIAL AREAS

CASES FROM COMMERCIAL AREAS OF ADDIS ABABA

Dagim Asfaw

June 2005
Addis Ababa

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Dagim Asfaw

A Thesis Submitted to the School of Graduate Studies of Addis Ababa University in a Partial Fulfillment of the Requirements for the Degree of Master of Science in Urban Design and Planning

June 2005
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By: Dagim Asfaw

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Abstract

The main objective of this research is to find out the relationship between pedestrian orientation and street naming by analyzing the mental maps created as a result of the physical urban environment in commercial areas. Identifying the impact of street naming which emanates from mental maps on trade is the core objective of the paper.

The lack of proper addressing systems especially of functional street names in most African Cities has a deep-rooted problem in the absence of proper urban planning and design principles. The need to grow towards global economy, which is based on the presence of functional addressing system, seems neglected in the day-to-day transactions in the commercial areas of Addis Ababa. Therefore, the addressable objects that buyers and sellers mostly use must be those, which are persistent to urban change and are able to create the strongest mental image in the observers mind, namely the streets.

In this research, street patterns current trends of addressing and their impact on trade are studied by implementing basic urban design principles. The case study method is used in the study by selecting three commercial areas in Addis Ababa. This study shows that both street design and naming are weak in the commercial areas and hence pedestrian orientation is loose in those areas. Factors which contribute to this urban problem are: absence of properly designed streets in the commercial centers, absence of street names and where they exist, the weak link between the existing names and their use by pedestrians for commercial activities.

Based on the findings, street names in commercial areas can be generated from the dominant physical element in the mental maps of pedestrians and the dominant business in that locality. Thus, the research shows that street names in commercial areas will be effective if they are considered as a directory of mental maps and business in commercial areas.

The findings of the study are believed to clarify the link between street design, street naming and trade in commercial areas. The study is based on the cases from Addis Ababa. However, it is believed that it will also serve to be a component of the background paper for the UNECA initiative Functional Addressing System for Africa.

Part I- Description of the study and research methods

1. Description of the study

1.1 Introduction

In countries of the Developing World like Ethiopia and other nations of Africa, both rural and urban setting are characterized by absence of street names, which fail to guide pedestrians as well as drivers to a focal point or a desired destination. It is thus convenient to give names to streets. Even though the importance of having planned cities is critically studied; the areas with standard planning principles do not exhibit urban design principles that could have made the urban elements integrated together in a way that allows human beings to associate themselves with the environment.

As a resident in Addis Ababa I have realized that such problems are depicted by a number of planning and urban design shortcomings. Even though such shortcomings are evident in different parts of the city the commercial areas where all the city dwellers interact have attracted my attention, especially their streets. It is difficult to find one's way walking as a shopper in the commercial areas of Addis Ababa, for example, *Merkato*. Associated with this problem of missing the precise orientation and direction I could not help asking myself," Does the city have streets at all? Can the name 'street' alone make those urban elements something more than a conduit for cars? Do the streets in the city, help in any manner to create orientation of movement? Is someone who is in the commercial areas, either driving or walking, provided with precise orientation? How can having a precise orientation make walking and shopping convenient?" In addition to all the concern listed above, the effect of street naming on the buying and selling activity is what made me work on this topic.

1.2 The Research Question

All the issues introduced in the introductory paragraphs of this paper are investigated through the analysis of the design principles that create clear pedestrian orientation in commercial streets, street naming and the cumulative impact of both on commercial activities. In commercial areas where there is no urban design principle, the research aims at answering the questions like where and how urban elements are organized in order to give clear pedestrian orientation or to create clear mental map? How can street naming help to give precise orientation and what is the impact of having none of the above on the day-

to-day activity and economic growth at large? Therefore the research question is subdivided in to three study units, which constitute the core research problem.

Study unit 1- Mental Maps of Pedestrians

Are the existing streets in commercial areas designed in a manner that create clear mental map in the pedestrians mind? Do the physical elements that define the streets in commercial areas help to create a clear orientation? These issues are investigated through

- Personal observation through the existing urban fabric in the case study areas, by undertaking morphological study and by analyzing the existence of the five elements[1] and their integration through the help of maps and pictorial illustrations

Study unit 2- Street Naming and Pedestrian Orientation

Do street names help to give precise orientation or they are just for official purposes? Do the streets in commercial areas have names at all? If so, where do the street names originated? Does street naming efficiently give precise orientation? Relevant issues were discovered through

- Empirical research and interviews made with shoppers in the area and customers residing far from the case study areas at the instance.

Study Unit 3. Understanding the impact of the above two on the trade in the commercial areas.

What is the effect of creating precise pedestrian orientation and street naming on commercial activities? These and other economic issues were explored by using

- Empirical research in the case study areas by analyzing the responses from the shoppers and shopkeepers perception survey
- By extracting relevant issues from the Situs Addressing in African Countries initiative of UNECA

The above three are to be fused together in order to realize how the urban elements can get integrated in order to design streets that create strong mental maps in the mind of pedestrians walking in commercial areas and streets, which can easily be identified with their own name by buyers and sellers.

[1] These five elements are urban elements theoretically accepted to create image of a city. They are paths, edges, districts, nodes and landmarks.

In short the focus of this research is to explore that pedestrian orientation in commercial areas is affected by the mental image, which is basically dependant on the streets than the other physical elements. Hence, identifying to what extent street names can be integrated with mental maps of pedestrians so that the physical design and addressing system may enhance trade in commercial areas of Addis Ababa is the core problem of the study.

1.3 Objectives

The main objective of this study is to assess if there is a direct relationship between pedestrian orientation, street naming and commercial activities. The main focus will be analyzing the mental maps of pedestrians.

Investigating the presence and absence of street naming system in commercial areas, suggested desirable solutions of addressing in urban commercial areas. This is done by studying the relationship between street naming, spatial and physical setting of the streets and their impact on commerce.

1.4 Relevance of the research

Findings from this study will contribute to the understanding of the link between the mental maps pedestrians use for orientation and street naming in order to have a convenient movement pattern in commercial areas. It is expected that this research work contributes a great deal to the ECA initiative Situs Addressing Project for African Cities where addressing is a big problem, even though it is limited to the commercial areas of Addis Ababa. It is also believed that planners, urban designers and municipal officials who are working towards creating identification of space will make use of it in order to:

- Generate street names the public is familiar with
- Understand the significance of street names
- Evaluate the level of clarity of pedestrian orientation in the absence of street naming

1.4 Scope and Limitations

Because pedestrian orientation can be affected with factors that are related with physiological phenomenon, the research is limited to the discussions that relate to cognitive mapping and physical urban elements. It tries to relate itself not to the other addressing issues for example, parcel number and P.O.Box etc. but only to street naming. And the impact is also assessed mainly on commercial activities of all the economic issues that

could have been raised because the other economic branches cannot be covered within this scope.

The spatial planning of the city and the diffusive nature of the commercial activities has made the delimitation of the study areas to those that are marked as commercial districts by the master plan. This has helped to avoid the confusion of including streets in other zones of the city, which principally serve commercial purposes.

The other constraint, which is the time frame, has made the research to focus on a network of street layouts. Especially the shoppers in the center of one main marketplace are interviewed and others in the Commercial Business Districts (CBD) are mentioned for the purpose of comparison only.

There is crucial lack of focused literature on the subject. Nonetheless, available pioneer literature on the subject have been dealt with carefully so that this will be one of the literatures to be read on the subject matter, in the future.

1.5 Organization of the thesis

The thesis is divided into five parts:

Part I: Description of the study and research methods

This part contains the first two chapters of the study. Chapter 1 starts with a brief introduction of the problem and sets the limitations of the research. It presents the research question, the objectives and scope of the study. Chapter 2 deals with the research methods employed in this research.

Part II: Review of theoretical research

This part consists chapter 4, chapter 5 and chapter six of the thesis. Chapter 4 deals with pedestrian orientation and urban elements. Mental maps, perception and the environment are the core of this chapter. Chapter 5 presents addressing in general by focusing on desirable features of good addressing system, benefits of addressing and its contribution for economic development. Chapter 6 deals with the impact of the above two issues on commercial activities.

Part III: Background study

This part consists chapter 7 and 8 of the thesis. These chapters deal with the historical background of streets in Addis Ababa and addressing practices in the city respectively. Chapter 7 focuses on spatial planning trends in Addis Ababa and its street layouts. Chapter 8 deals with spatial referencing system and street naming in Addis Ababa.

Part IV: The case studies

This part of the study focuses on the systematic analysis of the physical elements in three commercial areas of Addis Ababa. It also deals with the perception of buyers and sellers about addressing system in general and street naming in particular. This part consists chapters 9,10 and 11.Chapter 9 deal with delimitation of the case study areas. Chapter 10 presents the morphological observation in the three case study areas. Perception of buyers and sellers are presented in chapter 11.

Part V: Empirical Findings, Discussion and Conclusion

Chapter 12, the final chapter, deals with the practical and theoretical findings of the study. It attempts to establish the foundation or the basic principle that must be employed while naming streets in commercial areas.

2. Research Methods

This chapter presents the methods employed in this research and discusses the criteria used for the selection of the case study areas. Data collection techniques and methods for data analysis are also the other constituents of this chapter.

2.1 Choice of Methods

Since the issue is about an element in the human living environment, inhabitants are responsible for shaping it either deliberately or unknowingly. Thus, the research methods to be adopted are those that can relate the physical environment with its shapers. Hence, the case study method would help to assess all dimensions of the study, meaning the physical parameter of the streets, their naming/addressing system and the cumulative effect on commercial activities. It is selected so as to have an overall approach to the different subunits of the study.

2.2 Case Study Method

Because of the diffusive nature of commercial areas in Addis Ababa city and the absence of strict zoning principles, it is very difficult to make an observation and explore in depth all the commercial areas. Hence, the case study method is used in order to qualitatively examine contemporary real-life situations and provide the basis for the application of ideas and extension of methods. Researcher Yin, defines the case study research method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (Yin, 1984, from Wubshet 2002).

The case study method is criticized for the following three reasons. First, the study of a small number of cases can offer no ground for establishing reliability or generality of findings. The second reason is the suspicion that the intense exposure to the study of cases may bias the findings. The third critical view against case study research is considering its use only as an exploratory tool. Yet many researchers continue to use the case study research method with success in carefully planned and crafted studies of real-life situations, issues, and problems.

The dilemma in reading many case studies is that it is not clear how the portrayed evidence was selected for inclusion in the case report. It is possible to select evidence to correspond with the claims that the author wishes to advance. Alternatively, the author can choose to present representative illustrations of the obtained information.

Therefore, in order to meet the latter goal the following two approaches are used as an attribute of the case study method.

a) Graphical or visual approach. Illustrative graphs or other pictorial presentations that provide important information about the design or context of the study are helpful to the reader. More generally, Miles and Huberman (1984) describe a qualitative data analysis procedure that provides the reader with a picture of the increasing abstractions starting with a synopsis of the original evidence known as dendrogram "Case Study Reports " (Bachor 2000).

b) Ratios. To permit the reader to judge the evidential basis of a case study, Bachor, (2000); Davis & Bachor, 1999) suggested that a ratio could be computed. This ratio is the number of times a point is raised within a theme divided by the total number of points raised within each theme "Case Study Reports " (Bachor 2000).

2.3 Qualitative Research Method over Quantitative

Data are not naturally quantitative, and can be small pieces of almost anything. They do not necessarily have to be expressed in numbers. Frequency distributions and probability tables do not have to be used. Data can come in the form of words, images, impressions gestures or tones that represent real events or reality as it is seen symbolically or sociologically, if people believe things to be real they are real in their consequences- the Thomas Dictum (Qualitative Social Science Research Methodology 2004). Qualitative research uses unreconstructed logic to get at what is real—the quality, meaning context or image of reality on what people actually do, not what they say but do (as on questionnaires). Unreconstructed logic means that there are no step -by -step rules, the researcher ought not to use prefabricated methods or reconstructed rules, terms and procedures that try to make the research look clear and neat (as in journal publications).

Unlike more statistically based studies which search for quantifiable data, the goal of a case study is to offer new variables and questions for further research. Giddings (from. Hamersley, 1995) a sociologist, compares statistical methods to the case study on the basis that the former are concerned with the distribution of a particular trait, or a small number of traits, in a population, whereas the case study is concerned with the whole variety of traits to be found in a particular instance "Qualitative versus Qualitative" (Siege 1994).

Then quantitative method are best used when most of the following conditions prevail:

- The research is confirmatory rather than exploratory i.e. this is a frequently researched topic, and (numerical) data from earlier research is available.
- You are trying to measure a trend (almost impossible with qualitative research).
- There is no ambiguity about the concepts being measured, and only one way to measure each concept.
- The concept is being measured on a ratio or ordinal scale "Qualitative versus Quantitative" (Siege 1994).

A qualitative method is best used when most of these conditions prevail:

- You have no existing research data on this topic.
- The most appropriate unit of measurement is not certain (Individuals? Households? Organizations?)
- The concept is assessed on a nominal scale, with no clear demarcation points.
- You are exploring the reasons why people do or believesomething "Qualitative versus Quantitative" (Siege 1994).

The last four reasons are the rationals for adapting qualtaitive method for this research. The study is related with perception of peple which can not be

measured with a certain unit. In addition to this ,there is no available research data on the topic,sofar.

2.3 Selection of the Study Methods

The following study units are the subjects of the study. 1/ The physical characters of the street. 2/ street naming and perception of the residents about addressing and orientation in space. 3/ trade in the perspective of orientation and addressing.

The physical design of the environment in the light of cognitive mapping is analyzed by using qualitative method particularly photography and graphical methods. This is designed in order to explore the relationship between the success of physical elements in giving clear pedestrian orientation and their success in creating clear mental maps. The second issue of street naming and human perception is studied by using a combination of the following when needed:

- Participant observation- this method is employed mainly to understand the perception of the shoppers in the case study areas because it is a process of immersing yourself in the study of people. In all the methods in this category, the researcher plays a complete observant role though s/he is a member of the group. S/he refrains from responding. This way the facts are going to be explored by being one of the shoppers.

- To describe most of the shoppers' practices qualitatively through various ways developing a rapport with a group, watch and listen carefully without being noticed.

- In order to understand most of the shopkeepers' perception about the issues listed above, the method of "dramaturgical" interviewing is used. This is a technique of doing research by role-playing or play action of your own biases in some symbolic interaction or social performance.

2.4 Data Collection Techniques

Multiple data sources were used for the purpose of investigating the different dimensions of the research object. Therefore data used can be categorized as primary and secondary

data. These different data were collected using different techniques at various stages as presented in the coming subsections.

2.4.1 Organization of the fieldwork

From the inception stage of this paper to its stage of development, the following three stages of fieldwork were conducted.

1.Pilot Study-In November 2003 and March 2004, while working on the urban design project for piazza area, the special concern for the streets in the project has given me the chance to gather qualitative data about the streets and the commercial activities in the area. Later, in November 2004, I was making a study of streets design in commercial areas of Addis Ababa focusing particularly in the CBD area, specifically around National Theater and La-gar. Therefore, most of the illustrations I used for comparative purposes in this study date back to the inception stage of this study.

2. Major field work- In April 2005, after getting the initiative of Situs Addressing Project from UNECA , the major fieldwork in the Biggest Open Market area, Merkato, started. It is from this area, the study of the human perception about street naming and their idea about the impact of having functional addressing system evolved. During this period I have also conducted the study of the five physical elements that create strong image in the observers mind.

3. Supplementary field study-After presenting the findings from Merkato area for the pre CODI IV[2] meeting held at ECA in 23-24 April 2005, the paper was enriched by the discussion of other 26 African nations experiences that made presentations on Situs Addressing issues. Therefore at this stage of fieldwork, additional site visits and interviews were conducted in the last two weeks of May 2005, at Piazza and National Theatre.

[2] Conference of Development Information is annual meeting organized by DISD of the UNECA.

2.4.2 Types of Data

Data collected for this study can be categorized according to the main units of the study. The data gathered are maps, literature, visuals, photographic recordings of the physical structure and human experience. Those data are categorized under the three study units as follows.

1. Mental Mapping and Street Definition

   I gathered the photographic data and maps in order to have a clear understanding of how the physical nature of streets affects the mental mapping and the orientation of pedestrians.

2. Street Naming and Addressing

   The data for understanding the impact of street naming on pedestrians orientation and vice versa is studied by conducting in-depth interviews. The outcome of which was recorded and written using qualitative description of the shoppers and shopkeepers perception.

3. Impact on the commercial activities of the areas

   The data for this is gathered by using combination of primary and secondary sources. Written evidences of other countries' experiences, response of vendors about the subject under discussion that they presented in the form of their business cards and their location indicator devices are used in combination with the data mentioned above.

2.4.3 Sources of Data

The main source of documentary data were the ECA geo information team working on Situs Addressing, the Addis Ababa City Government and the Phd. Thesis and presentations of Dr. Wubshet Berhanu and the shoppers and shopkeepers in the study areas.

The ECA geo-info team particularly the Situs Addressing Project initiative has contributed a lot for the wide spectrum of issues that are raised in this paper, especially the fact that the paper initiated discussion from various concerned bodies working on similar projects. It

has created the chance of understanding the scope, challenges and success of the addressing projects being undertaken by The Addis Ababa City Administration (AACA). And it has been possible to use the data available from the presentations made by the project coordinator of the ongoing street naming project in Addis Ababa. Key informants in the sub-city infrastructure departments were also important data sources.

The Internet and city addressing website (www.geoinfo.uneca.org/adressing) has been helpful in finding the relevant literature and practices.

2.5 Data Collection Method

A combination of the following techniques was employed in the study.

1.Annals Study –By looking through the existing relevant documents I have tried to analyze the issues related with the design of streets and the economic aspects of addressing in general and street naming in particular.

2.Observations- as a resident and researcher in the city, it was convenient for me to use the technique of participant-observation by involving myself in the act of buying. By using this method the risk of losing/withholding important information has been reduced. This is because it creates uneasiness to the shoppers if they are conscious about being watched. This has created the opportunity to observe whatever is taking place.

3.Interview –This is conducted by applying the method of dramaturgy. This has helped me to create conversation without creating the feeling that they are being interviewed for the sake of levying tax. The method has helped me to understand how they respond to the issues of addressing in function, its shortcoming and impact on their business.

4.Survey- this was done for analyzing the relationship between the physical and the human aspect of the issue. This was conducted by using the questionnaire and the checklist for physical study.

Photography and standard architectural analysis were made in order to understand the physical context of the issues. The questionnaires aimed at collecting information about the perceptions of those who are in the shopping district and those who have been present at

Merkato at the time. The third form was designed to understand the perception of sellers. (Refer appendix 2-appnedix 4)

During the survey, two data collectors were taking notes while I made the discussion with the interviewees. At other times the assistants were either filling up the forms or conducting the interview by themselves. Since one of them is recognized from the Television Show, most of the interviewees have been willing to cooperate and respond with much eagerness. Whenever willing persons were found audio recording was done to supplement the written records. I did the urban design analysis of the physical characters.

5.Attending conferences and meetings- the Pre-CODI IV meeting organized in ECA (23-24 April) has helped me to gather relevant information about what is being done in this regard in the African nations in general and Addis Ababa in particular. The CODI IV meeting under the title “Information as economic resource” has helped me to gather up-to-date data about the ongoing projects in AACA.

2.6 Analysis of Data

The analysis started while collecting the data by comparing the findings with the literature review. This has helped to reformat some of the observations and the points raised at the pilot study, then at the major fieldwork and finally at the supplementary stage. The analysis started while the major fieldwork was going on so that the clear link between the physical elements of the streets and their naming will be understood. Subsequently, how the cumulative link between the above and the pedestrian orientation in the commercial environment towards the contribution of the success of commercial activities has been observed.

The data and the discussion are basically qualitative. Thus ranges and numbers were used only for the purpose of substantiating important arguments. Since, the discussion is about qualitative understanding about qualitative subject less emphasis is given to the quantitative output. Moreover, the narrative analysis and open presentation of the findings are supplemented with the help of maps and graphical presentations for the analysis of the findings.

Part III- Review of Theoretical Research

Literature Review

In this part of the research I present critical evaluation and discussion of pioneer theories on the subject under study. According to the organization of the research this part is also subdivided into three sub parts. The first part covers the relationship between the physical environment and the mental maps it creates. The second part deals with street naming and pedestrian orientation. The last part extracts the impact of the above two on commercial activities or trade.

3. Pedestrian orientation and urban elements

You might have been asking what pedestrian orientation is all about. It will be better if I would pause here and elaborate it with an example from where this concept originated. Assume you are standing in a lobby where you see different corridors radiating from this lobby and you can tell where that is leading only if you can see through the corridors. Otherwise you will be looking all around you searching for labels. Like wise, while walking in the urban areas, streets are supposed to lead to a certain destiny as the corridors in a building.

In commercial areas, people walk safe and confident in areas where they are provided with precise pedestrian orientation. Hence, the proceeding subsections present the critical evaluation of the concepts of using the physical environment as a tool to create mental maps.

3.1 Mental Maps, Perception and the Environment

Moving through space the individual uses some ways of navigation to move from one point to another. The individual is guided, not by a programmed series of responses but by a generalized image of the environment. The image the individual gets are replete of cues (Porteous, 1977). Such an image is commonly known as mental map. Mental map is gathered through cognitive mapping.

The cues gathered in such a fashion may not necessarily give the precise pedestrian orientation. Or one can argue that orientation through space depends more on the perceptive power of the individual than the strength of the cues or vise versa. According to Lynch (1960, from Perteous 1977, p.101) environmental images are the result of a two way process between the observer and the environment. The environment suggests distinctions

and relations, and the observer selects, organizes and endows with meaning what he sees with great adaptability and in the light of his own purposes.

This two way process gives the cumulative orientation to people in cities. Lynch gives more emphasis on the contribution of the physical elements towards the creation of the image and perception of people in urban space.

More emphasis is given on the coordination of the physical elements especially when it comes to the image of cities, various writers give different value for either of the two. Even though they understand that the physical nature of the environment and the perceptive nature of individuals cannot be separated, they happen to emphasize one of the two.

Lynch (1960), for instance, relates the concept with the quality of the objects to be legible and *imageable*. He relates the city's various parts with a printed page, which is perceived as a result of a related pattern of recognizable symbols. Meaning the more the city's various parts are recognized and organized in to a coherent pattern the more legible the city would be. The power of the objects that evoke strong images, to an observer is called *imageablity*.

The relationship between legibility and *imageablity* still seem more dependant on the objects. As Lynch (1960, from Carmona et al., 2003, p.99) argued that an 'ordered environment can serve as a broad frame of reference, an organizer of activity or belief or knowledge'. He continues arguing that the legibility (how people ordinate themselves and navigate with in cities) is decisive to the clarity of the image one grasps. In short, he argued that the ease how someone's mind organizes the environment into a coherent image relates to ones ability to navigate through urban environments.

Giving more value to the physical attributes of the objects, he identified three attributes that would make an object *imageable*: identity, structure and meaning. All the three attributes are interdependent components of the image. Then, what happens when one is missing, for example identity, must be explored. Structure and meaning may not be lost. Because, according to Lynch (1960, from Carmona et al., 2003, p.99), structure is the object's spatial relation to the observer and other objects. In addition, meaning is the object's meaning for the observer. However identity, an objects distinction from other things as a separate entity,

must be given deep thought. Then the discussion here should be what option the observer will take when an object's identity is missing. Will the person build illegible image? Does this lead to failure to create precise orientation? How will a pedestrian identify a shop if all shops look similar? How can some one distinguish one street from the other if a number of streets look similar?

The above three attributes identified by Lynch tell what attribute of the objects someone really uses in order to catch memory of the environmental constituents. Identity, for example, works in the same manner we identify and differentiate one human being from others. Likewise, in the physical urban environment especially in commercial areas, where identity of one element dissolves into another, observers tend to take advantage of the object's spatial relation to themselves. For instance, if shops of similar physical character are placed in a row, the observer may not depend much on the identity of that shop. S/he rather tries to remember the placement of that shop along the row by saying, the middle shop, the one first from the left etc. In short the second attribute of the element, structure, will be used instead of identity because it is missing.

The third attribute is quite different from the above two. In most of the cases it originates from the emotional or functional attribute one owes to the physical elements. For example, in a certain commercial area one may not forget the special moments s/he had even if the area is homogeneous. Besides the third attribute, which is subjective to the observer, the physical elements can create strong image in the observers mind as presented above. The coming discussions will present other views towards the subject under discussion.

The view of different writers like Ittelson is more concerned about the perceptive power of each individual's mind. In other words, their ideas are based more on the perceptive phenomena in human's mind. This second group see the process of mental mapping as a function of a "mental construct, created and valued by each individual" Matthew et al. (2003, p.88). Thus they give much emphasis on what Lynch considered as secondary to his arguments.

Ittelson (1978, from Carmona et al., 2003, p.88) believes that the above relationship is much more sophisticated. He considers the process as result of four simultaneously operating dimensions of perception. These are the function of the individual's frame of

mind. Just to elaborate on this view it is important to list these four dimensions of perception.

> "*Cognitive*: involves thinking about, organizing and keeping information. In essence, it enables us to make sense of the environment.
>
> *Affective*: involves our feelings, which influence perception of the environment. Equally, perception of the environment affects our feelings.
>
> *Interpretative*: encompasses meaning or associations derived from the environment. In interpreting information we rely one memory of or point of comparisons with newly experienced stimuli.
>
> *Evaluative*: incorporates values and preferences and the determination of 'good' or 'bad.'

In other words, it seems that considering the image of the city as cognitive processes only could mean extracting image as source of information and storing the image as data. But the human mind does not stop there; it interprets, evaluates and gets affected by the physical environment. In fact what a place is actually like what can be distinguished from the image. (Montogomery, 1978, from Carmona et al. 2003,p.88)

In addition to this distinction between the mental map and the actual image the overall mental image of urban environment is partial, simplified, idiosyncratic (every individual's urban image is unique) and is distorted (based on subjective, rather than real distance and direction). (Pacock and Hudson 1971, from Carmona et al., 2003)

All the scholars above have given more emphasis either to the physical elements or to the perception process in human minds. Before opening discussion about the physical elements and the mental construct of images I would like to mention Ralph's (1976,from Carmona et al., 2003, p.88) argument that 'environmental images are not just selective abstractions of

objective reality but are intentional interpretation of what is or what is not believed to be'. This has led to the concepts of 'intentionality' and phenomenology'[3].

The other argument in addition to understanding the mental image as the function of the individuals mind is intentionality. People may choose what to store in mind. At this point we can understand that even if the objects are imaginable to the maximum degree possible, the image captured by the mind (if they are chosen to be captured intentionally), is subject to be simplified, distorted or partial. It is clear that in an urban environment those images will not be comprehensive because individuals exempt non-relevant clips. If so how do people communicate about the environment? Especially in areas and cities where the elements are not legible, does the physical environment create any possible image that can give pedestrians orientation in space?

These questions will be dealt thoroughly after presenting the five physical elements that are believed to create mental images. Then all the principles combined will be critically reviewed in light of the thought questions I raised. First let us critically review the dominant physical element that creates mental maps after.

3.2 Physical elements as components of mental maps

There is a two-way interaction between the environment and human beings. For this interaction to take place, one 'must perceive-that is, be stimulated by sight, sound, smell or touch that offer clues about he world around us' Bell et al., (1990; from Carmona et al., 2003). According to Porteous (1996, from Carmona et al., 2003, p.87) "the dominant sense, vision, provides more information than the other senses combined. Observers' vision is active and searching, we look; smells and sound come to us ".

Therefore, the perception of the urban environment greatly depends on what to be seen. Considering this fact, Kevin Lynch (1960, from Portous, 1996, p.129) has identified the following physical elements that conveniently create cognitive image. These are, paths, edges, nodes, districts, landmarks or clusters of these phenomena (refer box 3.1). Does this mean urban centers without the 'legible' existence of those elements don't give strong

[3]Internationality aims to describe and understand phenomena as experience wherein human consciousness takes in information and makes it into the world. Thus, while the meanings of places are rooted in their physical setting and activities they are not a property of them, but of 'human intentions and experiences' (Ralph, 1976, 1976,from Carmona et al., 2003).

image or mental map? If so, how do people in unplanned areas without the minutest consideration of urban design principles build mental maps about their environment?

Box 3.1: The five major elements of mental map (After K.Lynch)

1.*Paths* are movement channels, such as streets, railroads, transit lines, and walkways. For many people, paths are the predominant element. As people observe the city while moving thou it, they are likely to structure other elements around their movement paths.

2.*Edges* are linear elements not used as paths. They include outlines, such as the coast; barriers, such as walls; and "seams" which bind two regions together.

3.*Districts* are regions of the city which are identified by some common character, and which the individual can enter.

4.*Nodes* are frequently focal points where paths meet, as at intersections or transportation junctions, or they may be places where there is a concentration of activity, as in squares or street corners. A node, which is the focus and symbol of a district, such as a square with a fountain, is called a core. Nodes may be entered.

5. *Landmarks* cannot be entered; they are external reference point, which are distinguished in some way from a host of other possible landmarks. They may be accessible or inaccessible; a landmark to which the observer does not know his way is essentially 'bottomless,' as with the myriad golden domes and spires of many European cities. Landmarks may be local (storefronts, neon signs), distant (spires) or even outside the city (mountains). One of the prominent elements of the author's image of Victoria, British Columbia, is the mountain wall of the Olympic Range in Washington State. Such major fixed features may become direction referents.

Source: Portous (1977)

Lynch made his studies in planned and designed areas, like Boston and Los Angles (fig 3.1) Does the same happen in areas where the five elements are not coexistent? In such commercial centers or environments what element of the urban environment leaves its footprints for a longer period? Is it the paths as identified by Lynch? What persists for a longer time? What gives character of that city for being persistent to urban change in relation to the others?

None of Lynch's elements exist in isolation: all combine to provide the overall image 'districts are structured with nodes, defined by edges, penetrated by paths and sprinkled with land marks' (Lynch 19 60).

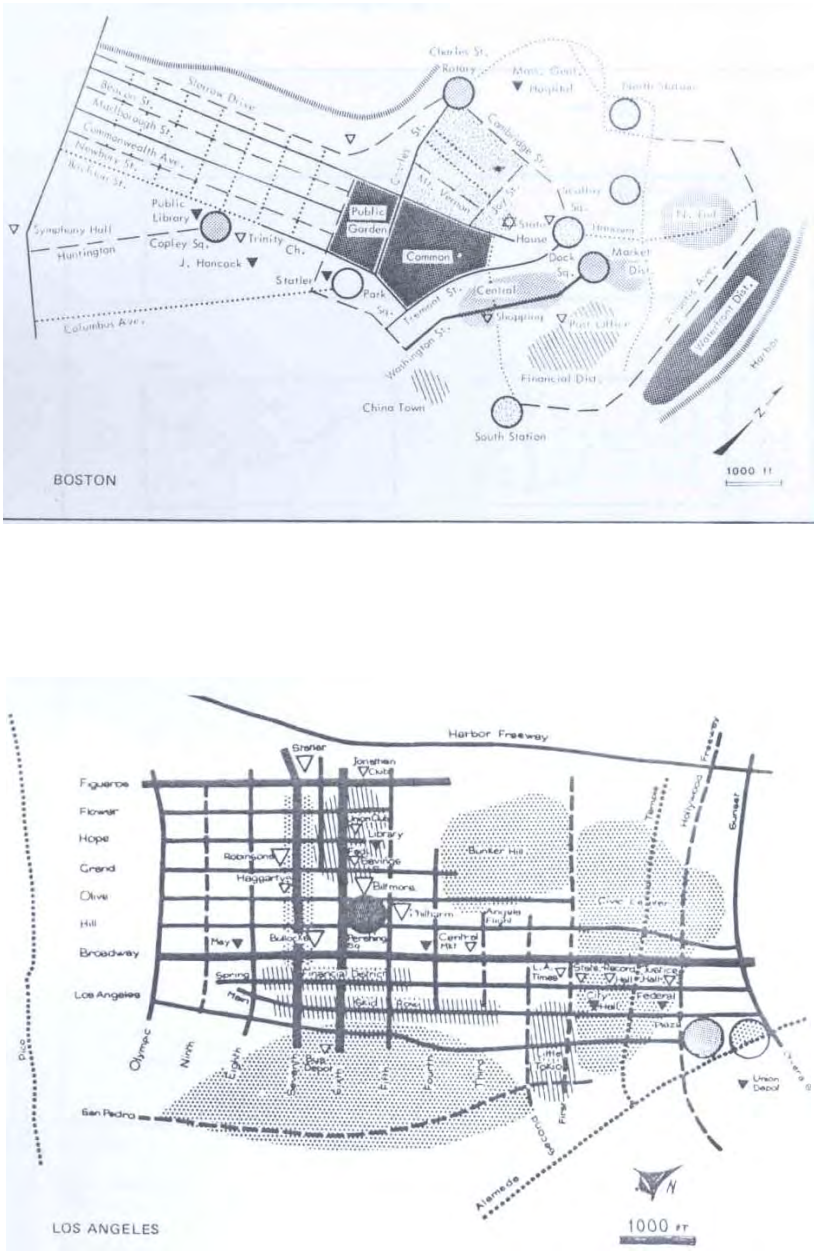


FIG. 3.1 THE BOSTON AND LOS ANGELES IMAGES (SOURCE: PORTOUS 1977)

Since the focus of this thesis is on streets that are categorized under paths, I will elaborate more on paths. Paths are generally channels along which observers, in these case pedestrians, move. Lynch (1960) has noted that paths were often the predominant elements

in people's images, with the organization of other elements along them, where paths were without identity or were easily confused with each other, the whole image would be less clear. So streets are the main component of a long lasting mental map in the observers mind.

Consequently, in the coming subtopics the importance of giving proper attention when it comes to pedestrian orientation is discussed in detail analytically reconsidering the other four elements identified by Lynch. The other attributes of the street and its inherent qualities will also be dealt with in order to show the significance of the street.

3.3 The street and perception

Currently streets and building design is being treated as separate entities. Architecture has not rendered streets the exact consideration. In a way they take advantage of streets as a means of access to the building via adjacent streets, which could be regarded as a shortcoming rather than a privilege.

> In this century, we've separated the design of buildings and streets into unrelated tasks. Architects began to view the street, with its traffic, noise, and connection to a larger world beyond their control, as oppressive. Buildings were no longer placed with in a street or even in relation to landscapes. They were set back behind large plazas, elevated on giant pedestals, and sometimes connected to each other by climate controlled "skywalks" high above the street. Meanwhile, road engineering began promoting unimpeded motoring while paying scant attention to pedestrians' (Lacees & McCormick 2002, p.).

The street therefore must be considered as the most important urban element not only for the sake of access but also for contributing the major share in creating the mental maps in the observers mind. The street not only serves its utilitarian purpose but it is one of the urban elements that human beings understand their environment with.

3.4 The dominance of streets

From the very outset, I want to emphasize on the five elements that create printed image of the city or urban area in someone's mind could not exist without one another. But in the preceding paragraphs it has been cited that the street creates the dominant image in the city. There are so many reasons for this fact. The first reason, as described by Lynch (1960) is

regular use, concentration of special uses, characteristic spatial qualities, façade characteristics, proximity to special feature in the city visual prominence, or by virtue of their position in the overall path structure or topography.

The other reason is the fact that streets are communal property. Hence, it is not only defined according to its identity and activities but also it gets its significance when observers acknowledge it. As Louis Khan (from Lacees & McCormick 2002, p.),says " the street is a room of agreement. The street is dedicated by each house owner to the city". Therefore the street has meaning for every user when it creates a feeling of belongingness in its creation.

The other fact about its prominent importance in observers mind is related to its persistence to change. Cities may grow and get revitalized, buildings get demolished and parcels will be amalgamated but the footprints of the streets will be traced even after another street pattern is laid on the older ones.

Twentieth century roads often cut through the street patterns of older areas, leaving fragmented townscape. Patterns of streets and spaces have often developed over many hundreds years, and fragments and trace of patterns from different areas can be seen on the ground plans of many cities (Carmona et al. 2002).

Hence the meaning attached to the streets does not originate from its activities only but from the fact that it lasts longer. Further discussing on the issue Buchanan (1988, from, Carmona et al., p32) argued that

> it was the movement network, the services built beneath it, and the monuments and civic buildings within and adjacent to it-plus the images these structured in the mind –that formed the relatively permanent parts of the city. Within this framework, individual buildings come and go. Hence, even though subject to change, some essence of the city’s identity is retained.

The fact that the street is not only a means of access but also an arena for social expression, games, and commerce and for civic art also contributes to the fact why it remains dominant in the image of the observers. Those activities, in a simple language, create meaningful link between the observer and the streets.

I agree with Gan's (from, Moughtin, 1999, p.130) assertion on the issue of environmental determinism, which says, “ the physical environment has much less effect than planners

imagine…. The social environment has considerably more effect." But this view contradicts what Jane Jacobs (1965, p39) says

> 'Streets and their sidewalks, the main public places of a city, are its most vital organs. Think of a city and what comes to mind? Its streets. If a city's streets look interesting, the city looks interesting: if the streets look dull the city looks dull'

Then, from where does a street get its life? Is it the physical design of the street that makes it memorable? I have a different view here. Both writers mentioned above give particular focus to the attractive nature of the street or urban environment, especially that of Jane Jacobs. It's true that the street especially its 'public places' is the vital organ. Those are the key elements that make the streets interesting and the city as a result. This may lead to the understanding that streets may be lively with out the design that urban designers anticipate.

So far the preceding paragraphs have revealed why streets categorized under paths by Lynch has the most significant image in the observers mind. Halting at this point, it is time to ask does the word street could refer to roads and any thoroughfare? If not, what are the significant differences with having just roads and streets and what mechanisms do observers use while moving through roads? Where does the importance of having street names fit in if a particular area is constituted of just a road and the other four image creating urban elements nonexistent?

3.5 Streets, Roads and Thoroughfares

The words streets, roads, avenues, thoroughfares and boulevards have been used interchangeably but for the purpose of this research the basic definition and difference from the roads is considered. At the end of this subtitle it will be clear why the definition of streets listed below elaborates the whole idea behind streets in commercial areas.

According to Moughtin (1999) 'Road is at once an act of riding on horse back and an ordinary line of communication between different places, used by horse, travelers on foot or vehicles. Or it is any path, way or course to some end of journey. The emphasis is on movement between places, the principle lines of communication between places- a two-dimensional ribbon, running on the surface of the landscape, carried over it by bridge or beneath by tunnel.'

Emphasizing what is behind the definition of roads will help to understand what a road is. The road as defined above is a channel of movement. It is not about the elements that abide by rules along the road but it is about the starting and destination points. The functions and activities that accompany the movement being performed are not the component of the definition. This argument will be clearer when the definition of street, especially the dictionary definition below is considered.

> A Street may have these attributes, but its more common meaning is a road in a town or village, comparatively wide as opposed to a lane or alley. More importantly it is a road, that is the linear surface along which movement occurs between two lines of houses or shops: says a dictionary definition (Moughtin 1999).

Picking from the last statement "linear surface along which movement occurs between two lines of houses or shops" it will be made clear why the concept behind streets is the crucial concept behind naming streets is related with the mental maps. Let's focus on the definition towards "…two lines of shops". The movement between two lines of shops clearly defines street characters of commercial areas. However the shopping activities alone are not enough to label paths 'streets'. For instance, consider rural market places where the items are sold in an open market. In this case, the trading activity takes place but the path may be defined by the arrangement of the goods to be sold instead of shop spaces. In such cases no matter how active the business is the footpaths will remain indicators of movement. Therefore in addition to the activities the physical definition of movement channels is important to label the streets.

The physical character of the adjacent shops gives the third dimension for the linear elements passing through the two lines of shops. In addition to the third dimension or volume of the street, the adjacent buildings add color, texture and volume to the street.

Having either high-speed roads or traditional streets in commercial areas and other urban centers is disputable. After the invention of the motorcar and increase of traffic in towns, current trend in commercial areas is tilted to the return to streets because the high-speed roads are obstacles for commercial activities in commercial areas. This is an argument between having streets as a means of efficient movement only-roads- or rediscovering them as connectors of elements in the city than dividing them. Loukaitou-Sideris and Banerjee (1988, from Carmona *et al.,* 2003, p. 80) believe that in addition to or instead of treating

the street as a 'channel for efficient movement' (as in Modernist Era) or as an 'aesthetic visual element' (as in the City Beautiful Era) streets are tools with dual functions discussed above.

The preceding ideas were based on facilitating movement, either pedestrian or vehicular. The argument was on the issue of giving more emphasis to either of the two. And it is clear that a balance between the two is needed. Especially in commercial areas having this argument settled serves as a key for successful commercial areas planning. In the coming paragraphs pedestrian movement in commercial areas and the different views when it comes to movement of pedestrians and/or vehicles in commercial areas are presented.

3.6 Pedestrians and/or Vehicles

Movement through public space is at the heart of the urban experience, an important factor in generating life and activity…Definition of prime retail locations in urban areas (as opposed to out –of-town locations) is based on assessments of pedestrian footfall, a function of pedestrian movement between places *(*Carmona *et al.* 2002).

The basic idea behind giving priority to pedestrians in retail areas is rooted in the following simple but important concept. Those who travel to any commercial area or district with private cars are at the end expected to walk to the particular retail shops. This applies even to an indoor shopping mall where both the parking and the shops are in one building; the difference is that elevators, escalators or corridors substitute the street. In fact vehicles' movement study is less appropriate to study pedestrian movement because in most cases the two contradict each other; the vehicles even scare the pedestrians.

The main problem that pedestrians face related to movement in commercial areas is caused by the priority given to vehicular movement while designing streets in the areas. Buchanan (1988, p.32) complains that 'public space has lost its social function and purpose and is often considered solely in terms of movement.' In this respect the car is often uniquely privileged. Sheller and Urry (2000, from Carmona *et al.*, 2003, p. 162) argue that car travel 'rudely interrupts' the use of urban space by others 'whose daily routines are merely obstacle to the huge speed traffic that cuts mercilessly through slower moving pathways and dwellings".

Pedestrian-vehicular interaction is one of the major physical factors that appear to influence street use. Even if user density, land use mix, configuration and context are considered in a

perfect manner, they mean nothing if pedestrian movement through space is forfeited for the sake of vehicular speed.

According to Moughtin (1999) most street activity occurs when it is convenient for large numbers of pedestrians to use the street in a variety of ways. Activity in streets increases when densities are high enough to inhibit the use of the motorcar and to support a range of facilities such as shops and schools. It also appears that a variety of land uses stimulating many activities are a prerequisite for a lively street.

Thus the streets in commercial areas do not get their life from the arrangement of activities only but also from conveniences, safety and comfort of pedestrians. That is the main reason why this paper deals with pedestrian orientation. In addition to the above logic the following statements stress the balance that must be stricken between the pedestrian and vehicular movement in commercial areas.

The other related fact is that the accurate pedestrian-vehicular interactions are achieved by the function of the street. At this point I want to make clear that I am not trying to build the ground about *pedestrianizing* streets in commercial areas, in fact I equally share the idea that vehicular movement is equally important. In addition to this, the issue of designing the streets in the areas and the discussion about making them totally pedestrian or not is out of the scope of this study. Therefore it is important that the reader extracts the importance of having pedestrian orientation and comfortable pedestrian movement in commercial areas.

To finalize the discussion under this subtitle, I would like to mention that just making an area pedestrian precinct does not make it successful, instead the success depends on the variety of attractions the areas offer so that pedestrians in large numbers have a reason for remaining. According to Moughtin (1999) the success is also conditional on good access for both private and public transport.

Having all in mind and considering that the pedestrian is the measure that governs the design and evaluates the success of streets in commercial areas. I would like to redirect the discussion towards the effect of the street form and its proportion upon sense of orientation and business activities.

3.7 Form and proportion of the street

Pedestrian orientation in space is greatly affected by the form, length and proportion of the street. The mental map is grasped using kinesthetic, i.e., the city's image is a cumulative of

clips cut and gathered in the mind while someone is moving. That is how sense of the city is grasped (Lynch, 1960). Therefore the form, length and proportion of the street in the perspective of the pedestrian movement and sense of orientation are discussed below.

The form of the street could mean straight or curved, long or short, wide or narrow, enclosed or open, formal or informal. This can also include scale, proportion, contrast rhythm or connections to other streets and squares. But the most important part directly related to form, according to Moughtin(1999, p. 132) are its two characteristics; it is at the same time both path and place.

It is such a common practice to treat the streets only as a route to reach somewhere especially by motor vehicles. But the attribute of the street as an open space in urban centers is quite forgotten. The image and orientation in someone's mind is also related to the meaning derived from those spaces. Thus, it is the form of the street that can give those qualities to the channels of movement that urban centers have today. Alexander *et al*. (1977, from Carmona *et al.*, 2003) say 'streets are for staying in, and not just for moving through, the way they are today.'

Only then streets can be considered a path other than an engineering output or a conduit for cars, sewerage, power/telephone lines and people. It is when streets are considered as 'exterior room' that they can be considered as a path.When streets are considered like paths they will exhibit beginning and an end, nodes or places of special use and activity along the length. But above all else they will present a stimulating and memorable image of connected places.

The form of a street or the enclosure that it has helps the pedestrians in order to have a focused gaze than the infinite view they rather cannot capture. Hence enclosure of the street is one determinant factor that plays a major role in creating strong mental maps in the observer's mind.

> The ideal street must form a completely enclosed unit! The more one's impression is confined within it, the more perfect will be its tableau: one feels at ease in space where the gaze cannot be lost in infinity. Collins (1986, from Moughtin,1999, p.139).

What will happen in urban centers where the streets do not exhibit the above attributes? Does it mean that no mental map is created and destination missed?

For the moment the issue is not about the physical beauty of the street it is the perception of the pedestrians. The underlying principle that makes enclosure a very imperative attribute of the street is it creates a strong image in the observers mind. In other words enclosure makes the street a room, which has an entrance and exit. In that way the observer easily understands the difference between the room that person is in and the other rooms of the city-a clear and distinct mental image.

According to Moughtin(1999) if a street or a section of a street is to possess the quality of enclosure then it must be considered to have three main elements, an entrance, the place itself and a termination or exit. Since the street is also a path, and a path is two directional, the place must terminate or close in two directions. But this can be argued taking context in to consideration. Are those scholars writing about ancient towns, or streets designed in the Renaissance Period? What about the mental maps that is going to be created of areas where walls of shops fail to serve as the wall for streets? Their argument proves that those images are not legible or clear. If so it could mean that there is a staggering movement of pedestrians in areas where mental maps are not created in the pedestrians mind.

3.7.1 Street Length

The uninterrupted length of one street determines the mental maps created in the observers mind if the length of a street is larger than 1,500m (1mile) the human scale is lost. This distance being the upper limit the lower limit is considered to be greater than the length to height relationship of walls defining squares, which is 3:1. According to Sitte (1901, from, Moughtin, 1999, p. 135) it is when the proportion goes beyond this limit that converging rooflines vanishing towards the horizon suggest movement the dynamic urban space most suitable to the path.

It is not only about the length of trip but it is the capacity of individual’s eyes to sense their environment. Just to refresh up on the idea, it has been discussed earlier that the strongest perception comes from the visual sensation. Which is quite dependent with the distance of vision. It has been established by research that the vertical angle to see even landmark buildings must be lesser than 18 degrees Moughtin (1999,p.136).

In Lynch’s terms, the street is a path enlivened by a series of nodes where other paths meet it or where activities intensify to such an extent that place and rest vie for dominance with function of pathway and movement.

> Such places and nodes contribute much towards the length of a street if they are placed at intervals of 200 to 300meters. Even though this paper is not dealing with such standards this is brought out in order to give a substantial reasoning as to how the perception of residents is affected by the length of the trip one has to make on a continuous route. "The ideal street must form a completely enclosed unit! The more one's impressions are confined within it, the more perfect will be it tableau: One feels at ease in a space where the gaze cannot be lost in infinity" Collins (1986, from Moughtin,1999, p.139).

3.7.2 Form of streets and Proportion

Does the two dimensional shape play any role towards creating enclosure of streets? Do winding streets have more enhanced enclosure than straight ones? There are three known arguments on this line.

Those who advocate for the winding streets, Sitte(1889) and Cullen(1961, from, Carmona et al. 2003, p. 146) argue that irregular frontages enhance their sense of enclosure, and provide a constantly changing prospect for the moving observer. The opponent of the idea, Le Corbusier (1929, from Carmona et al., 2003) says 'straight roads were the way of man because man has a purpose and therefore took the shortest route.' For him winding streets are the ways of 'pack-donkey' who 'zigzags to avoid the larger stones'.

Is the straight line the path of a man or is it the path of vehicles? I would rather say it is the path of vehicles; man does not climb straight a terrain but follows the footpaths the donkeys create. Nowadays a donkey cannot be the metaphor rather cars are the metaphor. Moreover, man does not follow after the donkey instead creates the vehicles, designs 'road' or street for them and finally he designs the environment imbued by the ambition of discovering new technologies.

Whenever straight streets are planned the mental map they create depends on the success of creating visual termination and good proportion between height and width of the streets. Carmona *et al*. (2003, p. 147), assert that the endless sight line that passes through the straight street layout needs terminal point either by placing "a building or other features that brings the eye to rest.'

The significance of streets as a major constituent of mental maps has been discussed so far. The physical attributes of streets that make them dominant part of the total image have been also identified. The following subsections deal with the issue of addressing these major elements of mental maps.

4. Addressing in General

In general terms, an address is a primary means to identify and locate a unique object. Three main types of addresses are commonly used; geographic, mailing and physical (DISD-UNECA, 2005).

The last type, which is physical addressing, is the issue this research deals with by focusing on street naming. The physical address, which is also referred as situs address, refers to the precise, complete, permanent and unique location of any spatial object (eg, street, thoroughfares and property address) using a system of identification such as name, number or descriptor. (DISD-UNECA, 2005).

The physical address can include the street or thoroughfare, parcel number or building addresses, it is beyond the limit of the paper to discuses the last two. Hence, the coming discussions will focus on the street addressing or naming in commercial areas.

4.1 Desirable features of a good addressing system

Designing a good addressing system depends on how ‘good’ is going to be used. Is it from the objectives of official use or is it from the angle of giving clear pedestrian orientation in commercial areas that ‘good’ is going to be measured? This discussion will be elaborated by citing the ten attributes of ‘good’ addressing systems presented by the DISD/UNECA (2005).

The first attribute of a good addressing system is being easily identifiable. The legibility of signposts, their placement and the information they convey play a very important role towards their purpose as to how to identify a location. Identity could get a deeper sense than this. It could also mean giving addresses based on identity of the object to be addressed.

The other characteristics of good addressing system include; accuracy, reliability, and accessibility of the information. When street naming is considered the name of a particular street should be accessible by all concerned users. However, accessibility of the information to pedestrians could mean rather legible to pedestrians and accessible to others who are intending to visit the commercial precinct or guide others to another area.

Simplicity is the other inherent quality of good addressing system. This extends beyond the maintenance of database to the understanding of the database both by locals and visitors in

the area. According to DISD/UNECA (2005) the uniqueness of the addressing system is the other attribute that makes the understanding easy and the system simple.

Uniqueness of an addressable object makes identifying a particular object much easier. This fact faces some difficulties when it comes to streets in commercial areas of homogenous nature. This suggests the link between street naming and the physical characteristic of that particular street or the unique commercial activity or the dominant business in the area.

Consistency in addressing systems facilitates identification like the above attributes an address should have. Consistency helps to avoid confusion. For instance while using a numbering system, the common practice is to assign odd numbers on the left side of the street and even numbers on the right side of the street, from the point of its beginning. Developing a set of situs addressing standards is an effective way to achieve consistency (DISD-UNECA, 2005).

A ‘good addressing system’ also facilitates the use of the same data by various stakeholders for various reasons (broad base approaches). While doing so, data is organized in a logical, sequential and practical order for easy identification of an address. In addition to this attribute flexibility allows the system to be maintained, updated and even deleted. As the urban environment undergoes change through its lifetime flexibility of the situs addressing system makes it to have a room for the physical changes.

This research argues that the logical, sequential and practical order is far beyond the concept of data organization only. This attribute is reinforced only if a spatial ordering system reinforces the addressing system. It is not only at the design stage of the addressing system that the coordination of the spatial organization helps, but also at the level of understanding the addressing system especially by shoppers in commercial areas.

Cost effectiveness and public participation: the design, implementation and maintenance of situs addressing system must be with in the financial capacity of a country and the municipality. ‘During the design period the participation of the public is very important. It is beneficial to involve local residents, general public and stakeholders in the addressing process. Local residents can actually participate and contribute in various ways including

thoroughfare identification and naming, production and posing thoroughfare and property signs (using local products) and financial contribution for property sign posting' DISD/UNECA (2005).

4.2 Benefits of Addressing

The benefits of developing standard situs addressing systems for countries with no such system or at different stage of the development (specially African nations) are paramount. The following paragraphs briefly present the advantages of addressing systems for countries, which implement functional addressing system. According to DISD-UNECA(2005) the benefits include economic prosperity, social development, increased security and safety as well as gains for governance, planning and record keeping.

Even though all the benefits are interrelated with one another, the discussion will be focused on economic benefit in general and particularly its contribution to trade. The others will not be discussed here in detail because of the scope of the research.

4.3 Addressing System for Economic Development

Most of the economic benefits that come to the forefront are the economic benefits associated with the official use of the system in different government bodies that are working towards economic development of a country. These include using the information for investment promotion, tax collection, updated demographic study and resource assessment like census enumeration, tourism and generating 'down stream' socio-economic activities. This research focuses on the impact of having standard addressing system on day-to-day commercial activities particularly trade between the buyers and sellers.

Trade, which is the source of the sales tax and revenue from the commercial activities, is also victimized by the absence of standard addressing system in underdeveloped counties. So far, the traditional trade system has been the heart of the national economy for nations. In the growth towards the global economy e-commerce is taking the lead. This transaction is based on the proper identification of where the buyer and seller are. Because of the absence of proper functional addressing the most valuable resource, time is squandered searching for the seller and vice versa even at the level of traditional trade systems.

According to the study by CODI (2005)

> "It is becoming critical to optimize ways and which people localize places, mostly because a poor or absence of a functional physical address system induces loss of revenue due to limited revenue collection strategies (taxation and billing, location based services activities), discourages foreign direct investments, negatively impacts on regional and global economy, *wastes time and resources*, *increases transaction costs*, upholds poor governance, poor performance of emergency and security services etc. This situation prevails in many parts of Africa with a poor or inexistence of functional address system.

The main concern of having standard addresses is not establishing the system at national leve. It is a global concern as the economic system of nations is interwoven globally. Therefore in this era of globalization having the proper address is about being identified by interested persons or organizations globally.

> Many countries have disparate address systems and there have been recent calls for a unified system, not only at the national level, but also at regional and global level. Adopting an African situs-addressing standard could help to improve many countries capacity to access to new economic opportunities and improve its stage in the global market (DISD-UNECA 2005).

In the developed world the issue of street naming is a dealt and done case. However, in majority of African nations situs addressing (addressing of properties and streets) did not get the appropriate attention. Street and property number and names are often missing and do not always follow a logical order. It is clear that many African cities and towns do not have intuitive addressing system too.

5. The impact of mental maps and street addressing on commercial activities

The marketplace has always been the focal point of the city, a center for the exchange of goods. In the most ancient times, it was in the open space farmers and craftsmen exchange their products through barter. Gallion & Esiner (1986, p.321) state that it was after the development of transportation and money system a form of retail enterprise substituted the

barter system. This gave rise to the importance of cities as centers of wholesale and retail trade.

It was along the development of trade in the areas that designing urban centers for the successful commercial activities became a major concern. After the introduction of motorcar and highway, the commercial areas distributed along its line. However, later, it was found out that ‘narrow streets also facilitate shopping movement from side to side for window gazing has no impediment and indeed is invited by the physical form of the development’ (Moughtin 1999, p.141).

Business in commercial areas is thus affected by the design of streets. Findings discussed so far are related with the perception of pedestrians in urban centers and the ease of movement. However, it is not only design of the physical elements that facilitates this. It has been noted earlier, that even in well-designed urban environments if good addressing system is lacking, business suffers from waste of time.

Conclusion

The mental maps imprinted are created by the five elements presented in areas where they exist and emphasized. However, in areas where this is not possible there must be a way people build their own mental maps. In areas where the legible mental map is created as a result of proper street design consideration, commercial activates also run successfully. This is because the streets will serve as urban place not only urban spaces. Thus people visit the areas even to ‘stay in’. But let me raise again the questions I raised at the introductory sections of this research. What organizes the mental maps people have about illegible commercial areas?

This research applies to all urban areas particularly to commercial areas of illegible nature. The names or addresses given to streets help organize the scattered mental maps. This will serve a double purpose, one it creates a directory of mental maps there by creating orientation through space and second, it facilitates fast business interaction.

The visual orientation that pedestrians get from the streets in commercial areas addresses gives pedestrians a chance to perceive their environment and identify where they are or tell where they want to go even with out being present physically. Therefore, the other tool that

pedestrians can use for orientation is street addressing. But how pedestrians relate mental maps with street addresses and names is a major concern of the study. The following sections will be dealing with this prime concern of the paper.

Part III- Background study

6. Review of Previous and Current Street Planning Practices in Addis Ababa

Streets in the oldest parts of every city in the World have been the trace of their town planning trends. Street layouts have endowed each city with different characters at different ages. The street pattern of each city is its identity.

This part discusses the historical foundation of Addis Ababa in general. The focus will be towards presenting the planning periods that gave rise to the current street layout in commercial areas of Addis Ababa. The first review is about the effect of the different phases of spatial planning trends on the street layouts especially in the areas designated as commercial areas. The second thoroughly deals with the issue of street addressing. The conclusion summarizes the chapter by presenting the development of commerce as a result of the planning trends and addressing systems.

6.1 Spatial planning trends in Addis Ababa and Its Street Layouts

Addis Ababa was the last garrison town, established in the tradition of the former capital cities in the 19th century. Emperor Menilik II founded it in 1886. According to Wubshet (2002, p.93) the development of Addis Ababa could be described as having four major phases. The early period (1886-1935) comprises the establishment and consolidation of the city; the intermediate period (1936-1974) includes the short interlude of Italian occupation and the extended period of modernization; the socialist period (1975-1991), and the Post-socialist transition period (since 1991). Each period has left distinctive social and physical characters on the city.

Then, how did the streets in commercial areas developed? Did they start spontaneously; following the foot prints on the terrain of the city? Does the street layout of Addis Ababa exhibit any planning principle? The following readings will give an insight to the above concerns.

6.1.1 Street Layout in The Early Period: 1886-1935

It was in this period that the first movement channels came into being. Introduction of the railway from Djibouti to Addis Ababa and the introduction of the motor vehicle have played important role in the planning of the first streets. As Wubshet (2002, p.94) puts it ‘the street created to link the railway terminal with the market at Arada started to become

the main access between the northern and the southern part of the City. The introduction of the motor vehicle in 1924 as a means of transport, subsequently, brought about the modifications to the road network.

The above reading suggests that it is after the introduction of certain functions, especially the rail way and the motorcar, that paths were planned. Being organically developed Addis Ababa was not a preplanned city.

6.1.2 Street Layout in The Intermediate Period: 1936-1974

In this intermediate period, which spans 38years, different planners made five proposals. Of all the proposals only two has taken effect and their trace has still given the city its character.

The first planning concept was introduced after the Italian rule (1936-41), which provided the city its first master plan. Two proposals were made during this period: a rough sketch of Le Corbusier and the proposals by Valle and Gaudi. According to Ashenafi (2001) the proposal was based on the concept of racial segregation. The influence of their planning is better exhibited to this day on the gridiron street layout of the then known Ethiopian settlement Addis Ketema. Moreover the winding streets of Arada[4] area symbolize street pattern and their planning contributions to the street layout and building arrangement.

After the Italian occupation (1941-1974) three attempts were made to give the city a chance of planned growth. According to Wubshet (2002, p. 97) first British then French Planners were employed to prepare master plans for Addis Ababa. Ashenafi (2001) explains that a French team led by architect L. de Marine proposed a plan, which was inspired by Paris. Although the development of Addis Ababa had not strictly followed the directions proposed by this plan, with some modifications it was used relatively for a longer period and generally it played a significant role to give Addis Ababa much of its present day form and structure.

According to Wubshet (2002) significant urban development boomed after the liberation of most African countries from colonialism and after the establishment of the Organization of African Unity (OAU) in 1963."Developments in this period still form part of the landmarks of the City. The city expanded along major road outlets and around existing nodes. The

[4] Arada and Piazza refer to the same area

first airport (Old Airport) and industrial establishments attracted developments in their directions"(Wubshet 2002, p.97).

6.1.3 Street Layout in The Socialist Period: 1975-1991

During this period new development in the extension area has taken place but there was no new change in the basic street layout in the oldest part of the city particularly in the commercial areas. Even there were not new buildings erected in those areas. The only change exhibited in that area is the population increase and the increase in the number of cars.

6.1.4 Street Layout in The Post-1991 Transitional Economy Period

This period is characterized by inner city renewal and the revision of the master plan and also by decentralization of services. New local development plans (LDPs) are prepared in order to guide the inner city renewal in the oldest parts of the city like *Merkato* and *Arada* (Fig 6.1). New Landmark buildings are being erected in these areas, but the street layout has never been changed while blocks in those areas are being demolished and parcels amalgamated.

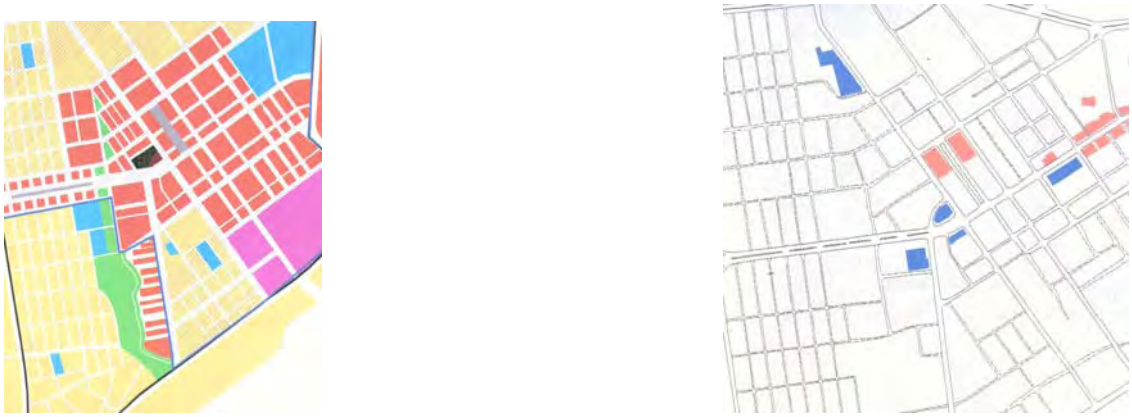


FIG. 6.1 PART OF MERKATO LDP:
The pictures presented from the Merkato LDP plan show that the street layout remains the same.
Source: Merkato LDP(2002)

So far it has been shown that the street has been resilient to change. However, the buildings in the oldest parts of the city are being changed. A number of those buildings have been used as landmarks. The physical elements that created image in the observers mind in commercial areas are not all the elements presented by Lynch. Then, it is important to ask further what spatial referencing systems residents were using in Addis Ababa in general

and in commercial areas in particular. The coming pages will reveal the facts that lie behind spatial referencing systems in Addis Ababa.

7.Spatial Referencing in Addis Ababa

One of the major ways to organize space other than giving physical order through planning is using spatial referencing systems. Spatial referencing systems that take in to account physical and social aspects can be used in order to designate an area, streets or any addressable object. Addressing or spatial referencing system is a short-lived action in Addis Ababa.

Developed organically around the house of the nobility or famous personalities, addressing in Addis Ababa has been done by using names of those individuals. This organic development created identity to the nuclei making it the main organ of the city labeled with the name of that original settler. The others, which grew as tissues and cells of that area, were labeled with the same name with a certain suffix that tells that they are near to the organ. Thus *sefers* came into being with the name designated in different manners (Box 6.1). Wubshet (2002) explains,'*sefer* names usually refer to urban areas that are less than a *Kebele*. They do not have clear boundaries nor exhibit distinct urban pattern. But *sefer* names have high significance for the identification of the different parts of the city' (Refer Box 6.1).

This addressing system did not stop in the residential neighborhoods. As the city grew and different town plans came in to being and commercial areas developed, the same concept of designating the areas started being used. However, the names of the dominant business in the area are used with a suffix, *tera*. For example *Kibie Tera*. Where the dominant business is selling butter. *Teras* are named usually after the type of majority goods that are being sold in the area.

Concerning building and street designation Wubshet (1991,from ,Wubshet 2002, p. 107) explains that 'in pre-1974 Addis Ababa houses were not numbered nor most streets had names'. In most cases the referencing system in Addis Ababa and even in other towns of Ethiopia are meant for the purpose of administration and they function on area bases. The administrative area designation, which started in the 1920s, divided the city in to ten *atbiyas* for administrative purposes.

The *atbiyas* were later named *weredas*. The *wereda* subdivision was superseded by a four level system of urban dwellers association (UDA's) in the 1975-91 periods and has remained to be so since then except changes in designation. Currently there are various ways of referring to an area or location. The most important reference systems in use include the different hierarchy of *kebeles*, house numbering, *sefer* names, street names, parishes (Sebeka *gubae* and zones for the collection of fees for various service (water, electricity health and post etc).These spatial referencing systems are complicated and inconsistent.

Box 6. 1Designation of Sefer Names

1.Names based on the original land holder: These are usually regional chiefs who held land through imperial grant; thus Aba Koran sefer, Dejach Wube

2.*Names based on nodes*: These could be functions of buildings (e.g. Ghibi for imperial compound, La Gare for railway station, Bherawi for national theater area); churches (e.g. Lideta, Tekelhaimanot, etc), or patriots dignified by the government and thus important buildings, such as hospitals and schools, named after them (e.g. Ras Desta, Teferi Mekonned), or landmarks which could be large trees or monuments (e.g. Shola, Sidistkio, aratkillo).

3.Namesbased on original individual settlers: For example Geja sefer, Gulele, etc, are named after the original settler.

4.Names based on occupational group: The dominant occupation of the group or the land use of the area is used as names. Beklobait, Temnjayazh, Kera, and different teras (stalls) in commercial part of the city.
5.Names based on dominant groups working/or residing in an area: The name may indicate the region of origin of dominant ethnic groups either by under or in terms of their relative concentration in an area, e.g. Wolo Sefer, Adere Sefer

6.Names based on important personalities for the development of an informal settlement: Residents may name their settlement after individuals as a respect for their contribution to the consolidation of their settlement, e.g. Worku Sefer

7.Names based on the manner of housing development: Names may denote ways of financing e.g. "UDPO" or "World Bank" for sites financed by the World Bank; "Ayat" after the name of the real estate developer; or names of housing co-operatives located ate prominent sites.

Source: Wubshet (2002)

Even the area division labelling for administrative purposes has changed since 2002 after decentralization of the city government which subdivided the city into 10 *Kefle Ketemas* /Sub cities. Even then the street layout was used only for defining the boundary of each zone instead of giving addresses to the addressable objects. For example the official address of a building comprises only the name of the sub city, its *kebele*, the house number

or the title deed number depending on the recording office the title deed number is used in the municipality.

Therefore addressing- spatial referencing system- is a short lived effort as its planning, even building numbering is a phenomenon that took place in the third period of planning which is a practice of the post 1975 period. Planners adopted the names majority of the public use to address areas. Street names were limited to specific areas and most of them were used in areas where image is required not in commercial areas.

7.1 Street Naming and Coding Review

Street naming and coding is not a well-studied and established system in the city. Only three works can be mentioned in this regard. The Addis Ababa City Road Authority (AACRA) has designated street numbers for the cities in the entire city for the sake of road maintenance and construction. The addressing and street naming team in the AACA in collaboration with GTZ is working towards giving names to the streets by adopting the numbers given by AACRA. The third is a research work on addressing by Wubshet (2002), which dealt with general spatial referencing in Residential areas. However, spatial referencing in commercial areas and street naming in those areas and their impact on mental maps and commercial activities has not been studied yet. Therefore, this part of the research summarizes the contribution all the above made towards street naming.

According to Wubshet (1991) "Few streets were given names starting in the 1940s; but the few that have names carry foreign names that are alien to the inhabitants. Thus street names are of limited value to identify areas or locations in Addis Ababa." In other words street names were labeled not for the purpose of giving direction or addressing.

According to the street network mapped by AACRA (2002) every road in the road network map has a unique number (Fig 7.1). The street naming project under the Addis Ababa City administration has taken the existing road numbers for granted and has adopted them as they are. The remaining roads are named gradually, for example by African Union (AU) countries' names and this will serve as an interim solution for addressing until all streets receive names. AACA (2005)

The AACRA uses the numbering for road maintenance, expansion, introducing new roads and for communicating with other agencies and bureaus on technical bases. The concept behind using the same numbers for street naming project in AACA is to maintain

consistency with existing uses. The goal of the street naming project is the design of detailed addressing through number and signage posts. According to the AACA project report (2005) address could only be described precisely by street name or code and plot number. In the case of Addis Ababa, Kifle Ketema and Kebele names are added to signage for better orientation on the spot. Blind alleys/footpaths leading to plots will be referred to as part of the corresponding access road.

FIG. 7.1 COMPLEXITY OF ADDIS ABABA'S ROAD NETWORK
Source: AACRA (2002)

7.2 Streets Names in Addis

According to the project office there are 90 existing names (refer table 7.1), 52 African Union names and 38 historic names. Approximately 3000 names are to be given to the

streets and be posted. Posting the names of the first two categories is done. The remaining task is to give new names and prepare the signposts.

The City Government of Addis Ababa on the occasion of the last Summit of the African Union Member Countries in July 2004 named streets after African Union member states. The names were given to 52 (paved) roads, one for each member state.

Table 7.1 Existing Street Names Other than The AU Names

STREET NAME	**SHORT BIOGRAPHY**
ABEBE AREGAY, RAS	Chief Patriot of Shoa during the Italian Fascist
ABERA GIZWA	
ADWA	Battle of Adwa 1896: stopped Italian colonization
AFRICA AVE./ BOLE ROAD	
ALEXANDER PUSHKIN	Important Russian poet early 20th century, believed to be of one-eighth Ethiopian descent
ARBEYNOCH	Patriots
ASMARA ROAD	Capital of Eritrea
BENI SEFER	
BERGOYANE	
BIRU, RAS (BEY. ABA SEBSIB)	Ras Biru [Wolde Gabriel], some time Minister of War
BEYENE ABA SEBSIB	
CHURCHILL AVE.	Statesman, British Premier at the time of Ethiopia's liberation in 1941
COLSON	American economic advisor to Emperor Haile Silase
COOPERATION (ITEGUE MENEN)	Former name: Development through Cooperation (Wife of Emperor Yohanis III)
CUNNINGHAM	British military advisor to Emperor Haile Silase: General Sir Alan Cunningham, British Commander
DEBRE ZEIT ROAD	Town 48 km of Addis Ababa
DEJ. AFEWERK	
DEJ. BEKELE	
DEJ. BELAY ZELEKE	Leading Patriot of Gojjam during the Italian occupation;
DEJ. BALTCHA ABA NEFSO	Governor of Sidamo, Leading courtier of Menelik's days; died in 1936 in an attempt to recapture Addis
DEJ. BEYENE MERID	
DEJ. HAILE SILASE	
DEJ. MEKONEN DEMISAW	Bitwoded Makonnen Demissaw, fought on the northern front during

	the Italian Fascist invasion
DEJ. NESIBU	Commander of the southern front at the time of the Italian Fascist invasion
DEJ. WOLDE GEBRIEL	Ruler of Tigray 1780
DEJ. WOLDE MIKAEL	Hero of resistance to the Italian fascist invasion, 1935-
DEJ. ZEWDU ABA KORAN	
DSI JOTE	Governor of Wollega in Menelik's II time; defeated Italian Invasion forces trying to penetrate from Somaliland

Source: AACA (2005)

The streets to be labeled with new names are to be coded with numbers for an interim period and then names are going to be generated. There are yet approximately 3,000 streets to be newly named. For an interim period, they will be addressed by the simplified number code already developed. Yet, numbers are not as easy to remember, so all numbers will be exchanged into names in short time. The process will be undertaken on Kebele level (100 New kebeles are being installed) and the names approved by City Government, assisted by a commission of experts (AACA, 2005).

Conclusion

Throughout its planning period street pattern in the oldest commercial parts of the city did not change significantly. The only significant change that took place so far is substitution of new old buildings by new multistory structures. Even though the streets have proofed to be resilient to change most of them are not named and the majority of the public does not recognize those with names.

The street names, especially of those with AU names are totally foreign and are meant for diplomatic purposes. Native or local names can be remembered with relative ease but associating foreign names with the perception of residents is difficult. Majority of the existing local names given to the streets are related with historic edifices and do not address most of the streets in commercial areas.

The coming chapter of this paper will deal with the physical elements that create strong image and make mental maps in the pedestrians mind by taking in-depth analysis of commercial areas. The second subcategory of the section deals with what addressable objects pedestrians used while navigating through commercial areas taken as the case study. It also explores the perception of merchants about the impact of addressing system on their business.

Part IV- Case Studies

8. The Case Studies

The core argument of this paper has been that orientation of pedestrians in commercial centers is greatly affected by their visual perception of their environment and of which what they extract from the streets are prominent and hence the addressing systems that are going to be used to address such areas must be based on this visual perception.

The research aimed at exploring the physical elements that create the strongest image in the shoppers‘ mind and the method of identifying particular location or shop in selected commercial areas the shoppers use. In order to study the physical elements personal observation, graphic illustration and analysis are used. These findings are substantiated by the focused and in-depth interviews of the shoppers in the area. This part of the study dealt specially with survey of the buyers’ and sellers’ perception about the streets and their addressing. During the fieldwork and interview the persons in the area were randomly selected. However, they were categorized as shoppers in the area, shopkeepers in the area and customers who are away from the area. Based on this category the study dealt with the link between the physical elements that create strong mental maps, addressing systems and the impact of the perfect fusion of the two on trade. Business cards were also collected in order to get clear understanding of how the commercial world in Addis Ababa is communicating and locating each other.

From this very out set, it has to be clear that there was no attempt of generalizing by taking samples and building quantitative data but the figures mentioned are those that came along on the effort undertaken to understand the perception of the interviewees. The main focus of the interview was not to extract quantitative data rather to understand the core issues in qualitative terms.

8.1 The Case Study Areas

The commercial areas were selected first according to the dominant urban function, in this case commerce and the master plan designation of the areas as ‘commercial zones’. Accordingly, all the case study areas are in the boundary designated as CBD. While focusing in the wide commercial areas then a second criteria was introduced which is selecting the areas by their street pattern. Therefore winding streets with irregular pattern and straight streets with gridiron or regular pattern are considered. By using the two

criterions of classifying the physical observation is conducted in the Northern Central part of *Merkato* and Central *Arada* (Piazza) area. Even though the street layouts of the two areas are different the areas belong to the same planning period. Therefore, I was devoted to add areas from another planning period where 'standard' land mark buildings are found. Based on the last concern *Beherawi* Theater area is included in the study. The case studies are presented in a thematic approach than case by case.

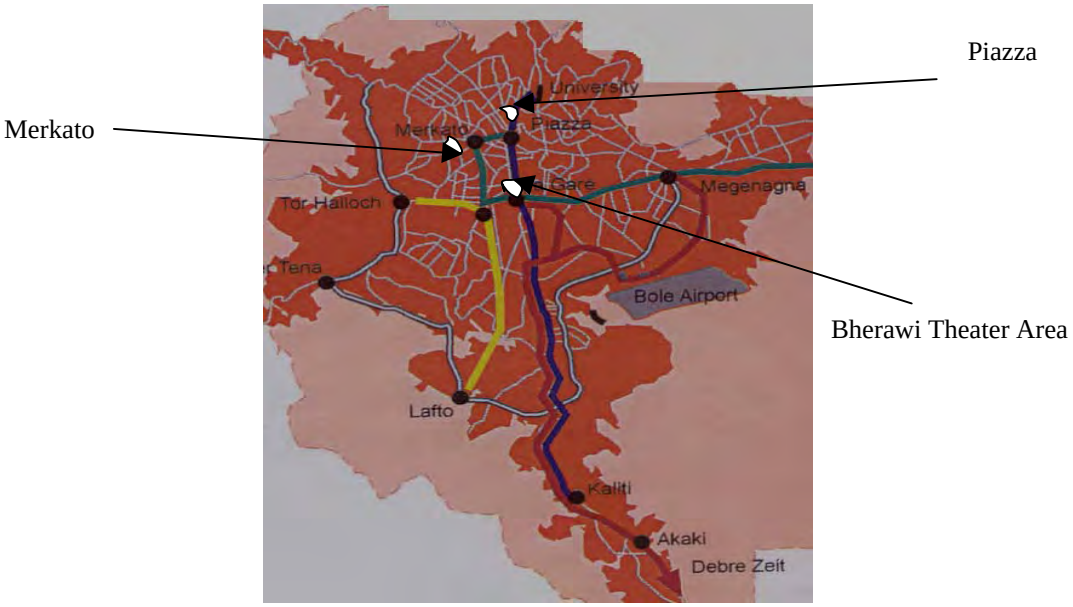


FIG. 8.1 CASE STUDY AREAS AT THE CITY SCALE
Source: www.addisababacity.gov.et

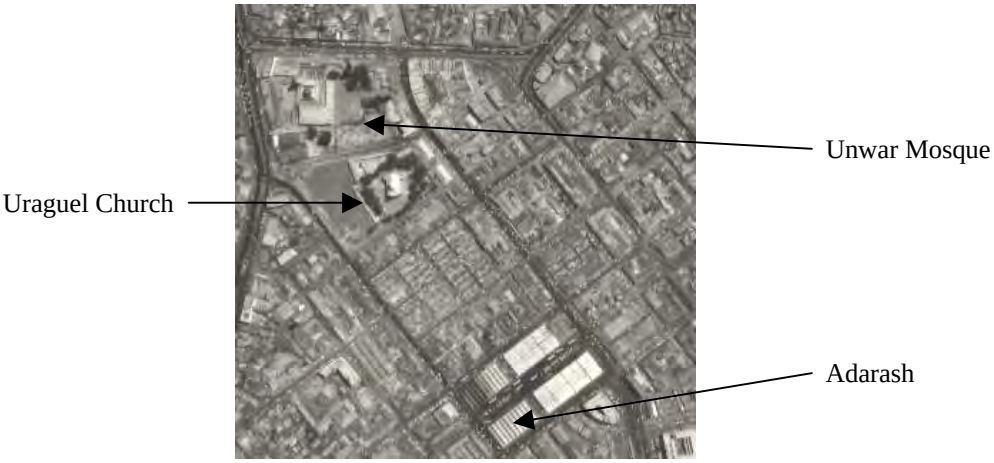


FIG. 8.2 ARIAL PHOTO OF MERKATO CASE STUDY AREA
Source: Ethiopian Mapping Authority (1984)

8.1.1 Case study area I- Central Northern Merkato

The origin of *Merkato* dates back to the short Italian Occupation during World War II and was designated as a "native city" by the Italians. According to The *Merkato* LDP (2002), the whole of *Merkato* covers an area of 113.6 ha and has a population size of 54,000 population size 1994.Its 475p/ha density gives it the highest density in the city. According to the LDP land use study, 37% of the total area is commercial, roads, walkways, bus terminals and stations take 30%, residential use 9.5% and 18% goes to the mixed use.

This case study area is located in Addis *Ketema* Sub city and the area delineated for the study includes parts of kebele12 and Keble 11. Findings from the case studies will be presented in this section. The area for this study is delimited to cover 8ha. (Refer Fig.8.2 and Fig.8.3).

8.1.2 Case study area II- Piazza area

Located in Arada Sub-city, piazza is one of the oldest areas of the city, alike *Merkato* the area features buildings, which date back the early planning periods and the Post Italian Period.

The specific area of study is shown on the map, this particular area is selected because the windings streets have no regular pattern. The urban function is mainly commercial which makes it fit to the discussion. The other wings in Piazza practically fail to be identified as purely commercial because as we go down the gorge and up the hill to St.George Church the buildings exhibit slum residential areas that are totally out of the target of this paper. The delimited area for the study covers 16ha. (Refer Fig.8.4and Fig.8.5)

8.1.3 Case study area III- National Theater Area

The case study area comprises part of *Keble* 15 & 16 of *Kirkos* Sub-city. The area makes the heart of the CBD area in Addis Ababa. The particular study area covers a total of 15 hectare of this commercial district. Even though there are mixed use apartment buildings the majority is turned out to be offices. But the ground floor of every building is being used for different kinds of business.

This area is included for its peculiarity from the others when it comes to the building conditions where every building competes for being a landmark. And it is to study what reference system the buyers and sellers. The area delineated (Fig 8.6) is selected because the majority of those landmark buildings are found in this region.

FIG. 8.3 PLAN SHOWING MERKATO CASE STUDY AREA
Source: Nortek Map (1994), Scale 1:5000

FIG. 8.4 MAP OF PIAZZA CASE STUDY AREA

Source: Nortek Map (1994), Scale1: 5000

FIG. 8.5 ARIAL PHOTO OF PIAZZA CASE STUDY AREA

Source: EMA (1984)

FIG. 8.6 BHERAWI THEATER CASE STUDY AREA
Source: Nortek Map (1992), Scale 1:5000

FIG. 9.6 ARIAL PHOTO OF BHERAWI THEATER AREA
Source: EMA (1984)

9. Morphological Observation

This part of the study is designed to analyze the physical form and shape of settlement in the study areas. This section will serve as the basic skeleton towards the analysis of the physical urban elements that can serve to create mental maps orientation. The analysis is more focused on streets since they are believed to be the dominant elements of cognitive

mapping. This has also helped to identify whether the streets are designed in such a manner that can create more strong mental maps or not.[5]

9.1 Building structures and open spaces

In urban design principles open space to building relationship tells about method of urban organization as well as its evolution. In addition to this relationship is the basic concept that will determine the relationship of open spaces like streets to the surrounding buildings, which in turn affects movement of pedestrians. In the coming subsections this relationship in the case study areas is presented.

9.1.1 Physical definition of open spaces

When seen from the point of considering the streets as open spaces in the urban scene the open spaces include streets as well as limited parking plots (off-street or in plot). The three areas were studied based on the following two approaches designing open spaces and buildings. The first is the traditional urban block (perimeter block) approach and the second is the modernist urban planning and design concept in which buildings are placed in an open space as individual objects.

Owing the attribute to their planning period the case studies exhibit different nature when it comes to building - open space relationship. The *Merkato* case study area is made after the traditional urban block pattern. The main difference, though, is that the only main open space in the area is the street itself. The same applies for Piazza area, which is built after the traditional Italian planning concept. (Fig.8.5 and Fig.8.6)

Contrary to the above two case studies the *Bherawi* Theatre (Fig.8.7) area exhibits the modernist concept of town planning and hybrid of the two. Still the open spaces available are extra off street parking and the street itself.

[5] The checklist for the analysis is attached in the annexes. But in this section of the paper the comparative description is used following similar format with the checklist.

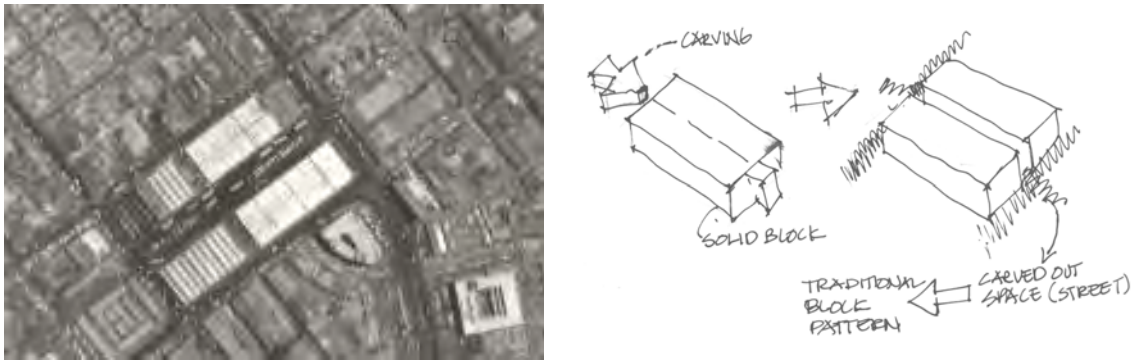


FIG. 9.1BUILDING STRUCTURES AND OPEN SPACES IN MERKATO
Source: Field Work (2005)

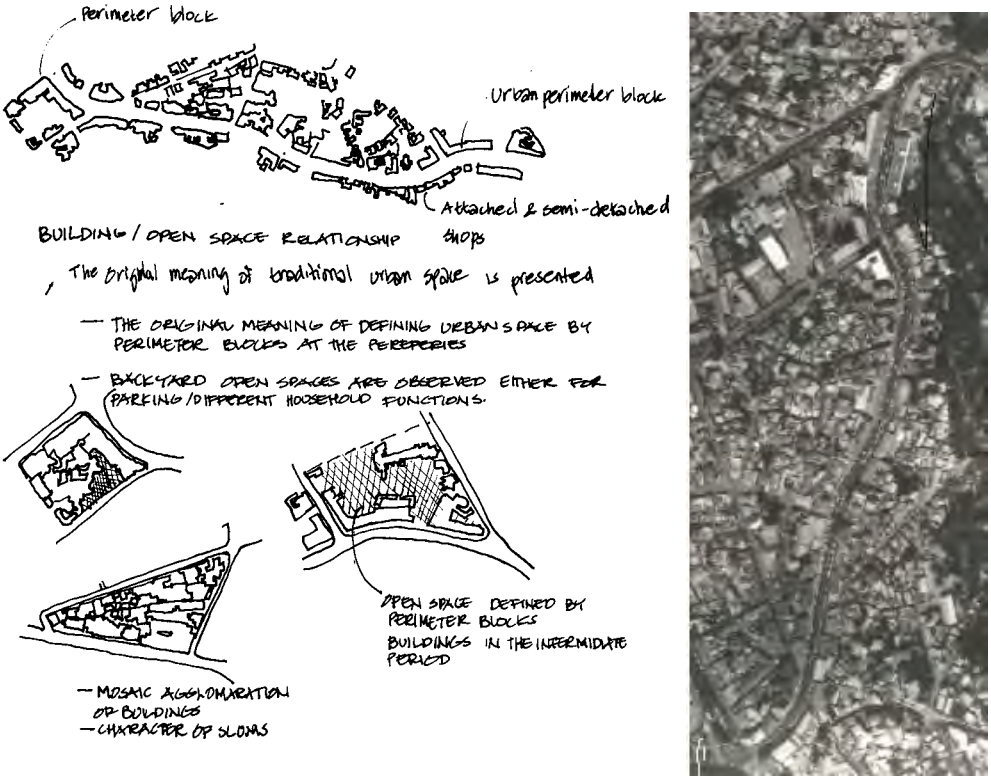


FIG. 9.2 BUILDING STRUCTURES AND OPEN SPACES IN PIAZZA
Source: Field Work (2005)

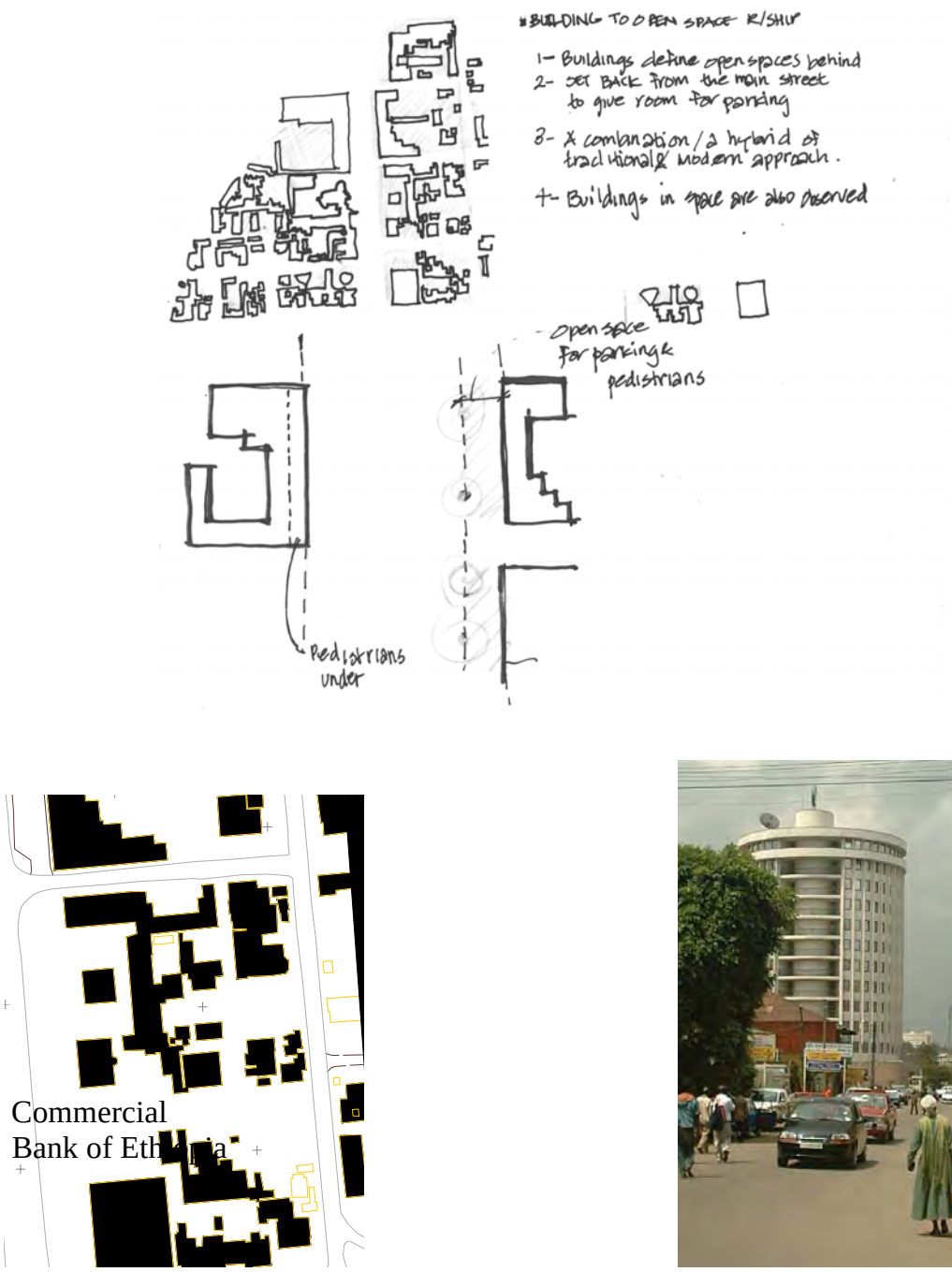


FIG. 9.3 BUILDING TO OPEN SPACE RELATIONSHIP IN BHERAWI THEATER AREA: Part of Bherawi Theatre case study area showing the different building to open space relationships-buildings standing in space than defining it

Source: Field Work (2005)

9.1.2 Building Height

The buildings in *Merkato* study area can be classified as 95% single storey buildings at this moment. The rest 5% buildings are 3-4 storey buildings only. Accordingly, the landmark buildings in the area are limited to this number. (Fig.9.4).

FIG. 9.4 RANGE OF BUILDING HEIGHTS IN MERKATO
Source: Field Work (2005)

In Piazza case study area the building height is still mainly single storey (65%) but 35% of the buildings are multistory structures with a height lesser than G+4.20% is G+2 while the rest 10% are higher than two storey and lower than four storey. Only 5% of the buildings in the area are buildings with more than five storey.(Fig. 9.5)

FIG. 9.5 RANGE OF BUILDING HEIGHTS IN PIAZZA
Source: Field Work (2005)

Buildings in *Bherawi* Theater area are mainly multistory (85%). Majority of those buildings are more than five storey and more which amount to 70% of the total. The lowest height being single storey, these buildings amount to 15% of the total number of buildings in the area.

FIG. 9.6 RANGE OF BUILDING HEIGHTS IN BHERAWI THEATER AREA
Source: Field Work (2005)

9.1.3 Building Line

The buildings in *Merkato* are built at the edge (Fig.9.7). The buildings do not leave any open space even at the back. The building density as a result the area exhibits maxim density- a built up area ratio of 100%.

FIG. 9.7 BUILDING LINE IN MERKATO

Source: Field Work (2005)

In Piazza case study area too the buildings are built at the edge. In this area the buildings define an open space at the back used for different purposes especially for parking. Which gives the area lesser density than *Merkato*.

FIG. 9.8 BUILDING LINE IN PIAZZA AREA
Source: Field Work (2005)

The majority of buildings in national theater still follow the same logic except those which are found opposite the national theater which make a continuous building line starting from the Telecommunication main building to the starting point of Ethiopia Hotel. These buildings have a set back from the Churchill road for 'floating parking' at the buildings' frontage.

FIG. 9.9 BUILDING LINE IN BHERAWI THEATER AREA
Source: Field Work (2005)

9.1.4 Color and material applied to the street façade of the buildings

In *Merkato* study area, in a single hall one finds a number of shops. There are also other shops, which are attached, like row houses. The materials that make up the street facades of the study area range from painted sheet metal rendered and painted walls to dressed stone. The colors applied vary accordingly. In one street, shown on figure 5.10, for example, it is observed that more than 15 shops with separate doors are painted with the same color.

FIG. 9.10 THE SAME COLOR FOR DIFFERENT SHOPS IN MERKATO
Source: Field Work (2005)

In Piazza case study area it is observed that there is an effort to differentiate one shop from the other. This is done by using material and color differences (Fig.9.11). In most instances the shops next to each other are painted with different colors and those, which are in the same mixed-use building, use this technique to create their own identity. The other technique they use is by adopting different entrance and interior display designs.

FIG. 9.11 FIVE SHOPS WITH FIVE DIFFERENT COLORS IN PIAZZA
Source: Field Work (2005)

In *Bherawi* Theatre area, around 70% of the shops are found in the ground floor of the multi-storied buildings. Here, each mixed use or multi-storied building is either externally covered with marble, trowel-finished concrete or painted with different color. The shops subdue for the total appearance of the building in which they exist. (Fig.9.12) Here, identity is achieved by designing the interior spaces in a different manner and by using billboards.

FIG. 9.12 A NUMBER OF SHOPS AT THE GROUND FLOOR OF MULTI STORIED BUILDINGS IN BHEREAWI THEATER AREA
Source: Field Work (2004)

9.1.5 Repetition of the same type of business between two nodes

In *Merkato* the different blocks sell specialized items. The local name for such specialized areas is *'tera'*. Therefore in one *tera* there are a number of shops, which sell the same item. Their peculiarity is that they do not strive to achieve physical identity by using color nor materials. This is mainly due to the small size of their shops, which forces them to use their exterior wall for display. In addition to this fact the arcaded verandah in most cases is used either for display or by out door shops. The shops in Dubai *Tera*[6] exemplify this more.

In piazza, according to the count I conducted, the dominant business is 60% jewelry shops, 15% are boutiques 10% are stationeries, 10% cafeterias and the rest 5% goes to different kinds of other nature. Identify, in the most repeated trade, which is jewelry selling and buying, is maintained by different kinds of interior design.

[6] Dubai Tera is a specialized area in Merkato where ready-made clothes are sold. The area retains the same name even though currently the majority of goods are imported from China instead of Dubai.

Because a group of shops, with their own entrance, are found in the ground floors of multi storey buildings in *Beherawi* area it seems that there is no disparity of function between them: unless one reads the billboards first. Around 65% of the active business in the area is airline ticket selling, 20% coffee shops and the other 10% boutiques and the other 5% is composed of different businesses not repeated more than twice in the area, for example a pharmacy. In the most repeated type of shops the billboards are their source of identify. But from one node to another one finds all mixed, unlike *Merkato*.

9.2.The plot pattern

Plots in Merkato study area have direct access from the streets. Currently plots are being amalgamated. The urban renewal project in the area has initiated the owners of smaller plots to establish a share company and construct multistory shopping buildings.

Even though plots on the main streets are directly accessible by car, most of the plots that lie along the minor streets are not convenient for car access. For this reason, majority of the minor roads in *Piazza* study area are one-way roads. Other irregular plots are accessed on foot. Unlike the other study areas, all the plots in *Biherawi* area have direct access from the streets.

9.3 Street Pattern, Permeability and Mental Mapping

This subsection presents the relationship between street patterns, visual and physical permeability. The effect of this relationship on mental maps is also studied by studying the following physical elements.

9.3.1 Paths

The paths found in the areas are streets, which serve both pedestrians and vehicles alike. The following points are considered while studying the nature of the streets and their effect on pedestrian movement and orientation.

9.3.2 Pattern of the streets

The street layout in *Merkato* case study area is a regular grid plan (refer fig 9.2). This pattern allows maximum visual permeability by the very nature of its straight lines even to the extent that one cannot tell where the end of that street is. However, in the minor streets of *Merkato* this is impossible because of visual barriers. The visual barriers in the area are

not permanent. These barriers are commodities displayed outside and the extended parts of the shops, which are dismantled, when the shops are closed off working hours. (Fig.9.13 and Fig.9.14) Therefore maximum permeability is achieved when the shops are closed than open as in the picture.

FIG. 5.13 PERMEABILITY AS A FUNCTION OF WORKING HOURS AND STREET PATTERN
Source: Field Work (2005)

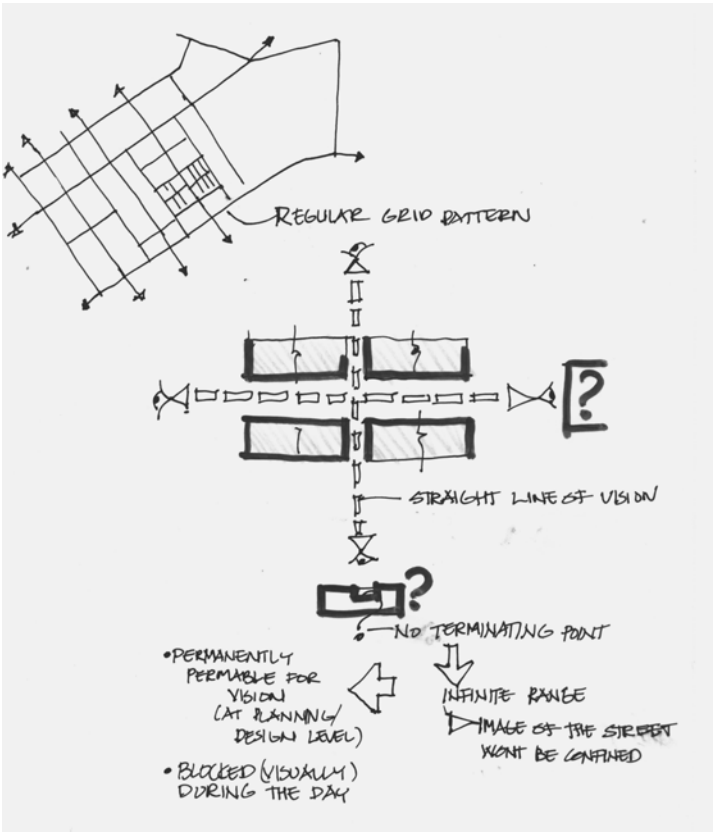


FIG. 9.14 ANALYSIS OF VISUAL PERMEABILITY
Source: Field Work (2004)

A/

B/

FIG. 9.15 VISUAL PERMEABILITY IN A/PIAZZA AND B/ BHERAWI THEATER
Source: Field Work (2004)

Piazza exhibits winding streets and irregular street pattern, which makes looking through the whole length of the streets impaired. Permeability is reduced by the winding nature of the streets. In addition to the curve, these winding streets created by the sloppy topography of the area, are not easily accessible.

Bherawi theater area exhibits straight streets but not of a regular grid pattern, which allows maximum visual permeability of all the areas studied. Both permanent and temporary barriers are not observed.

9.3.2 Physical permeability[7]

Absence of pedestrian walkways, unless in the collector or main streets, is one of the factors that hinders the movement of pedestrians. Even the available ones do not serve their purpose because of their proportion to the crowd walking in the area.

Width of the available walkways is 3-4m. This width is shared by steps to shops and also by illegal off-street parking. In addition to the width of the walkways the pavement material is the other obstacle that pedestrians face and which forces them to use the vehicular lanes. The pavement material is deteriorated asphalt, which makes the

[7] Ability to walk through the urban environment with out any obstructions

pedestrians to form a staggering movement pattern. The traffic signposts and the electric supply posts which are placed in the middle of the pedestrian walk way are the other obstacles that one faces.

In piazza area the main streets have provision for pedestrians. This is not because the width is more than 4mts but it is because the lesser number of pedestrians invading the area. The paving material in the area is asphalt, which is not deteriorated as in the above case. The signposts, and the electric poles still create inconvenience to pedestrians.

In National Theatre area, in addition to what is common to the other areas, there are shaded walkways. The number of pedestrians in the area is relatively the least and the pavements are not crowded as in the above cases. But in all cases the walkways are separated from the vehicular lane only with a level difference.

9.3.4 Street volume

In Merkato, the following width to height ratio of streets has been identified.

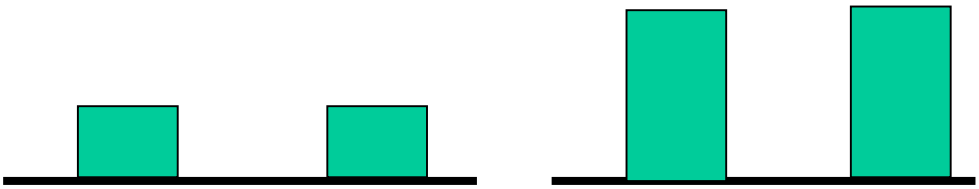
A/ 1:1 ratio of height to width B/ a ratio greater than 1:4

FIG. 9.16 HEIGHT TO WIDTH RATIO OF STREETS IN MERKATO.
Source: Field Work (2004)

The first drawing shows 1:1 width to height ratio of local streets in *Merkato*, which are, *pedisteranized* .The collector streets in the area show contrasting images than the first a ratio more than 1:2.The view is scattered, there is more sky than the walls. The following figure shows that the dominant part in the image is the sky than the building walls that were supposed to create enclosure.

FIG. 9.17 MORE SKY THAN STREET WALLS
Source: Field Work (2005)

Piazza -Arada



A/ A ratio of 1:2.25 B/ Height exceeding width

FIG. 5.18 DIFFERENT HEIGHT TO WIDTH RATIO IN PIAZZA (ARADA) CASE STUDY AREA

In this case study area, the above two relationships are found only along a short length of streets. The main street referred as *Ras Mekonen* Avenue (officially) the ratio of 1:4 is observed. All streets do not exhibit uniform building height on both sides of the same route.

FIG. 9:19 A RATIO OF 1:2.5 OBSERVED IN PIAZZA
Source: Field Work (2005)

***Bherawi* Theatre**

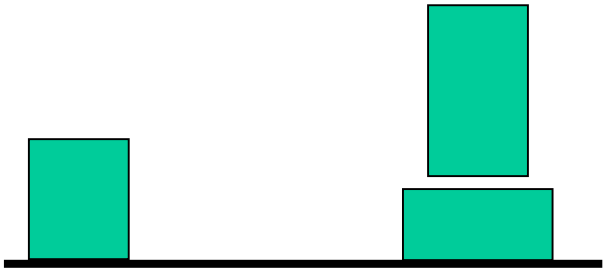


FIG. 5.20 EXEMPLARY OF STREET PROPORTION IN BHERAWI CASE STUDY AREA
Source: Field Work (2005)

Fig.5.26 shows typical building height to street width relationship along the main roads of Bherawi theater area. Multi storey buildings of different heights are found at opposite side of the same 'street'. If the tallest buildings are considered as the measure, the ratio in proportion of the street could have been nearly 1:1, which could have created the feelings of claustrophobia, by making the streets dark. But as they are now, there is a loose sense of enclosure.

9.3.5 Entrance and exit to the streets

The streets in the areas have no significant entrance and exit. From the three case study areas streets with such character are only two. The first one is *Ras Mekonen* Avenue in Pizza case study area, which has a vivid sense of entrance at the De-Gaul Square and *Ras Mekonen* Bridge. The other is Churchill Road, which starts at the Lion of Judha Monument around La-ghar Railway station and at the municipality.[8] The piazza corridor also creates a loose sense of enclosure because the starting point and the ending point are far apart, more than 600mts, meaning De-Gaul square and *Ras Mekonen* Bridge are far apart to create the sense of enclosure.

Those streets fail to exhibit the true sense of entrance and exit because they don't meet the criteria of proper street length. The first one extends an approximate span of 620m (measured straight, but its winding nature blocks the view as if it is beyond the limit of

[8] Care must be taken not to expect arched entrances or exits like the medieval towns. This is analyzed in visual terms. Moreover the entrance and exit can be reversed according to the station point of the observer.

1.5km). Churchill road spans an approximate distance of 2.5Km.This factors make the presence of those nodes, entrances and exits void while moving through the areas.

9.4. Edges, Nodes, Districts and Landmarks

Streets cannot be regarded, as separate entities from the other four physical elements mentioned above. Even though the main focus of the study is on streets, the relationships with the other elements are studied in the following subsections.

9.4.1 Edges

In *Merkato* there is no as such binding element, neither natural nor artificial, that demarcates the area from the surrounding .One *tera* diffuses visually to the other and the whole of *Merkato* in turn diffuses to the rest of its surrounding (Fig.9.28). In piazza the topography and a river delimit the whole area commonly known as piazza but this particular case study area diffuses to the other surrounding area of piazza especially to the south. Even around national theater there is no natural or artificial bounding element this area diffuses to La-ghar then to Mexico and in all directions.

FIG. 9.21 LOOSE DEFINITION OF EDGES IN MERKATO
Source: Field Work (2005)

9.4.2 Nodes

The strong focus to which an observer moves to or away from varies in the three case study areas. In *Merkato* it is the landmarks indicated in the ‘Landmarks’ subtitle. However, in all the cases the landmarks serve the purpose of a focus because the areas do not have designed nodes.

The nodes are not emphasized either by road junction or by creating wider public spaces at the junctions or by change of activities. They are just junctions of two roads.9.4.3 Districts

The districts profuse from one area to another neighboring area, because of the absence of the integrated design of the above two, especially edges. The only way to distinguish one

district from the others is by means of the lines drawn on a map for administrative purposes.

9.4.4 Landmarks

A mosque, a church and a bank building, Tana Department Store and other new multi story buildings are the dominant landmarks in *Merkato* area. In Piazza particular study area the buildings that are used as landmarks compete with each other. The round about designed near De Gaul 'Square' reduces this effect[9]. The famous landmarks in the area are Taitu Hotel, the Ethiopian Electric and Light Power Authority (EELPA) building and the British Council, Tea Room etc. In *Bherawi* Theater area all multi story buildings compete for dominance more intensely than Piazza. For example, there are two bank buildings with different form but with equal visual dominance. It has been observed that trees on the side of the main streets are no less the land marks as the vying buildings for dominance.

FIG. 9.22 TREES AND BUILDINGS IN THE AREA IN THE AREA AS LANDMARKS
Source: Field Work (2005)

All the above subsections have dealt with study unit one which is focused on the analysis of the physical urban elements. The coming subsection deals with the physical or visual elements that are directly related with addressing systems.

9.5 Visual Elements Addressing

By observing the visual medias of addressing systems, like bill boards and business cards the physical urban elements that make up the information are analyzed. Accordingly, it has been found out that the street names are not used in any of the instances.

[9] It must be noted that squares in Addis are just another name for traffic roundabouts.

9.5.1 Business cards

In *Merkato*, area the business cards exhibit three basic ways of conveying addresses. The physical address, postal address[10], cell phone or phone number. The physical addressing includes either famous buildings or the *tera* that particular shop is located in.(Fig 9.23)

Fig.5.23 Business cards from Merkato

Source: Field Work (2005)

In Piazza area the major way of giving an address is using the name of neighboring building (for example opposite EELPA building) or by old and famous businesses in the area (for example, opposite Tea Room). Telephone numbers and other high-tech communication information also make the main part of the billboards and business cards.

In *Bherawi* case study area too the business cards give the same information as in the Piazza case. Well-known buildings are used as a reference. For instance, at the back of *Bherawi* Theater, near Ethiopia Hotel, *Bedilu* Building Ground Floor, etc.

9.5.2 Bill boards

In *Merkato* case study area, billboards are not common for all shops. This is because the majority of shops are found clustered in a single hall. Therefore, a single billboard in Merkato could mean there are a number of other shops in that building. Billboards are most common where every shop has its own direct access like in the case of Piazza and *Beherawi* theater area.

The billboards in all the areas give their information using the name of the shop, telephone/fax number, and P.O.Box, address if any, are the main components that make the billboards.

A/

B/

FIG. 9.24 A) BUSINESS CARDS FROM ARADA B) BHERAWI THEATER AREA
No permanent physical address of their own is cited

Source: Field Work (2005)

FIG. 9.25 BILL BOARDS IN THE CASE STUDY AREAS
Source: Field Work (2005)

[10] P.O.Box address is not common to all shops. Like wise wherever there is no telephone line cell phone has become the main means locating someone.

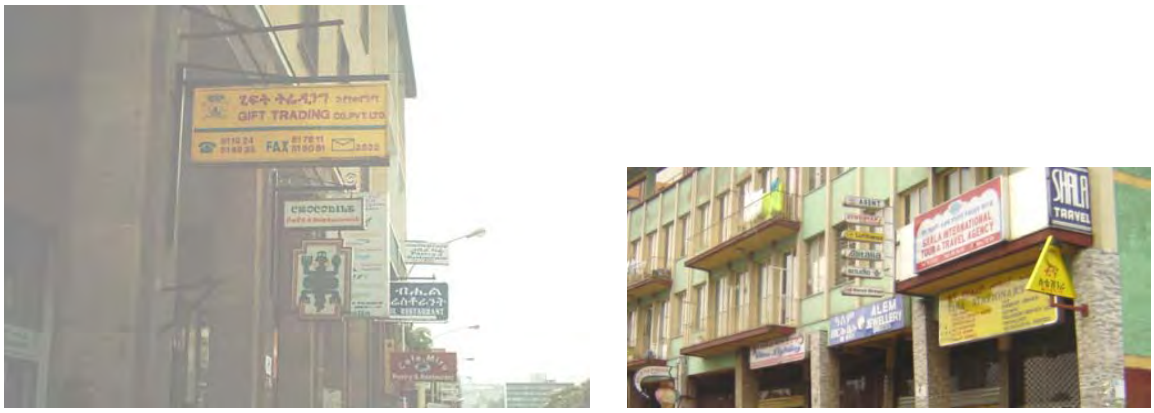


FIG. 9.26 BILLBOARDS IN THE CASE STUDY AREAS
Source: Field Work (2005)

9.6 Commercial Aspects

The physical planning and design of the streets and their impact on accessibility of shops is considered in the study. The mode of transport, which is related to accessibility to shops, is also presented in the following subsections.

9.6.1 Accessibility of Shops

Both retail and whole selling are practiced in *Merkato* area while Piazza and *Bherawi* Theatre are characterized by retail business. In addition to the nature of the business the shops are physically placed at the edge of the streets and most shops in Piazza and *Bherawi* Theatre case study area are directly accessible from the streets. The dominant shopping arrangement in *Merkato* is mall type. In this case a number of small retailers are found in big hall[11]. Even though, the plots are accessible from the streets, it can't be generalized that all shops are directly accessible from the streets because in the area there are shops with in a shop.

9.6.1 Pedestrians and Mode of Transport

The pedestrians in the area come there using the three common modes of transportations in the city: City Buses, Taxis and Private cars. Most pedestrians in *Merkato* area use the city bus, which have their destination and origin at the center of *Merkato*. Someone who is 500m away from the center but is still in the case study area is expected to walk around in order to reach to those stations. Taxis with relatively flexible station, have their own restricted routs. Still this generates the need for the increased pedestrian movement. The

[11] These halls are locally called Adarashs.

private cars are also restricted to be parked at the major streets. Hence, it is mandatory that whoever comes there with a private car to walk from where the car is parked the shop that the person wants to reach.

In Piazza, city buses stop only at their stations located at the Saint Gorge Church, Cinema Ethiopia and Opposite *Mekonen* Bar except these stations city buses do not have off-street instant stations. Taxis have both the station points and off street stop over. Private cars can use either the two way or one-way streets in order to navigate for a specific shop. Because there is a shortage of off street parking the driver is expected to park to the nearest parking space available on the roads and cover the rest of the distance on foot.

The opposite happens in *Bherawi* Theatre area, the buses do not have the specific center instead they have bus stops off the streets. Hence, travel distance for pedestrians is reduced. After taxis drop their customers along the main routs, like the Churchill road, the search for a particular shop starts on foot. The area gives much freedom for those who are using their private cars. The local streets are also accessible by car with specified and limited off street parking, even though the walking distance can be shortened for them walking is still inevitable.

The physical environment in the light of mental maps, addressing and commerce has been studied in the preceding subsections. The following section deals with the second study unit, which is addressing and orientation in commercial areas as perceived.

10. Perception of Buyers and Sellers

This perception survey is conducted by using the techniques of observing as a participant and dramaturgy. This gave me and the other assistants the freedom to understand shoppers' perception about the impact of having functional street addressing on their orientation and the trade that takes place in the case study areas. Questionnaires were also used to take note of the conversations and we used the questionnaires for those who are volunteers to cooperate.

Three forms of questionnaires were used. The first form was for shoppers in the area, the second form was for the shopkeepers or sellers in the area and the last one is for a customer who is in another part of the city at the instant. Based on the issues raised on the questionnaires the results obtained being as a participant observer and the findings from the dramaturgy are presented in the following pages. This narrative/qualitative result is supported by quantitative analysis when needed but care was taken not to generalize from the numbers. Focus was laid up on the qualitative findings about their perception. The structured interview of shoppers is done in the *Merkato* area while in Piazza and *Bherawi* Theater I used dramaturgy to understand perception of shoppers in these areas.

10.1. Perception of buyers

The perception of buyers about the following issues is found out from the in-depth interview in *Merkato* and dramaturgy carried out in other two areas.

10.1.1 Street naming and perception of buyers

Among the randomly selected 20 shoppers interviewed in *Merkato*, 18 were from distant places-more than 5kmts- the rest 2 were from areas with in 1km distance. Male respondents were 12 while the rest were female. The majority reached there using taxi and those who are from the nearby areas reached there on foot. Almost half of the interviewees visit *Merkato* once a month. The rest visit *Merkato* yearly and the minorities (2 out of the 20) visit the area on daily bases.

In Piazza area and *Bherawi* Theatre area I was pretending as if I was lost. I was asking for help to be guided to a certain shop, five times in each area, by changing my position. This has helped me to find out how they can share their images to someone else.

10.1.2 Locating a shop

The first buyers we encountered were couples, buying shoes in the area usually called Dubai Tera, which is the area famous for the abundance of boutiques. They were buying a pair of shoe for the wife. The husband told us that he just came to accompany his wife. It is not only these couple we encountered while walking with another party a friend or another guide, in most instances someone is accompanied by another person. After we read him the key questions he started telling "I know where I reached after a number of trials; it has taken us more than an hour to find this shop. It happens always. There are so many instances that I have asked how to reach 'Dubai *Tera'* even after reaching Merkato. Then after reaching Dubai *Tera* I always have difficulty to locate this shop." Telling about what they will do if they fail to find the shop the wife continued "a couple of times we have picked the clothe we came to buy from a shop other than we were looking for". Concerning how they address the area these couple have mentioned the name of the '*tera'*.

We asked the same question for a woman who is walking near the *Adarash* to buy clothes. She traveled to *Merkato* by taxi and visits the area once or twice in a year. She told us with grief that she has the problem of orientation saying, "I don't even know where exactly I am going. Even though I initially know from where I can buy the traditional dress initially I get confused the moment I reach *Merkato* and I hardly find where the '*Adarash'*[12] is. I am always scared of getting lost." It was not only this lady but also the other female interviewees except 3 out of 12 said that they do not have such problem.

"Locating a shop here is not difficult" said a man in his early 30s, I met around De Gaul 'Square' in the Piazza case study area, trying to give me the location of Tea Room[13]because I was asking him to tell me how to reach there. I was acting like a stranger to the area. Then the man took my query seriously and turned his face towards a G+7 building where Tea Room is found at the ground floor of. However, from where we were standing he could not tell me clearly, as only the last floor of the building was visible from a point near to De Gaul Square. He started weaving his hands telling me to follow where the street leads me. He finally said pointing his hands towards the direction 'walk for five minutes and you will find Mosvold[14] on your right then it is in the building next to it.' The

[12] Adarash is a kind of mall where small cubicles are inside it
[13] Tea Room by itself is a well known Café for more than two decades
[14] Mosvold is a well known furniture and house hold supplier in the city

building in which tearoom is found is apartment building of seven stories but the man used a building of three stories wherein Mosvold is found in the ground floor and the direction of the street.

It was just after he finished buying foreign currency from the black market that I met a young man of 25years in the *Bherawi* case study area. Then he was keen to tell me how I can reach to a nearby souvenir shop. “You just go straight and you will find *Bherawi* Theater. Just look for the shop among a number of other shops in the arcade. It wont take you more than five minutes”. Then I met another person after thanking the first person and after changing my position. Then I desperately asked him the same and he said after showing me two different streets to reach there “you walk straight take your left and you will find *Beherawi* but incase you fail to get it there walk next to *Ras* Hotel.” In all the instances *Bherawi* was the dominant landmark people used.

10.1.3 Perception about street naming

The couple mentioned above said, “it is important to have names for the streets and if I am to name the streets I would call it Dubai Entrance Street.” This kind of response was repeated almost 18 times in the 20 interviews. Every one believed it is important to name the streets but they associated it to a land mark building saying “ Cinema *Ketema* street, *Tana* Street, *Wanza* Hotel Street, Arebe *Tera* Street, *Amede* Gebya Street etc”The lady we met near to *Adarash* ,whom I described earlier, also labeled the street where she was walking on, a street adjacent to the *Adarash*, “Adarash Street’.

To the young man, who I asked for guiding me to the tearoom in piazza, I also asked “ please tell me the street name also so that I may not miss it” then he answered “ in no way! You can’t miss it just walk down the street in the direction I showed you” pointing his hands again to the direction “you wont miss it. There is no street name”. However, the street we were standing on is officially called *Mekonen* Avenue, which I didn’t know until I started this research.

The young man in *Bherawi* area was surprised when I asked him to tell me the street name “just walk straight and you will find *Bherawi* then again walk in the arcade and you will find the shop you are looking for”’ he repeated. In reality the road adjacent to the *Bherawi* Theater is called Churchill Road.

10.1.4 Telling others about a certain location

After understanding that the shoppers in *Merkato* use the name of the stalls, famous shops, land mark buildings and shop numbers occasionally as their reference the next question was about telling someone else about a location of a certain business in the area.

The wife answered, “I am not going to give directions to any one to go to *Merkato* because it is very difficult to locate a shop in *Merkato*, I would advise the person that s/he must go with someone else. Other wise I don’t want to regret later after that person is lost”. After these we asked her that if she can come here again with out getting lost. She told us that is why she is with her husband but both of them have already spent more than 3 hours searching for a pair of shoes.

“ I don’t even know how to reach where I want to go let alone to giving directions to someone else” said the lady near *adarash* and added “ if I come here alone I’ll get lost and I don’t want to do the same for some one else”.

These kinds of responses about telling directions to some one else were the responses of the 75% of the interviews. Among those who said “no it is difficult” did not say it only from the point view of the persons being told about a location, instead it was because how to tell about the places is difficult even for themselves.

A young woman of 26years old we met near *Shema Tera* who went there to buy house hold goods and food items told us ‘how can I describe this place to another person. It cannot be described to someone else’. The others who said declined about telling addresses to someone else suggested two different ways of doing it: the first group of the interviewees said “ the only option is to come together instead of telling some one to go by himself after telling him locations.” The others said “even if I tell a person how to reach to this particular shop it is going to be forgotten so if I have to and can not come together with the person I would mention just one building like the mosque and tell the person to search for the particular shop after reaching the building I described” The others who said, “yes I can give directions” to some one else are exemplified by the coming responses.

“The first option I would try is to go together with him if I could” said a man of 31 year old, and a father, who has traveled around 5 kilometers to the specific location near *Wanza* Hotel, so that he may buy his children shoes and ready-made clothes. Continuing further on the issue of telling others about the same shop, he is going to buy from he said, “just stop by *Wanza* Hotel, or tell the taxi driver to drop you and show you *Wanza* Hotel. Then you

will find the shop opposite *Wanza* Hotel.That is all I can do" he said. However, from where we were standing there were number of shops of similar nature in front of *Wanza* Hotel and it was difficult to further describe that shop to someone else.

The other woman we met was of 25 years of age who comes to *Merkato* on daily basis, from an area called Kasanchis, which is around five kilometers away from the place. She comes there to buy and resell household items and the way that she gives addresses is by saying "you will find a wide street near *Adarash* just go down and you will find the shop". From her response it is clear that somebody is expected to know where *Adarash* is but not the street.

Next to all this I wanted to understand how the shoppers in Piazza and *Bherawi* regard the question. Both of 'my guides' I mentioned above have used the word 'it is easy you will find it'. They in fact used the left/ right walk for minutes on the streets in addition to the landmark building. They just tell it as other simple thing to tell.

10.1.5 Comfort of pedestrians and the shopping experience

On top of the above issues of getting lost, another problem that makes shopping in Merkato, according to the respondents, difficult is the crowd of pedestrians, animals and interruption by cars.

All of the 20 respondents agreed that walking for shopping in *Merkato* is a very unpleasant experience. As the 18 year old young man we met near Amede Gebya explained it "I come here once every two months and when I come I come here on foot because I live at the back of the *Amede* Building, and every time I walk around to buy something the over crowded walkways the hassle with cars and animals irritates me. Shopping in *Merkato* is not a pleasant or comfortable experience it is a big risk." The others have mentioned that noise, theft, dirt and bad smell on the streets are what make them hate shopping in Merkato. Finally, we asked them why they have to come to *Merkato* with all the discomfort they are being exposed to and their answers were based on the nature of commerce in Merkato.

Shopping and walking in Piazza are done for pleasure too. Most pedestrians in the area do so just to window shop and have a little refreshment in one of a number of 'enticing' cafés. The decorated displays of the shops and the relatively wide display windows of the jeweler shops are source of refreshment for pedestrians. They do not rush or make noises like in

Merkato, they have a calm movement and not shoulder to shoulder. Then I asked a woman of 30 years old who was in an internet café, to know what is special about shopping in Piazza .She replied, “it is also for pleasure I come here, it is not only when I want to buy something that I do come here but also to meet my friends and whenever I have appointments”.

In *Bherawi* area the pedestrian movement is relatively minimal than the others. The difference here is, there are a number of persons talking in the open space, which are left for parking in front of the multistory buildings. Brokers, buyers and sellers are the ones making the circle. The area is more of a contact place than a place for door-to-door shopping.

10.1.6 Trade in the case study areas

The first consideration related with locating a particular shop is the length of time that buyers spend in order to buy commodities. According to the study of the male respondents, 75% took a maximum of 30 minutes and the rest 45 minutes while among the female category only 25% of the respondents took 30minutes or less while the rest consumed over 1hour. Therefore, the exemplary presented under are from the last group.

> “ I and my husband were looking for this particular shop. Despite all the inconvenience we keep on coming here, not because it is convenient but because we can buy with a fair price and because you have plenty to choose amongst. However, there is always a risk of remembering from where I bought last time; therefore it takes me a very long time. In addition to the confusion about where to buy, I can’t move freely because no one is going to give me priority to pass so I will have to walk very slowly. Hence, stopping by every shop will take almost equal time as walking slowly in the crowded pedestrian walkways.”

The other points raised during the perception survey were about the trial and error they make in order to reach a particular shop. From the randomly selected cases only 40% of the men and 30% of female interviewees were able to reach their target at one instance with out any trial and error. Concerning this fact a girl of 18 years old who came from an approximate distance of 3kms, from an area called *Afincho Ber*, to buy a pair of shoe said: “ the shop I saw once disappears the next day I come. There were moments I spent more than two hours to buy a single item, even though it takes such a longer time I come here for the sake of the multiple choice I have and for fair prices”.

Being an observant and a participant in the process it is in Piazza that I observed a slower movement of pedestrian: couples talking, friends chatting and doing window-shopping. The pace of movement in *Bherawi* Theater is either a bit faster than in Piazza or stagnant like the brokers, buyers and sellers circle. Especially in working hours the area is not as lively as Piazza.

10.2 Perception of customers out of the case study areas

The customers who have been in *Merkato* for more than three times were asked to give direction to some one who does not know how to go to *Merkato*. In all the cases I was acting as if I do not know about what they are telling me and taking note of their descriptions. I ended up with the following descriptions.

I called over the phone to a person who lives next door to me, aged 35.I told her that I need to guide someone who has to go to *Merkato* to buy traditional dress and to tell me how long that is going to take.Then after telling me how often she goes to *Merkato* by the following words “I go to *Merkato* once in a month since I am a business lady and it is must that I go there to buy children clothes for the boutique I have out of Merkato” she continued saying “ write down what I am going to tell you.Tell the taxi from Megenaga or from any where to take you to *Adarash*. There are two *Adarashes* ask someone which one is the old one from the two *Adarashes* you find there. The moment you find the Old *Adarash* get inside and you have plenty of options. Just look for the item you like most and that might take you just more than an hour. Because there are plenty of choices and might get tempted to stop by every shop and compare their goods for sale and their respective prices too”. Then I wanted to know if she really enjoys the trade in *Merkato* and she replied, “ I like going to *Merkato* and how the business is carried out there. You have numerous options and the negotiation too. That is the best place for choice and it makes me forget all the other inconveniences I face”.

I met a woman of 21 years old having coffee in a cafeteria around Kasainchis area, which is nearly 4 kilometers away from Piazza. And I asked her from where I can buy a stationary item in piazza ‘you take a taxi from Kasainchis to Piazza and tell him to drop you when you reach British Council, a four storey white kind of building and then on the ground floor you will find a big stationary with the same name at its doors. I do not think you will miss it but if you do just walk towards Cinema Empire and you will find a number of them.”

A woman of 32 I met in her office told me the following about how I can reach to an electronic shop in National Theater area. After asking me what exactly I want to buy she said 'it is very easy, to buy a TV set or any electronics. However, I cannot promise you that it is cheap there. Just go to *Bherawi* theater and cross the Churchill Road and there you are. I don't know if it is clear for you but I have never missed a location in that area".

10.3 Shopkeepers Perception about Addressing and its Impact on Trade

In *Merkato* case study area, the first shop owner I met was selling ready made clothes in the area called Dubai *Tera* .He is in his late 40s, after telling me that the official address has been changed once after the decentralization of the city he told me that his new official address is Addis *Ketema* Subcity , Keble 12 House no1222. He explained what mechanism he uses in order to make the presence of his business in the area visible by saying, " first I mention the *tera*, that is Dubai *Tera* then I will say next to *DHGeda*[15] shop. But usually I depend on my hospitality." Then I asked him if having the proper addressing system does affect his business or not he said the following, which is the exemplary response of the 75% shopkeepers who responded to the question. " The area is already famous, I don't think that will affect our business because both our customers and those who deliver the goods know the area very well. Plus the cell phone helps us to stay in touch with the regular customers and specially with those who deliver us the goods".

The other 25% who believed that street naming is very important said, " it is important that I have such addressing mechanisms. I may tell where my shop is and print the same on my business cards and billboards".

One fact made all the respondents to agree on one point; that is, if they are entitled to name the street they would name it either after, the name of the *tera* , a famous land mark (like Tana Street –after Tana Department Store). Only one respondent chose to have a number and another one mentioned athlete's name. By quoting what the first shopkeeper said about street naming I would go to the findings from the the shop keepers in Bherawi and Pizaa area.

[15] DH Geda shop sells corrugated iron sheet, wall paint, wheat flour etc

> " Our business works well still, because Dubai *tera* is famous not only in Addis but all over Ethiopia. It is this name that is giving us our daily bread. Now all of us in the area are requested to develop the area according to the requirements of the LDP, therefore we have established a share company to develop a new multistory mall. Even then I would rather name the building and the streets around it, Dubai Building and Dubai Street alike".

We met a woman of 28 keeping a gift shop, filled with different household furniture and Swiss wristwatch. The shop has been there for more than 20 years. Hence, we were curious to know what method they use in order to make their presence in the area audible and the woman continued after telling us "We usually advertise on news papers, Television and well known magazines like *Selamta*". Then we wanted to know if having not a proper standard addressing system does affect their business .She said 'no, we are already famous, and you can even call the street Jolly Street' after the name of the shop we are standing in. Her response exemplifies the answer of 7 out of 10 respondents in the area when it comes to the effect of poor addressing system on their business. However, they differ on the name of the street the majority named the street Piazza Street.[16]

In *Bherawi* Theater area we went in to a travel agency and a woman of 30 years old was willing to fill the form by herself[17], and her response exemplifies the majority who said that the method of promoting their business is by distributing business cards and using bold billboards. Her response shows in detail that they believe addressing system does not affect their business because they believe their business cards and advertisements can reach anywhere. In this area 8 out of 10 respondents gave the same response but they suggested three different kind of names for the existing Churchill Road: the first one was to name it Addis Ababa Street because it is this street that is always presented on TV whenever Addis Ababa is mentioned. The other name proposed is Bherawi Street after the landmark building and the long known activity in the area. One person out of 10 labeled it with a number and another one with a famous Ethiopian comedian.[18]

[16] The street we were discussing about is the one that goes from De Gaul 'Square' to Ras Mekonen Bridege which is officially labled as Ras Mekonen Avenue.

[17] the majority in the area did the same

[18] Alebachew Teka Street

In the preceding sections of the paper I have presented the perception of shoppers, of customers out of the specific study area and of shopkeepers. Following, those responses are analyzed and findings are extracted in order to reach at a conclusion.

Part-V Empirical Findings and Conclusion

11. Empirical Findings

This part of the paper is subdivided in to three main subsections. The first one presents the main findings of the research. Next, the findings in the light of theories from the literature review section will be presented. Finally, developing a strong link between the three study units and further questions will conclude this paper.

11.1 The main findings of the study

First in this subsection, the main findings from the personal observation and graphic analysis of the physical elements that create mental maps will be presented. Secondly, findings about addressing and orientation in commercial areas from the structured interviewees and dramaturgy will be presented secondly. Thirdly, the impact of the two on trade will be presented.

As outlined in the introductory sections of the paper the main findings can be categorized in to three main study units namely

- The physical elements that create strong mental maps and give pedestrian orientation
- Perception of buyers and sellers about street naming and pedestrian orientation
- Perception of shoppers and buyers about the impact of street naming on trade

11.1.1 The physical elements and pedestrian orientation

The physical urban elements that create strong mental maps or images in the observers' mind, which are prominently perceived visually, were analyzed in the study by using maps and standard ways of urban design techniques. The findings in the commercial case study areas of Addis Ababa are categorized under the following issues:

- Comparison of physical planning and design in the three case study areas
- The dominant elements that create mental maps in the case study areas
- The addressable objects in the area

11.1.1.1.Physcial planning and design

The research has outlined that the three case study areas are from different planning periods, which basically gives peculiarity to their spatial arrangement and also to their urban image. The planning principle has created a difference in the arrangement of the basic elements that are believed to create strong mental maps in the observers, mind. From the physical observation in the study the following shortcomings of urban design and planning in the areas are identified.

11.1.1.2 Ambiguity between open spaces and building relationship

The way buildings are related to the open spaces fail to create neither the sense of traditional urban space or the modernist urban space. Even though there is the sense of creating the traditional urban blocks in *Merkato* and Piazza case study areas, the effort is limited only by bringing the buildings at the edge of the right off-way. This has caused two main problems. The first problem is that the only open urban space in the commercial areas is found to be the roads, alleys and in some cases the streets. The second problem is that the streets fail to give breathing spaces because they are the only open spaces and are basically created by means of building at the edge.

In *Bherawi Theater* area where the buildings vie for dominance, a compromise between the modernist urban design and the traditional urban form is made. The buildings do not neither create a pure perimeter block nor stand free in an open space. The only added open space in *Bherawi* area is the front lying off street parking.

11.1.1.3 Presence and application of urban design tools

Urban design tools like building line and height regulation give peculiar characteristics for streets. These regulations are directly related with street volume and proportion. The findings discussed below give emphasis to the presence and absence of these important design tools.

Building Line

The urban design tools, namely building height and building line happen to apply to all study areas. The building line in all the areas is respected by each individual building but the sky line is not well thought of to create the sense of enclosure to the only open public space in there, the streets. In *Merkato* and Piazza the buildings also share the same boundary line at the side. This has helped to avoid negative spaces that could have been created between neighboring buildings.

Building Height Regulation

The building height in the first case study areas shows uniformity. However, the current developments according to the LDP are changing the grain of the areas. The LDP states maximum and minimum building height for the area. The height of the buildings in National Theatre area and the other two areas studied does not help to create enclosure to the streets. Vision is scattered through the space to the sky or vision is extremely restricted. This is due to the unregulated relationship between the width of the street and the height of the buildings. The LDP proposals show concern only to the road engineering needs.

11.1.1.4 Color, material and texture of the street facades

Streets in the case study areas are proofs of abrupt design. They are a proof of pure absence of urban design control. The fact that the streets are urban spaces owned by every citizen is neglected and the street facades are treated as desired by the owner of each building. Shops facing main streets like in Piazza are painted with different colors just for the sake of giving identity to each shop. However, the cumulative effect of such an effort on the street facade is not well thought of.

11.1.2 Functional distribution along the streets, scattering and cluttering of similar shops

The functional arrangement in *Merkato* follows a different logic than the other two areas. There, goods of the same item are found in the same area and a number of shops with same items cover the same area of one urban block. This is how the shops survive without a standard addressing system or address based business promotion. Maximum choice with a number of small shops has created maximum influx of buyers to the area at the sacrifice of their comfort.

Piazza and *Bherawi* Theater are organized on the bases of cluttering and scattering of shops along the streets. Shops in the areas are bigger in size but smaller in number. For this reason the number of pedestrians in the areas is lesser than in *Merkato*. As the shoppers indicated there is lesser choice and the price of goods is more expensive.

11.1.2.1 Plot pattern and arrangement of shops

Merkato is exemplified by the *Adarash* kind of arrangements, which is generated by the maximum number of shops that cannot be granted direct access to the streets. In *Merkato* the shops within shops, metaphorically speaking, indicate that there are number of parcels within a parcel while this is not a common practice in *Bherawi* Theater and Piazza..

11.1.2.2 Amalgamation of plots and the changing face of commercial areas

Plots in the oldest parts of the commercial areas like Merkato and Pizza are being changed. Plots are getting amalgamated and reshaped. This will substitute the current mental map of pedestrians by another one gradually. The new buildings and shopping malls or metaphorically speaking vertical stalls, are substituting the current reference points meaning the *teras* shoppers are used to.

11.1.3 Roads and Streets

Event though the two words are used interchangeable the notion considered in the following subsections is path with shops on both sides. Having these in mind the findings deal with pattern of the streets in relation with their visual and physical permeability.

11.1.3.1 The street pattern

The basic floor plan of the streets in the area does not depict major change through time. The pattern is still the same; the gridiron plan of the *Merkato* area is still going to be maintained, (Merkato LDP 2002). The irregular patterns of streets in the Piazza area does not undergo major change and are not planned to change according to the LDP of the area,(Arada LDP 2002).However, despite their age or long-term existence the streets fail to be noticed by the pedestrians. The findings show that they have separated the buildings and the streets from each other.

11.1.3.2 Blocked visual permeability and orientation in commercial areas

In *Merkato*, even though the streets are laid in regular manner and streets are straight, visual permeability is lesser compared to *Bherawi* Theater area. The winding streets in Piazza and the topography make visual permeability still difficult. However visual impermeability in *Merkato* is not permanent one. During the daytime when the buyers are moving in the area they are not favored to get the clear image of the streets in their mind. This is mainly because of the off-shop displays of the existing shops and street vendors, which invade the streets. This is one of the reasons that make the pedestrians to have volatile memory about the area. During the day all the color, texture and even the volume of the streets is covered by the items for sale. And this image is not a permanent one; it changes as the transaction between the buyer and seller changes through the day and from season to season.

11.1.3.3 Walk ways as impairment against pedestrian's permeability to the areas

The width of walkways and their paving material are the main causes that make physical permeability to the shopping areas a very difficult task. Even in areas like *Bherawi* Theater and Piazza, where the width of the pedestrian walkway is relatively wider than those in *Merkato*, pavements are not comfortable to walk on. The use of materials and the design of the street does not guarantee the pedestrians to have safe, vehicular free pedestrian lanes.

One fact from the oldest designs in the area must not be ignored. That is, quite a few buildings in *Merkato* and *Bherawi* Theatre have proofed to provide shaded pedestrian walkways in commercial areas. The arcades of *Bherawi* Theatre and shops in *Merkato* with arcades serve as the only safe, shaded walking paths for pedestrians.

11.1.3.4 Street Proportion and Roads

The main roads in the areas are characterized by their engineering design. They are not thought about in terms of street proportion by relating their width with building heights. Neither is the buildings' height related with the width of streets. This makes dictating pedestrian orientation in the areas beyond the visual limits of the human eyes. In the main roads there are much sky as walls meaning less sense of enclosure. This makes the roads to have less enclosure meaning failure to give precise visual direction.

In the collector streets, proportion is 1:2. In this case equal amount of the sky and the walls can be easily seen at a glimpse. While in the access roads with 1:1 ratio of street to wall closure is the same as a corridor but the street facades are not visible.

11.1.3.5 Improper placement of street elements

The street elements, like lighting poles, traffic signposts have improper arrangement. In all the instances these posts are on the pedestrian walkway, which creates obstacle to the pedestrian movement.

11.1.3.6 Lack of Identity to the individual streets

In most instances in *Merkato* it was hard to tell the difference between one street and the other street. One the topography does not contribute to create identity as in Piazza area; second items to be sold cover the streets facades. In addition to the above two main reasons the issues raised earlier like the street pattern and the nature of the surrounding walls also contribute to this fact one-way or the other.

11.1.3.7 Illegible presence or absence of the five elements identified by Lynch

Theoretically, it was expected that those five elements[19] would create mental maps in the observers mind. That was concluded from urban centers with properly integrated legible environment by means of *imagable* objects. The theory also states that they all exist together (Lynch, 1960,from, Carmona, 2002). But in the areas studied in the light of this theory, mental map of pedestrians is blurred because of either the absence or the illegibility of the physical elements. In *Merkato,* for instance, during the active hours of the day, the objects for sale than the shops themselves define the streets. The feeling they create is like walking in a cupboard than in an urban element. Alleys of Dubai Tera are best examples for this. Nodes in the area are not anything more than traffic junction points.

In piazza the streets are more or less designed in a manner that creates mental image but here also nodes and landmarks are not designed in a manner that enhances the *imagiablity* of the city.

Bherawi Theater area exhibits multiple buildings vying for dominance. Hence, it has been found that pedestrians use multiple landmarks for the purpose of communicating with one another.

In general the research has identified that in the absence of legible city design, the mental image of buildings cover the image of the paths. In all the case study areas the street is not used in any manner than for the purpose of movement.

There is no definite physically defined district as in the theory, for instance in *Merkato*, districts are created based on the dominant trade in the area. Even though it has helped pedestrians to have a certain way of referencing method their footpath staggers because the districts diffuse in to another. In addition to this their memory is based on temporary objects and urban elements that are not resilient to change. In the changing face of the urban centers these could lead to the loss of the existing mental maps.

11.1.4 Perception of shoppers and buyers about street naming

This section of the findings presents the methods pedestrians employ to locate or identify a place in the commercial areas .In addition to the findings this section builds the link between the dominant image the pedestrians have in their mind and the impact of having good and functional, addressing system on their mental maps.

[19] paths,edges,nodes,districts and landmarks

11.1.4.1 Pedestrian's natural ways of identifying a shop in the commercial areas

From the survey it has been found that the first thing that comes to the mind of the pedestrians is what to buy. Then they will choose between the major business areas in the area according to the other attributes and sentiments like convenience, multiple choices, price, which are difficult to measure. Then the second address that they use is the *tera* or landmark buildings in the area. Finally a famous shop in the particular tera or street will be the final address that will help as a guide to the target shop.

The streets have no names nor numbers they are occasionally referred in order to tell or redirect movement for example to tell someone "to go down the street and take the left street" etc.

11.1.4.2 The dominant physical element the pedestrians have in their mind

The findings show that the dominant element the pedestrians have in their mind is a particular building in the areas. The streets are completely out of their memory. This finding has been discussed thoroughly in the analytical discussion of this paper.

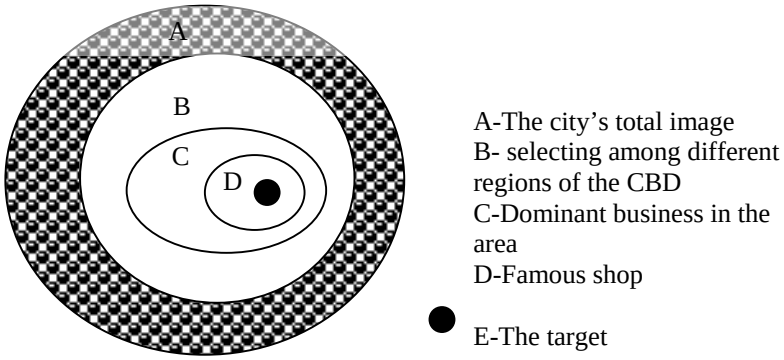


FIG. 11.1 MENTAL NAVIGATION MAP

Pedestrians use in the case study areas, Source: Analysis (2005)

11.1.5 Impacts of addressing on trade

So far the gap between the images in pedestrians mind and the addressing mechanism they use naturally is discussed. This has given the following characters to the business transaction in the areas.

11.1.5.1 Chance, eloquence and hospitality based trade

As narrated on the case studies chapter, the success of business in *Merkato* is based on the chance of having a new customer and on being hospitable not to loose older customers. The finding that even regular customers will buy from any shop because they miss the shop they used to buy. This has two reasons. One, the physical elements have failed to create strong mental image; two there is no addressing system even to ask or to tell for others. As a result, the referencing system both buyers and sellers use are subjective to their individual memory and eloquence respectively. This has a tremendous effect on the time and labor wasted just to buy an article.

11.1.5.2 Unnecessary Expense

The lengthy statement constructed in order to specify the location of certain shop by indicating two or more landmarks and prefix like (in front of etc) make advertising (specially on television) expensive. Any one of the merchants who depend on television commercials where every second's speech is expensive, locating an address using two or more landmarks is the extra expense they didn't notice.

11.1.5.3 Locally restricted trade

Trade in the area is based on day-to-day built mental maps. As told by the buyers, being once in *Merkato* is not at all a guarantee to reach exactly where that someone has already been before. The small business owners in the area even do not care about having standard street naming. And the success of their business attraction is based on the fame of their locality in the country. Globalization is quite ignored. In the global economic system where standard addressing system requires full address, merchants in *merkato* will be restricted to the local market.

11.1.5.4 Technologies as a means of contact

The mobile phone has also contributed to goods delivery and the contact of the wholesalers and the retailers based on their instant communication. This has lead those who deliver the goods to depend on verbal addresses told to them and to take advantage of the mobile technology in case they forget the location. High dependence on mobile reference system clearly indicates, the failure of addressing system integrated with urban design. Permanence is the identity of urban areas; dependence on other communication technologies other than physical cues suggests poor organization of space and buildings.

11.2 Discussion of the findings

This section of the paper presents theoretical implication of the findings by linking them with the findings from the literature review.

11.2.1 Pedestrian Orientation-Mental mapping and the strongest image-creating element

According to Kevin lynch, in the urban environment the five elements that create mental maps are: paths, edges, nodes, districts and landmarks. These main elements create strong images in the observers mind. Based on this theory it will be good to ask if this works the same in areas where one of the elements is missing or blurred? The other point of discussion is to consider what will happen if the streets fail to make themselves the dominant elements? It has been noted in the literature review that the strongest element in the process of cognitive mapping is the street; do the findings proof the same? What mechanism do shoppers use if the streets fail to be paths and to give the exact concept of having streets, streets as urban public space and place?

From the findings in the commercial areas, especially in *Merkato* and *Bherawi* Theater area, it is difficult to understand where the district, nodes and edges are. The only elements that are significantly present are the paths and buildings as landmark elements. From the findings it has been made clear that residents always get confused about the street they have been there earlier. Therefore, the mental construct of their image in the area is dominantly governed by the image they have about the landmarks in the area and the type of commodities being sold. It seems, like the districts, the type of commodities displayed in the areas substitute nodes and edges. Or can we argue that if the residents fail to have a strong image about the commercial areas based on the streets then the areas have no paths?

The last question has answers in it, streets are there as shown in the study but the streets fail to have the basic components that give them character. The following basic elements that are supposed to give character to streets are missing: enclosure due to improper proportion, and materials and colors of the street, which originate from temporary displays than facades of the surrounding buildings.

The moment those attributes are lost one way or the other, the shoppers will depend up on the nature of the landmark buildings, where there are only a number of them. Other wise, their mind diverts from the physical urban elements and starts to build its ‘volatile’ memory and as a result their orientation in space is blurred. This is supported by the case

study from the *Bherawi* Theater area where all buildings vie for dominance to be a landmark then still the human mind will attach other attribute to the buildings. Instead of depending on the form or the function of the building it will depend on billboards.

The other point that must be discussed here is the impact of identity of objects on the mental maps. What happens where identity is masked in commercial areas? For example shops in *Merkato* hardly have their own identity. However, streets will remain there for the longest time at least their pattern remains the same even though their façade changes.

11.2.2 Street naming as important element in addressing

The fact that the street is the most resilient element against urban change has to be the basic ground to which addressing system must be rooted in. The other reason behind this is, the fact that every one contributes the street to the urban space; it is the property that belongs to the public. Moreover every one has knowingly or unknowingly has a sentiment towards it. The success of the addressing system in commercial areas will come from the perfect understanding of mental maps and what is the strongest element in the urban areas.

In commercial areas where the mental maps are strongly affected by the type of trade instead of the physical elements, it has been identified that it is easier to recall and name the nature of the business. In areas where there are one dominant land mark building the residents use that as a tools of spatial referencing.

In the preceding sections of this research it has been identified that the streets are not the main *imageable* objects. On the other side these paths are the long-lasting elements in the urban environment. Pedestrians so far use the type of the dominant business and landmark buildings as referencing tools. Therefore it is the hybrid of the two realities that will create the perfect addressing system. That is using the names of the dominant business or the landmark buildings in the area. At this point it is also good to ask, what if that dominant building gets demolished? What if the urban function changes? This concern is directly related to the adaptability of addressing system, which is theoretically and practically the attribute of a ‘good’ addressing system.

11.2.3 Trade, orientation and addressing

Trade is the buying and selling transaction that takes place both at the physical or *e-presence* of the buyer and seller. Then how is business successfully running in the areas

studied? If they are successful at all then addressing is only for official use and tax collection. The study suggests that it is not the case.

For businesses that are dependant on the physical presence addressing plays important role, because whether it is standard or not, every one is using his or her own ways of giving addresses. In fact, thorough analysis of the findings can show that the business is not successful as it should have been. This is because, even considering the trade in the physical presence of the parties, the shopkeepers is missing their customers. Or the customers are wasting their precious time to go there and spend hours, which could have been dedicated to the selection of goods and even to be economically engaged elsewhere.

Moreover, taking into account the growth along the line of global economy gives a deeper insight to the issue. Transaction in these days takes place with e-presence of the buyer and seller. It is when proper addressing is established that delivery of goods is done after e-purchase. This saves a huge deal of time both for the buyers and sellers. In short making money with out saving time by itself is a loss. It is in time that money is made.

11.3 Conclusion

Urban planning alone has never been the right guide to create lively urban environments that make the shopping experience pleasant; architecture alone is too far to take control of it neither. Urban design principles must be enacted at all levels in order that trade in commercial areas will be done without the fear of getting lost. By implementing basic urban design principles, pedestrians in commercial areas could be granted proper orientation in space.

The physical elements of mental maps identified by the pioneers, like Lynch, may not be available in a legible manner in every urban center. Even where they are present they are left subject to the mind of individuals when it comes to communicating about the image some one has about the city or part of the city.

The issue of street naming is the issue of giving permanent addresses, which must depend on the physical and commercial nature of the streets. In context where street naming is not a tradition diplomatic purposes or other historic edifice do not generate street naming, which can be remembered easily. In commercial areas street naming can generate from the type of the dominant trade or from the dominant landmarks in the area. Other wise any effort of addressing will remain on office tables of the various agencies, and the trade on

the ground remains the same. In other words creating addressing systems that cannot be used by the buyers and sellers in commercial areas is like building an economic system devoid of efficient trade.

Just to sum up the arguments and the findings of the research I would like to present the following analogue. Lets consider the different the million residents in Addis or else where. All of us are different and we have different mental maps of each other. The facial and physical appearance of someone is the basic element of the mental image we record. Moreover, of all the physical appearances we use those, which are the identity of someone in order to describe the person if we do not know the name of that person. If we know the name of the person we first mention the name and all the images (mental maps of the person I would say) will be browsed. Therefore the name serves as the directory of the physical features of the person that constituted the image.

The same is true when it comes to street naming and mental maps. Pedestrians record the dominant physical features of their environment of which the street is the first. If the street doesn't have a name then descriptive method is used to share the mental maps. Therefore, the image created by those five elements in a city, which are like the nose, eyes, skin color, hair type etc will be just a blurred image without street naming.

Hence, street names are the directory of mental maps and trade in commercial areas. Mental maps of the city without a name are like a world full of nameless people.

11.4 Further Research

The research has created a link between mental maps of pedestrians about the environment, street names and trade in commercial areas. However, there are a number of major questions issues the need further consideration and investigation.

1. How can the findings be applied in order to create an official addressing system that can be used by pedestrians in shopping districts, which they use on day-to-day bases?

2. How can awareness about the importance of addressing be established at different levels?

3. How can the findings of this research be applied to other districts of the city, for example to residential areas of Addis Ababa where the buildings are fenced?

4. What is the role of urban design towards creating addressable environments?
5. In what way address signage can be used as elements of urban design?
6. What is the role of current information systems towards the creation of integrated urban design and addressing system?

Bibliography

AACG (2002), **Merkato LDP Study**, Addis Ababa, The Addis Ababa City Government

AACG (2002), **Piazza LDP Study,** Addis Ababa, The Addis Ababa City Government

AACG (2005), **Street Naming Project for The City of Addis Ababa, Report** by Michel Maiwald, UNECA, Addis Ababa

Ashenafi G. (2001), **Inner City Renewal In Addis Ababa: The Impact of Resettlement on the Socio Economic and Housing Situation of Low Income Residents,** , Dr.Ing Thesis, Norwegian University of Science and Technology, Department of Town and Regional Planning, Trondheim

Bachor, D.(2000), **Case Study Reports ,** Retrieved 25/05,2005, from http://faculty.ncwc.edu/toconnor/308lect09.htm

Banerjee, T. and Southworth, M.(ed),1990, **City Sense and City Design: Writings and Projects of Kevin Lynch,** The MIT Press, and Cambridge.

Carmona, M., Heath, T., Taner O.C. and Tiesdell, S. (2003), **Public Places Urban Spaces: The Dimensions of Urban Design,** Architectural Press,

Chenail J. (1995), **Presenting Qualitative Data**, The Qualitative Report, Volume2,Number3,Retrieved25/05/2005from http://www.nov.edu/ssss/QR/QR2-3/presetning.html

Gallion B. and Esiner S.(1986),**The Urban Pattern: City Planning and Design** ,5th Edition, SK Jane for CBS Publishers, New Delhi ,India

Jacobs, J. (1969), **The Death and Life of Great American Cities,** Random House, New York,

Johnston, R.J. (1980) **City and Society: An Outline for Urban Geography,** Penguin Books Middlesex,

Lynch K. (1960) **The Image of the City, MIT Press**,Cambridge, Massachusetts

Lacees M. and McCormick K. (ed), 2002, **Charter of the New Urbanism,** Congress for the new Urbanism, McGraw Hill

Miles,M. & M.Huberman.(1984) **Qualitative Data Analysis**. Thousand Oaks, CA:Sage

Moughtin, C. (1999**)** **Urban Design: Street and Square**, Second Edition, Architectural Press, Oxford

Portus J. Douglas (1977) **Environment and Behavior**, Addison-Wesley Company, York

Qualitative Social Since Research Methodology 2004.Retrived May 05, 2002, from http://faculty.ncwc.edu/toconnor/308lect09.htm

Siegie, D. (1994), **Qualitative versus Quantitative,** Retrieved May 05, 2002, http://www.gifted.uconn.edu/siegle/research/Qualitative/qualquan.htm

Sietchiping R. (2005) **A Functional Addressing System for Africa: A Discussion Paper**, CODI-Geo/DISD, and UNECA

Walker Consultancy Ltd (2004), **Project Acacia: Addressing Requirements Study**, Cottenham.

Wubshet, B. (2004), **Urban Policies and The Formation of Social and Spatial Patterns in Ethiopia**, Dr.Ing Thesis, Norwegian University of Science and Technology, Department of Town and Regional Planning, Trondheim, City

`Appendices: Check list for physical survey and questionnaires

Form I. Basic checklist of morphological study (The Study of The form and Shape of Settlement in the area)

TO BE FILLED USING PERSONAL OBSERVATION

As the main objective of the study this part of the checklist is designed in order to make a visual survey and physical observation of the case study area. This section will serve as the basic skeleton towards the analysis of the physical urban elements that can serve to create pedestrian orientation in Central *Merkato,* Piazza *and Bherawi Theater* –which are the case study areas. This part is intended to serve the objective of analyzing the physical elements in the area that help pedestrians to have a defined orientation in commercial areas.

1. Building structures and Open spaces

1.1 Identify the building to open space relationship, by sketching the figure ground relationship on the map attached.

A/ Traditional block type – buildings defining and enclosing space

B/ Buildings as objects in space

1.2 Label the building height variation on the map using the colors indicated and quantify the number each type

A/ Single story structures	Green		%
B/ G+1 buildings	Yellow		%
C/ G+2-4 buildings	Yellow		%
D/ Taller than G+4	Yellow		%

1.3 Building line

A/ Are the buildings aligned with the street? ☐ Yes ☐ No

B/ Is there any setback from the street? ☐ Yes ☐ No

For what purpose is it being used?

_____

1.4.Color and material applied on the street façade of the buildings

By taking pictures identify the variety of colors applied and the number of repetition of the same type of color in the area.

1.5. Enumerate the different type of functions adjacent to the specific street ` and label the same on the map

From the enumeration identify the repetition of the same business in the area.

Level of variation

_____Number of different functions in 100mts

2. The plot pattern

2.1 Is there any plot, which doesn't have direct access to the streets available?

2.2 What is the number of plots, which are 'through plots', or plots with a frontage unto a main street at each end.

2.3 By observing the current trend of urban renewal identify plots amalgamated and attach a sketch on the map, which shows the amalgamation.

3. The Cadastral (Street) Pattern, permeability and mental mapping

3.1 Street and paths

A/ What is the street pattern

☐ Radial ☐ Chess board ☐ Irregular (organic shape) ☐ Spider web ☐ Other_____

B/ By taking pictures through the streets in the study area analyze visual permeability by identifying the presence and absence of visual barriers

- Are the visual barriers permanent ☐ yes ☐ No

If yes, thick on one of the following cause/s

- The street nature, either winding or not
- Informal trade
- Others? specify

_____

- Are the visual barriers temporary ☐ yes ☐ No
  - If yes specify

_____

C/ By taking pictures and using the map identify physical permeability, which is the ability to move through the commercial area specified using the following parameters.

- Is there definite pedestrian walkway ☐ Yes ☐ No
- If yes, the width is___mts
- What is the paving material?

☐ Dressed stone ☐ concrete tile ☐ asphalt ☐ gravel/not paved

- Does the paving follow a certain pattern ☐ yes ☐ no

If yes specify_____

☞ Particular features of the streets and changes that occur or planned to take place

D/ Street volume

By drawing a section through the street show the relationship between

- Width ___ length ___and height _____

F/ Position of street lighting

On buildings at the edge of the street no lighting in the middle of the walkway

G/ Sign boards

On buildings ☐ at the edge of the street ☐ right in the middle of pedestrian walkway

F/ Entrance and exit to this particular street

H/ Influence of vehicles on the streets on the pedestrian movement

I / Edges

Is there any bounding natural or artificial feature in the area?

J/ Nodes

Identify a point of reference, which serves as strong foci to which or from which an observer travels to or away, if any

J/ Nature of Districts

Does the area have its own precise boundaries or it gradually fades away into the surrounding?

Show comparative photos

K/Landmarks

What is the dominant landmark in the surrounding?

A tower _____ Sculpture _____ Trees _____

4.Adressing

- By collecting business cards analyze the information given
- Using photographs analyze information on billboards

5. Commercial

- Dominant business in the area

  _____Retail_____Wholesale_____

- Number of shops adjacent to the street and how they are related to the street, their hierarchy of placement
- Directly accessible or not
- List down all available modes of transportation and locate their proximity to the area of study on a map

Form II: Questionnaire for shoppers in the area

This part of the study is designed to address the issue of street addressing, pedestrian orientation and its impact on commercial activates. Therefore the questionnaire addresses the three study units and is summed up by asking questions that assess the general perception of residents about the subject under discussion.

Personal information

Name/Code_____ Age_____Sex M F

Level of education_____Occupation_____

Study Unit-Street Naming

From which part of the city have you come here?

_____ | Write approximate distance in Kms

Have you been here before? How often do you come here?

_____ | /yr | /mm | /week | /day

What mode of transportation have you used to reach here?

A/Taxi B/Bus C/Private Car D/Onfoot

How did you tell that you have reached where you want to?

_____

How do you locate or address that particular shop?

_____

If you are to label this street what name are you going to give it?

_____

Study Unit-*Pedestrian Orientation*

What makes walking on the streets unpleasant for you?

_____

Are you comfortable to make frequent crossings to the other side & why?

_____

How do you describe this street to someone you know but who has never been here before or to a guest you just met here?

_____

Study Unit-*Commercial Activities*

Once you are in this area of merkato how long does it take you to reach to this shop?

_____

What exactly are going to buy?

_____

Do you reach here at one instance? **Yes** **No**

If **NO** how many times do you make the trial and error?_____

Do you say shopping in this area of merkato a pleasant experience? **Yes** **No**

Why?

_____

Thank you for your response

Form III: Questionnaire for shopkeepers

This part of the study is designed to address the issue of street addressing, pedestrian orientation and its impact on commercial activates. There fore the questionnaire addresses the three study units and is summed up by asking questions that assesses the general perception of residents about the subject under discussion.

Personal information

Name/Code_____ Age_____Sex M F

Level of education_____Occupation_____

Current Location_____

Type of Business_____

Current official Address

Subcity Keble Wereda House No

Other detail

- ☞ Has the official address of your shop been changed? **Y N**
- ☞ How many times? _____
- ☞ What were the former official addresses of your business in this same place?

_____

- ☞ What is the best mechanism you use in order to make the presence of your business in the area visible?
- ☞ Does having a wrong address or having not at all affect your business? **Yes No**

Form IV: Questionnaire for customers who are in other parts of the city

This part of the study is designed to address the issue of street addressing, pedestrian orientation and its impact on commercial activities. There fore the questionnaire addresses the three study units and is summed up by asking questions that assesses the general perception of residents about the subject under discussion.

Personal information

Name/Code_____ Age_____Sex M F

Level of education_____Occupation_____

Current Location_____

Street Naming

Do you go to Merkato often?

Please describe for how I can go to a shop in Merkato where I can buy ------

_____

_____

_____

_____

Are you sure you can reach the same place by using the same description you gave, with out hesitation or you do that by trial and error?

_____

_____

Pedestrian Orientation

Are you comfortable to walk in Merkato ? **Yes No**

- ☞ How

☞ If you were to label this street or area what would you like to name it? Area_____

Street _____

Thank you for your response

Postscript

The main objective of this master's thesis was to establish a link between street naming mental maps, and business in commercial areas. Basic theories, a research method and collection of data that suffice the purpose have been used to the possible degree against all the limitations of time and the limited number of available literatures.

I was made aware by the board of examiners[20] that further work on extensive literature review could have given more depth to the arguments. I fully agree with the comments and wish I had the resources to explore the issues more. Moreover, questions were raised on using qualitative method against using appropriate sample size for the research; even though it is debatable I still wish to explore further, if maximizing the number of interviewees could have made a difference on the main findings. The other comment was about designing a set of recommendations based on the findings of this research and to create awareness among different stakeholders. This comment has made me to work towards the publication of the findings and on further implementation of the concepts derived on street addressing system and signage. I would like to mention that I would continue working towards it.

This final document has been modified after the comments on citation, formatting and illustrations. However, I still believe it can be done better. Though the standard requires more, I accept that it is one juncture in the learning process. In fact, as I mentioned in the acknowledgment, it is an end leading to a new beginning.

[20] I appreciate members of The Board of Examiners, Dr. Remy Sitcheping, Dr. Fisseha Wegayehu for their priceless time and critical comments. However, this postscript is not an answer to the questions the committee raised. It must be noted that it is not a full description of their valuable comments either. I would like to thank Dr. Remy for his advices towards making the document further refined and for encouraging me to get it published.

DECLARATION

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

Name _____

Signature _____

This thesis has been submitted for examination with my approval as a university advisor.

_____
Wubshet Berhanu (Ph.D.)

June 2005