



**Addis Ababa University
School of Graduate Studies**

**THE ARCHITECTURE OF HOUSING
The case of “Gerji”
Addis Ababa**

M.Sc. Thesis in
Urban Design and Planning

Advisor: Prof. Gurdeep Singh
By: Eyob Enkossa Deressa

Department of Architecture and Regional Planning
Faculty of Technology - South
School of Graduate Studies
Addis Ababa University

Addis Ababa, Ethiopia, January 2007

Abstract

Currently, Addis Ababa is entangled with multi faceted problem related to urban design issues. Even though some of the issues are mentioned in the revised master plan, physical development controls and the tools & mechanisms have been found weak enough in controlling and guiding the implementation of the goals and objective of the revised master plan. Moreover, the imbalance between the increasing population number and the inadequate social & physical services has brought a significant consequence in the social, economical & physical fabric of the city.

Both the unplanned & planned parts of the city are characterized as haphazardly developed, which is manifested by its poor image and design of urban environment. The fast development of the city, in specific with “Gerji”, has been developed without following a proper urban design guideline. The components of urban design have not been allocated adequately in their proper location address the need of the residents.

Therefore, the architecture of housing is the most basic unit qualified for an in-depth study, which in turn can contribute its share in guiding the change rationally to create convenience, comfort, efficiency play & pleasure. The six overlapping dimensions of urban design- Morphological, Perceptual, Social, Visual, Functional and Temporal- are the everyday subject matter of urban design in the process of problem solving that must be considered simultaneously making urban design holistic. Hence, a theoretical urban design guideline should be formulated to direct the rapid development of housing since it is a critical component in the social & economic fabric of nations.

Based on the findings & in an attempt to initiate dialogue among stakeholders, the study outlines a general urban design guideline for Addis Ababa, in specific with “Gerji”. The proposed conceptual guideline accommodating the dimensions of urban design with temporal changes has a goal of attaining a successful urban environment conducive to the citizens of Addis Ababa. No neighborhood has also been tested previously on the touchstones of urban design dimensions and it is the belief of the author that this thesis would make a difference in making a good urban place for people and to correct the already done mistakes. Hence, a multitude of parties are concerned, since it is an integrative joined up activity, at the heart of which is a concern for making places for people and shared rather than a particular responsibility.

Acknowledgment

I express my sincere thanks to Prof. Gurdeep Singh, my advisor, for his encouragement, unreserved consultation and follow up throughout the thesis preparation period. My thanks are also due to Dr. Heyaw Terrefe, Associate Dean of the Southern Technology Faculty, for guiding me about the format & out put of the thesis.

My thanks goes to the Department of Urban & Regional Planning and its staff who were always cooperative in many ways.

My special thanks go to my immediate boss, Ato Assefa Guya- General Manager of the Ethiopian Tourist Trading Enterprise for allowing me to attend my postgraduate studies along side my job.

I appreciate all these people and organizations that were helpful during data collection of this study. My special thanks goes to Ato Aleme Solomon who helped me a lot for consultation and graphic data analysis. I also thank the Marketing and Real-Estate Department of Sunshine Construction Plc. and the Addis Ababa Housing Development Agency for their cooperation in providing me the necessary information.

My thanks goes to my office – The Ethiopian Tourist Trading Enterprise and to my colleagues at the office for their patience & assistance in documentation, specially the Crafts, Arts, Production & Sale Department in general and the Design Section in particular.

I am indebted to my family members & friends for their inspiration & support during all this period.

Declaration

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

Name of candidate: **Eyob Enkossa Deressa**

Signature: _____

Contents

Table of contents

List of figures

List of Tables

List of Acronyms and Glossary of Local words

Definitions of Urban design terms and interpretations

Acknowledgement

Declaration

Abstract

CHAPTER 1:	1. INTRODUCTION	1
	1.1. Current Issue	2
	1.2. Organization of the Thesis	3
	1.3. Significance and Rationale of the study	4
	1.4. Choice of Case study Area	4
	1.5. General Objective of the Study	4
	1.6. Specific objectives of the Study	5
	1.7. Scope	5
	1.8. Limitations	5
	1.9. Statement of Problems	6
	1.10. Research questions	6
	1.11. Research Methods	7
 CHAPTER 2:	 2. LITERATURE REVIEW	
	2.1. Urban Design in the Global Context	8
	2.1.1. What is Urban Design?	8
	2.1.2. Different views of scholars about Urban Design	8
	2.1.3. The need for better Urban Design and the planning system	12
	2.1.4. Concept of sustainable development	14
	2.1.5. Urban Design and Land-Use policies	15

2.1.5.1. Mixed Land-Use policy	15
2.1.5.2. Urban Design as a policy issue	16
2.1.6. The dimensions of Urban Design	17
2.1.6.1. The Morphological Dimension	17
2.1.6.2. The Perceptual Dimension	20
2.1.6.3. The social Dimension	22
2.1.6.4. The Visual Dimension	26
2.1.6.5. The Functional Dimension	31
2.1.6.6. The Temporal Dimension	40
2.1.7. Using the guide	43
2.2. Literature Review in the context of Ethiopia	44
2.2.1. Analysis of Urban Growth	44
2.2.2. Urban Housing situation in Ethiopia	45
2.2.3. Addis Ababa in space – time perspective	47
2.2.4. Goals and Objectives of the revised 2002 Master Plan (ORRAMP)	49
2.2.5. Urban Development Control in Addis Ababa	51
2.2.6. The land use policy in Addis Ababa	51
2.2.6.1. Local Development Plan (LDP)	52
2.2.6.2. Planning & Construction Permit Regulation	52
2.2.6.3. Planning Consent	53
CHAPTER 3: 3. EXISTING SITUATION AND ANALYSIS OF THE CASE STUDY AREAS	
3.1. Description of the Study area	54
3.1.1. Establishment	54
3.1.2. Establishment	55
3.1.3. Soil type	58
3.1.4. Climate	58
3.1.5. Topography	58

3.1.6. Land use	59
3.1.7. Population size and demography characteristics	60
3.1.8. Ownership	60
3.1.9. Housing characteristics	61
3.1.10 Physical and Socio-Economic Characteristics	62
3.10.1 Socio Economic Characteristics	62
3.10.2 Physical Characteristics	72
3.2. Existing Facilities (Social & infrastructure services)	81
3.2.1. Available Educational Services	81
3.2.2. Available Health Services	81
3.2.3. Available Community centers	82
3.2.4. Available Religious Centers	82
3.2.5. Available Administration offices	83
3.2.6. Available Commercial services	83
3.3. Street pattern	84
3.4. Blocking	87
3.4.1. Orientation of Blocks	87
3.4.2. Plot Pattern	89
3.4.3. Types of building structures	89
3.5. Open spaces	91
3.6. Parking	92
3.7. Landscaping	94
3.8. Testing the neighborhood on the touchstone of urban design dimensions.	94
3.8.1. Social dimension	94
3.8.2. Morphological Dimension	98
3.8.3. Visual Dimension	105
3.8.4. Perceptual Dimension	114
3.8.5. Functional Dimension	116

3.8.6. Temporal Dimension	119
3.9. Can the Existing mass housing developments be a Benchmark?	119
3.9.1. Housing Cooperatives	119
3.9.2. Government Rental Houses	121
3.9.3. Sunshine Real estate Condominiums	122
3.9.4. Government Condominiums	125
3.9.4.1. Problems caused by residents in government condominiums.	129
3.10. Governmental Rental Apartments in the Bole sub-city	130
CHAPTER 4: 4. FINDINGS with DISCUSSION and CONCLUSION	139
4.1. Findings	139
4.2 Discussion based on the Findings	140
4.2. Conclusion	146
CHAPTER 5: 5. RECOMMENDATIONS	149
5.1. Recommendations	149
5.2. Proposed urban design guide lines	151
5.2.1. Limitation of neighborhood size	152
5.2.2. Goals, policies and objectives	153
Appendix	
Bibliography	

List of Tables

	<u>Page No.</u>
1 Demographic characteristics of the case study area -----	60
2 Showing sex of respondents-----	62
3 Table showing Households by marriage -----	62
4 Table Showing Rental cost -----	63
5 Table Showing Households by owner ship -----	63
6 Table Showing Number of Rooms -----	64
7 Table Number of family members- -----	64
8 Table Showing Households by age -----	64
9 Table Showing Households by job -----	65
10 Table Showing Households by Education -----	65
11 Table Showing Proportion of income -----	66
12 Table Showing Mode of transport -----	66
13 Table Showing Households by the time -----	67
14 Table Showing Willing to in community development ----	67
15 Table Showing Choice of participation in community devel	67
16 Table Showing Households having idir -----	68
17 Table Showing Need of service to be provided in priority -	68
18 Table Showing Available community center-----	69
19 Table Showing Security -----	69
20 Table Showing Households by Availability of market plac	70
21 Table Showing Available play lots -----	70
22 Table Showing Households by social interaction -----	70
23 Table Showing Mode of energy used -----	71
24 Table Showing Households willing to be relocated	71
25 Choice of relocation area-----	71
26 Table Showing Social space -----	72
27 Table Showing Proximity to the available social services--	72
28 Table Showing Households by infrastructure -----	73
29 Table Showing Utility service -----	73
30 Table Showing Households by quality of house -----	74

List of Tables

	<u>Page No.</u>
31 Table Showing Households by quality of neighborhood ---	74
32 Table Showing The type of road in front of the residential	74
33 Table Showing Exposure for fire -----	75
34 Table Households by construction material -----	75
35 Table Showing The type of floor finish -----	76
36 Table Showing Plot area-----	76
37 Table Showing Households by maintenance -----	77
38 Table Showing Households subtracting their plots for busi	77
39 Table Showing Strong beliefs of households about their hc	78
40 Table Showing Availability of landscaping -----	78
41 Table Showing Households by major problem -----	79
42 Table Showing car Access Road -----	80
43 Table Showing Available parking space -----	80
44 Table Showing by type of house -----	80
45 Table Showing Housing units of Sunshine condominiums.	90
46 Table Showing area & percentage of land uses -----	99
47 Table Showing Rental houses owned by the rental housing	121
48 Table Showing Built up area and floor area ratio of housing cooperatives and government rental houses -----	123
49 Table Showing Built up area and floor area ratio of sunshine real estate detached houses & condominiums	125
50 Table Showing Types of housing units and number of units in government condominiums-----	126
51 Table Showing Built up area and floor area ratio of government condominiums -----	129
52 Table showing parking & pace provided and needed in sunshine & government condominiums -----	130
53 Matrix-----	

List of Figures

	Page No
1 Bar chart Showing density of "Gerji" relative to other sub cities in the city	55
2 Location map of the case study area -----	56
3 Location map showing the relationship of the case study area with other areas of the city -----	56
4 Map showing 1st and 2nd Zone Aviation flight obstacles -----	57
5 Map showing Topography of the study area -----	58
6 Map showing direction of sun in "Gerji" area -----	59
7 Map showing spacial distribution of land uses in the case study area -	59
8 Map showing the type of ownership in the case study area -----	61
9 Detached house (G+1) -----	61
10 Row houses (G+0) -----	61
11 Semi -detached houses -----	61
12 Row houses (G+1) -----	61
13 Condominiums (G+3) -----	61
14 Unity University -----	81
15 High School -----	81
16 Horizon Youth Academy -----	81
17 Enbut School -----	81
18 East African kindergarten -----	81
19 Korean hospital -----	81
20 Mariam Mother & Child Hospital -----	81
21 Kebele 11 health post -----	81
22 Kebele entertainment -----	82
23 Public telephone booth-----	82
24 Foot ball field -----	82
25 Adwa park -----	82
26 Communal -----	82
27 St. Mariam church -----	82
28 St. Giorgis church -----	82
29 Mosque -----	82
30 Police station -----	83

List of Figures

	Page No
31 Kebele 11 administration -----	83
32 Kebele 10 administration -----	83
33 Imperial hotel -----	84
34 Street side shops -----	84
35 Flourmills -----	84
36 Shops on residential plots -----	84
37 Sami Building -----	84
38 Open market -----	84
39 Fuel station -----	84
40 Width of local street to human scale -----	85
41 Using a local street as a social space -----	85
42/43 Map showing good and bad connections -----	85
44 Street with shade -----	86
45 Cars on the local road -----	86
46 Movement (cars & pedestrians) -----	86
47 Deteriorated road -----	86
48 Deteriorated road -----	86
49 Asphalted road -----	86
50 Photo showing permeability -----	86
51 Map showing permeability -----	86
52 Linear arrangement of blocks -----	87
53 Swastika arrangement of blocks -----	87
54 Irregular arrangement of blocks -----	87
55 Unit block -----	87
56 Grid arrangement of blocks -----	87
57 Unit block -----	87
58 Map showing oreintation in condominium, reail estate and housing cooperative blocks	87
59 Map showing orientation in housing cooperative blocks.-----	87
60 Map showing orientation in condominium blocks-----	88
61 Map showing order of blocks and relationship between the leftover open space and the blocks-----	88

List of Figures

	Page No
62 Similar blocks enclosing an open space creating a clustered composition -----	88
63 Lack of relationship between the open space & the blocks -----	88
64 Rectangular shape dominates of sub division -----	89
65 Sub division of individual parcells -----	89
66 Diagonally arranged plots are used to break the boring effect of the similarity	89
67 Irrgular plot sub division-----	89
68 Unit plot development -----	89
69 Photos showing private building streety res structures case study area -----	89
70 Photos showing condominium building strectures -----	89
71 Lack of aesthetics -----	90
72 Modification of single story houses to high rises -----	90
73 Aesthetics -----	90
74 Similar heights -----	90
75 Texture as resthetics -----	90
76 A harmonious compastion -----	90
77 Balancing vertical elements -----	90
78 Disordered blocks-----	90
79 Lack of consistency -----	90
80/81 Maps showing available formal open space in the case study area of the case study area -----	91
82 Maps showing open space to built up area ratio of the case study area. -----	91
83 Photos showing some of the vacant spaces in the case study area. -----	92
84 Photos and maps showing available parking spaces in the case study area---	92
85 Compound communal parking in condominiums -----	93
86 On-street parking -----	93
87 Lack of proper taxi stop -----	93
88 Communal parking -----	93
89 On-street parking -----	93
90 Communal parking -----	93
91 Communal parking -----	93
92 Map showing the level of land scaping in the case study area -----	94
93 Map showing open space to built up area ratio of the case study area -----	94

List of Figures

	Page No
94 Map showing distribution & extent of family structure in the case study area--	95
95 Map showing distribution of social services. -----	97
96 Photo showing deteriorated road -----	97
97 Photo showing guard house -----	98
98 Map showing morphology -----	99
99 Map showing the intention of an arterial street bisecting the neighborhood ---	100
100 Map showing segregated residential districts -----	100
101 Photo showing permeability -----	101
102 Map showing street pattern at different districts of the neighborhood -----	101
103 Map showing samples of street pattern -----	102
104 Photos showing an innovative solution of parking-----	103
105 Map showing cul-de sac street in the government condominiums -----	104
106 Map showing different kinds of block arrangements-----	104
107 A rhythm in the linearly arranged blocks -----	105
108 Street unifying condominium blocks -----	105
109 Photos showing the condition of "Adawa park" -----	106
110 A place for people -----	106
111 Vacant space -----	106
112 Maps showing order & disorder in the arrangement of blocks -----	107
113 Photos showing attempts of land scaping -----	107
114 Photo showing places that lack plantations for shading -----	108
115 Improper floor scape -----	108
116 Fences lacking consistency -----	108
117 Map showing the available street furnitures in the case of study area -----	109
118 Map showing the available street furniture in the case study area -----	109
119 Map showing the extent of street definition in the case study area -----	110
120 Map showing bad junctions in the case study area -----	111
121 Map showing the available street furniturers in the case study area -----	111
122 Map showing distribution of building with similar height -----	112
123 Dynamism in blocks -----	112
124 Dynamism in street -----	112

List of Figures

	Page No
125 Map showing the relationship of positive & negative spaces -----	113
126 Expression of function -----	113
127 Staircase unifying blocks -----	113
128 Map showing the kinesthetic experience of spaces in the case study area ----	113
129 Photo showing on invented structure -----	114
130 Map showing the available structures to be modified as a land mark -----	115
130/1 Photo showing the transformation of streets and residential areas in to a commercial use -----	116
131 Map showing climatic condition of the case study area -----	117
132 Photo showing the condition of infrastructure in the case of study area -----	118
133 Photo showing the extent of privacy in the case study area -----	118
134 Photo showing better architectural quality of Sunshine condominiums. -----	124
135 Map comparing proposal and existing plan of Sunshine real estate's. -----	124
136 Map showing site plans of government rental apartments in the Bole sub - city	131
137 Photo showing architectural quality of government rental apartments.-----	132
138 Photo showing material and texture of government rental apartments -----	132
139 Photo showing Open space in the compounds of government rental	133
140 Photo showing main gates & fences of government rental apartments -----	133
141 Photo showing trees giving shades to cars that are parked -----	134
142 Photo showing decorated climbing flowers and trees -----	134
143 Photo showing buildings and trees in scale creating usual interest-----	135
144 Photo showing the absence of external stair case -----	135
145 Photo showing asphalted roads -----	135
146 Photo showing speed reduction elements inside the compound -----	136
147 Photo showing cafes, supermarkets, street furniture and sitting gardens -----	136
148 Photo showing drainage halls-----	137
149 Photo showing a proper place for Dish antenna-----	137
150 Photo showing Garbage containers -----	137
151 Photo showing landmarks near one of the apartment-----	138

List of Acronyms and Glossary of Local Words

Acronyms

AACG	-	Addis Ababa City Government. In some instances it is called Addis Ababa city Administration (AACA)
AARHA	-	Addis Ababa Rental Housing Administration
ACAD	-	Auto Computer Aided Design
Acre	-	Unit of area used, equal to 4,046 sq. m.
BAR	-	Building Area Ratio
DU	-	Dwelling unit
GIS	-	Geographical information System
Hectare	-	Unit of area used, equal to 2.47157 acres
Hh	-	House hold
K	-	Kebele
ORAAMP	-	Office for the Revision of the Addis Ababa Master Plan
W	-	Woreda
P/ha	-	Person per hectare.

Glossary

Birr	-	Ethiopian Currency
Idir	-	Traditional mutual aid association
Iqub	-	Traditional saving association (Wubshet)
Kebele	-	The smallest administrative unit
Ketema	-	Town
Sefer	-	Traditional settlement. neighborhood ,
Woreda	-	District

Chapter 1

Introduction

According to Frederick Gibberd, Urban design can be defined as “the coordination of essential functions in a pleasing form that improves the quality of life in an urban area”. As good architecture raises physical, mental, and spiritual level of its occupants, urban design on a larger scale improves the quality of life of the people. However, one of the most striking and significant problems in most housing developments is the ignorance of urban design principles, which has made the people to lack convenience, comfort, efficiency, play, & pleasure.

As the urban development a trend in most developing countries implicates, the implementation of newly developed neighborhoods in Addis Ababa is not formed by following urban design guidelines. As a result dwellers of these neighborhoods are observed to lack a successful place for living. To achieve a pleasant habitable neighborhood aspect of urban design principles should be addressed effectively. Summary of the key aspects of urban design are: places for people, enrich the existing environment, make connections between structures, working with the landscape elements, mix uses and forms, manage the investment and design for Change.¹

An Urban Design Elements in general, are guides to the physical development of the city in terms of preservation, growth, and change, as well as aesthetic qualities, urban design issues are much more difficult to quantify than other physical elements, like the placement of land uses. Urban design issues, however, are no less important than other elements. In many ways such issues may transcend other physical elements as they influence the perceived image of the City.

With each new generation of City growth, new generations of planning issues are created. Because people are more mobile in today's society, they have more opportunities to select where they live, work, and shop and spend leisure time. The physical appearance of a community and its convenience weigh heavily on this decision. As a result, good urban design plays an important part in the economic well being of a community. Thus, planning issues of great concern should have branched out to include urban design issues today. “Urban design draws together the many strands of place making, environmental

¹ Rob Cowan (2000) , “the Art of making places” ,p14, Placecheck: a Users Guide

responsibility, social equity and economic viability, for example - into the creation of places of beauty and distinct identity. ...Urban design is derived from but transcends related matters such as planning and transportation policy, architectural design, development economics, landscape and engineering. It draws these and other strands together. In summary, urban design is about creating a vision for an area and then deploying the skills and resources to realize that vision."²

Therefore, this thesis will try to analyze the components of housing & their proper configuration, with respect to the dimensions of urban design & requirements of the people. The six overlapping dimensions of urban design- Morphological, Perceptual, Social, Visual, Functional and Temporal- are the everyday subject matter of urban design in the process of problem solving that must be considered simultaneously making urban design holistic. The analysis will help to give directions & guidelines for the proper provision of different types of houses in a certain area based on the conventional principles. The study will disclose expectations from professionals & different actors to address the issue, so that the inputs from the community & the existing situation will lead to a pragmatic synthesis of existing components into a rational whole by integrating them into more functional & least circulation hazards.

To make this research realistic and practical, the data collection procedure followed selection of sample house holds for the assessment of socio-economic characteristics of the population and physical characteristics of the case study area supported with detailed graphic data analysis of each plot with in the neighborhood.

The author believes that the properly proposed solutions empirically would guide the future planners & designers of housing estates or neighborhoods to follow the footprints for better urban design.

1.1. Current issue

Before the introduction of the condominium housing, there had been an experience of cooperative housing by which a group of people organized themselves & built their own houses with a certain typology. The previous regime also provided some typologies of rental houses to solve the problem of housing. However, consideration of comfort, convenience,

² Llewelyn -Davies/English Partnerships (2000) , p12, Urban Design Compendium

play & pleasure for the dwellers was not a burning issue & therefore has left a lot of physical & abstract problems with the residents.

Recently, the Addis Ababa City Administration has launched a program called “The Grand Housing Program” to respond to the need of housing together with alleviation of poverty by job creation. Apart from this, private investors are given opportunities to participate in real-estate developments, which was impossible in the previous regime. Some of the private developers are supplying houses for those who can afford where as the need of the low income groups is not yet included in their program except in the government condominiums, where mix of different income groups is attempted to some extent. Still, the need of beneficiaries i.e. to have comfort, convenience, efficiency, play & pleasure in their environment has to be investigated.

Even though the city administration is trying to respond to the need of housing, urban design issues are not seriously given attention. Therefore, the existing problem of the city mostly laid on the urban design issues since the primary goal of the city administration is increasing the number of housing units only.

Currently, the Addis Ababa University is trying its best by producing urban architects to facilitate the development of the city, since the city administration lacks adequate well-trained urban designers to integrate the principles in any housing development project. Therefore, the City Council, the Planning Commission, the Addis Ababa University, urban designers, citizens, developers, and other professionals should work together to solve the current problem of the city.

1.2. Organization of the Thesis

Chapter 1: This chapter will deal with the need of study, the study issue, objective, scope & limitations, the research method after indicating problems and questions & methods of collection information.

Chapter 2: This chapter will give literature review of theoretical background concerning definition of urban design; a brief global explanation of urban Design components & dimensions of urban design and its concept in the context of Ethiopia.

Chapter 3: This chapter will deal with the case study area & analysis based on the existing situation with respect to the dimensions of urban design & requirements of the people.

Chapter 4: Findings with Discussion and a Conclusion will be dealt in this chapter.

Chapter 5: Recommendations with Urban Design Guidelines will be dealt in this chapter.

1.3. Significance and Rationale of the study

Addis Ababa is in a state of change. The change needs to be guided through planning and design. Hence, The Architecture of Housing is the most basic unit qualifying for an in - depth study, which in turn can contribute its share in guiding the change rationally to create convenience, comfort, efficiency, play & pleasure for the citizens.

There has not also been an organized research done referring the internationally accepted, overlapping dimensions of urban design that could help decision makers, developers, planners and designers of the city not to make mistakes in any housing development works.

Therefore, a theoretical guideline must be formulated to accompany the rapid development in the housing sector. The study will leave so many opportunities for any group who is interested to make further detailed studies about housing from urban design view point.

1.4. Choice of Case study area

A place where different types of houses are located & rapid housing developments have been going on by infill is selected as a case study area for making the analysis practical. Having an understanding of this concept, “Gerji” is selected as a case study area to forward relevant information that would help to apply urban design principles in the future developments of the city. For the sake of clarity the case study area would be compared with other developments in the sub city, if there were any and the analysis needed further explanation.

1.5. General Objective of the Study

The major objective of this paper is analyzing the components of housing existing and their proper location in the case study area called “Gerji” administered by the Bole Sub-city of kebele 10/11, to forward an urban design guideline that would create a balance between “Efficiency”, which is usually the need of the government and “Quality” that urban design provides for an urban place.

Further, the neighborhood would be tested on the touchstone of urban design dimensions & requirements for the existing population. The study also extends its impact in an urban development process and provides remedies & recommendations to be used by policy makers and professionals for the well being of the society and for future use.

1.6. Specific objectives of the study

- 1) To assess the spatial distribution of various land uses and their effects in the case study area.
- 2) To assess the physical components like blocking, parking, community facilities such as shopping, educational institutions, health centers, entertainments, and worship places, apart from necessary hierarchy of roads, design, & open spaces (play lots, play grounds, play fields, fitness trails, parks & gardens), landscape, aesthetics, environment, climate, infrastructure, etc. and recommendations would be forwarded as guidelines for the provision of proper housing in the future.
- 3) To assess the socio-economic factors that contributes to the character of the settlement.
- 4) To examine any lacunae or shortcoming of the available controlling mechanisms and regulations, and the housing developments in the case of provision, linkage or interaction between different spaces.
- 5) To identify a benchmark for future development and to enable stakeholders correct their mistake in the development process.
- 6) To propose some urban design guidelines for future developments of the case study area that can be applied to the city, too

1.7. Scope

This paper will assess the physical & abstract components of housing with respect to the dimensions of urban design. To support these arguments, it will concentrate only in the case study area called Gerji in comparison with a previous mass housing development in the Bole sub city. The study is limited to providing an over view of providing a proper urban design guideline for better housing in the city accomplishing the assignment of analyzing the components of housing, their proper location in the case study area and their role in providing quality for the urban architecture.

1.8. Limitations

Some governmental institutions, private construction companies & other agencies were not willing to provide maps, supporting documents & data on time. The available base map doesn't also include some parts of the settlement, especially the housing units in the southeastern part of the case study area. These areas have a character of ghetto with sloppy

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

deteriorated gravel roads, so that it was difficult to take pictures & ask for information freely because of some security problems.

Therefore, the mentioned problems limited the research process while getting an exact graphic data & making a physical investigation apart from the shorter time allocated to complete the thesis. Last, but not least, was a budgetary problem, that limited the process of undertaking various activities of the research.

1.9. Statement of problem

While modernizing the case study area, the need of the government and the people should be balanced to create a good urban environment. Apart from this, the role of urban designers should not be neglected in developing a certain urban area. However, most of the urban architectures created in the city have been seen lacking the input of designers while addressing the need of citizens i.e. comfort, convenience, efficiency, play and pleasure.

Even though the revised 2002 master plan has elements of urban design issues, most of the uses in the plan require detail policies, codes and regulations. The available control tools and mechanisms are found to be weak enough in controlling and guiding the implementation of the goals and objectives of the revised Master Plan.

Housing, as one of the main ingredients, which form a city, and as stages where communal life is established, needs to be studied carefully from urban design view of point, addressing the interest of the government and the citizens simultaneously.

This paper will focus on urban design issues in the housing systems of Addis Ababa, more in specific with “Gerji” with in the Bole sub - city. The development of housing in this specific area might or might not fulfill quality when tested on the touchstone of the overlapping dimensions of urban design. The components of urban design & their proper location might or might not also be fulfilled since there is a series need of increasing efficiency by the government in the process of attaining a sustainable development.

Therefore, the need for a comprehensive guiding policy that should address issues of efficiency without compromising quality is a critical urban issue while creating a place for people.

1.10. Research questions

There should be an answer how to compromise efficiency and quality in an urban environment. One can ask here whether professionals have been integrating the interest of the

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

government with the application of proper urban design principles or they have been designing an urban area neglecting one of the two.

The main research questions in this paper are: “Has the mass housing development trend of Gerji, been accompanied by urban design principles to create a successful urban place for the people or has it been implemented with an assumption that addressing efficiency only is good enough for living in an urban place”?, and “Have all the components of housing been provided adequately in their proper location keeping their standards, when tested on the touchstone of urban design dimensions?”

Other questions to be answered in this thesis are: “What are the socio-economic & physical characteristics of the case study area?” “What are the existing land uses, the extent of their spatial distribution & to what extent the change of land use affects the immediate surrounding?” “Who is responsible in the process of affecting the urban architecture and what about the existing controlling mechanisms, rules and regulations?” “Did creators of the neighborhood consider the future prospect of the case study area during the planning period and hence can Gerji be a bench mark for future developments of the city?” and “Is it important to formulate urban design guidelines to lead the development into success ?”

1.11. Research Methods

1. Primary data source and collection: Structured questionnaire, Interviews, & personal observations during field investigation.
2. Secondary data source: Written related literatures review
3. Data collection technique: Random sampling (households), photos, sketches as well as all kinds of graphic maps and plans.
4. Research design: A combination of case study and principle analysis approach.
5. Selection of Case study area: “Case study” is a research process that tries to give guidelines to local situations and helps to understand the existing local situation. This method is the most commendable and selected, since it allows having a closer contact with the actual situation.

Chapter 2

Literature Review

2.1. Urban design in the global context

2.1.1. What is urban Design?

As architecture is to a building or a group of buildings, urban design is to the town or a city or to a part of it, i.e. Urban Design is the architecture of towns and cities i.e. it focuses on housing, not on houses as architecture does. It is a function of human convenience, comfort, efficiency, play and pleasure of citizens. It is directed towards “Urban Renaissance”- firstly, it does with existing environment in terms of remodeling the prevailing conditions, & secondly, it takes up designing at new sites.

Urban design has different dimensions that are interdependent to each other for study purposes (Carmon 2000). These dimensions are vital in formulating the goals and objectives of urban design policies. Therefore, they will be discussed in detail in the next sessions since they are generic measures for the purpose of this paper when making analysis in the case study area.

2.1.2. Different views of scholars about urban Design

"Urban design, or the art of building cities, is the method by which man creates a built environment that fulfils his aspirations and represents his values. One value, which is becoming increasingly important, is care for the natural and built environment for the benefit of future generations. Urban design, therefore, can be described as a people's use of an accumulated technological knowledge to control and adapt the environment in sustainable ways for social, economic, political and spiritual requirements.”³

“Urban Design is the coming together of business, government, planning and design, the interface between architecture, town planning and related professions, the three-dimensional design of places for people in which to work, live, and to play, and their subsequent care and management, a vital bridge giving structure and reality to two-

³ Cliff Moughtin (1999), Urban Design Methods and Techniques, Architectural Press

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

dimensional master plans and abstract planning briefs, before detailed architectural or engineering design can take place, the design of the built-up area at the local scale, including the grouping of buildings for different uses, the movement systems and services associated with them, and the Spaces and urban landscape between them, within a context of continuous change in the social, political, administrative, economic and physical structure of towns and cities, the creative activity by which the form and character of the urban environment at the local scale may be devised, modified and controlled, in circumstances of social, economic, technological and/or political change....Urban design is an inclusive, collaborative discipline, breaking down the traditional barriers between all those professions engaged separately or collectively in its practice or elements of its practice... a personal view ... A new approach: places not buildings ... contextualism ... human scale ...access to facilities ... legibility ,... robustness and adaptability.”⁴

“...Urban design should be taken to mean the relationship between different buildings; the relationship between buildings and the streets, squares, parks and waterways and other spaces which make up the public domain the relationship of one part of a village, town or city with other parts; and the patterns of movement and activity which are thereby established; in short, the complex relationships between all the elements of built and inbuilt spaces”⁵

“Urban Design is concerned with the careful stewardship of the resources of the built environment in the creation and maintenance of those parts of the public realm that are new or have been cherished.” Urban Design is concerned with helping the users and not only have the producers of the urban environment achieved their aspirations. The client's goals of space management, investment and control should take account of the choices of the users of the environment. Urban Design operates within the procedures of urban development to achieve community objectives through understanding and using political and financial processes. The developer's goals must be understood and manipulated through the planning machinery to achieve quality in the public realm.”⁶ “The UDG believes that successful urban design depends on: common interests: taking account of the interests of the city as a whole, not just a development 's immediate client or users collaboration: bringing together a wide range of

⁴ Francis Tibbalds (1998) Mind the gap! A personal view of the value of urban design in the late twentieth century Planner 74 no12, p12, mid month supplement,

⁵ Department of the Environment, (1997), Planning Policy and Guidance: General Policy and Principles (PPG1), Stationery Office, para.14.

⁶ Urban Design Group (1994) ,Urban Design Sourcebook, p34.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

disciplines, expertise and experience throughout the design and development process, and in education creative thinking: drawing on the creativity and imagination of professional and citizen alike sharing vision: using drawings, models and written and spoken media to communicate and share ideas learning: making the shaping of the environment a learning process for everyone, from school children to professionals and from communities to decision-makers.”⁷

“Urban designing involves the planned intervention in the market place and in the legal processes of allocating and designing the combination of land and building uses and building configurations that constitute the three-dimensional physical nature of human settlements. Such a planned intervention is based on a model of the human being, an image of an ideal world, a model of the environment, and a set of values. These models and values are seldom clear and almost never stated explicitly. Urban design is concerned with the built environment of cities (and other human settlements) and the public welfare ... Urban design is always both a public and a political act.”⁸.

“Like most truly creative movements, urban design has no neat single definition. This is partly because it thrives in the gaps between more conventional disciplines like architecture and planning”.⁹

“Urban design is the generally accepted name for the process of giving physical design direction to urban growth, conservation and change. It is understood to include landscape as well as buildings, preservation and new construction, and rural areas as well as cities”.¹⁰

“We propose a discipline of urban design which is different, entirely, from the one known today. We believe that the task of creating wholeness in the city can only be dealt with as a process; it cannot be solved by design alone, but only when the process by which the city gets its form is fundamentally changed. Thus, in our view it is the process above all which is responsible for wholeness ... not merely the form. If we might create a suitable process there is some hope that the city might become whole again. If we do not change the process, there is no hope at all.”¹¹

⁷ Urban Design Group (2000), Urban Design Sourcebook 2000, p53.

⁸ Jon Lang (1994) Urban Design The American Experience, p70 Van Nostrand Reinhold,

⁹ Ian Bentley & Georgia Butina (1990) Urban design 2: keywords and phrases. Architects' Journal, vol.192, no.7, 24 Oct., pp 65-67.

¹⁰ Jonathan Barnett (1982). An introduction to urban design, p12., Harper & Row

¹¹ Christopher Alexander (1987) A New Theory of Urban Design. p3, OUP,

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

“A number of goals we deem essential for the future of a good urban environment: livability; identity and control; access to opportunity, imagination, and joy; authenticity and meaning; open communities and public life; self-reliance; and justice.”¹²

“The man-made environment is a political system in its own right ... the way it is managed, sets constraints on what you can and can't do. Multiplied to the scale of a building or - crucially - a city, this is indeed a political matter... Ideals are not enough: they have to be linked through appropriate design ideas to the fabric of the built environment itself. ...The design of a place affects the choices people can make, at many levels: Permeability... variety... legibility... robustness... visual appropriateness...richness... Personalization”.¹³

“Urban design is Architecture and not a separate mediating between planning and building. It is the physical expression of society's hopes and intentions and a means of using and developing human and architectural potential, involving areas of concern which do not recognize boundaries between public and private domains...Urban design should integrate physical design with the power of policy-making to shape the large-scale public/private environment and manage its growth and change.”¹⁴

“Urban design is a process of design that treats the development of the built environment in a comprehensive manner, as a means of achieving a unified, functionally efficient and aesthetically appealing physical setting.”¹⁵

“The key to a fresh architectural image of the city as a whole lies in working towards and organic unit of urban order which will hold together its component parts through successive changes in function and purpose from generation to generation. While such an archetypal image can never be fully realized, this concept of the city as a whole, restated in contemporary terms, will help to define the character of each institutional structure.”¹⁶

“The science of city planning and the art of city design, in real life for real cities, must become the science and art of catalyzing and nourishing these close-grained working relationships . . . There are four primary conditions required for generating useful great city

¹² Allan Jacobs and Donald Appleyard (1987) Toward an Urban Design Manifesto. American Planning Association Journal, Volume 53, No.1, p115.

¹³ Lan Bentley et al (1985) Responsive Environments. Butterworth, p9.

¹⁴ Michael Wilford. Off to the races, or going to the dogs? In David Gosling and Barry Maitland (1984) Urbanism.,p8. AD Publications,

¹⁵ Marilyn S Schulz & Vivien L Kasen (1984) Encyclopedia of community planning and environmental management. Facts on File, pp 412-413.

¹⁶ Lewis Mumford (1968), The Urban Prospect. p153. Seeker & Warburg,

diversity.”¹⁷ “There is an art of relationship just as there is an art of architecture. Its purpose is to take all the elements that go to create the environment: buildings, trees, nature, water, traffic advertisements and so on, and to weave them together in such a way that drama is released ... the aim is not to dictate the shape of the town or environment, but is a modest one: simply to manipulate within the tolerances”¹⁸

For the purpose of this thesis, it is the belief of the author that Urban Design is a function of comfort, convenience, efficiency, play and pleasure of the citizens that can be tasted on the touchstone of urban design dimensions and applied in an urban place by balancing the interest of the basic resource managers of housing and the physiological and psychological needs of the people to whom a better place is created with a participatory approach and an intelligent response to local conditions in order to achieve a sustainable development that balances short term and long term interests.

2.1.3. The need for better Urban Design and the Planning System

The need for the emergence of urban design has come as result of the failure of the conventional urban planning to create quality urban environment that has its own identity. Successful urban design requires a full understanding of the conditions under which decisions are made and development is delivered. Many factors determine or influence the outcome of the design process and the places we make. Success, nowadays, rarely happens by chance. It depends on:

1. A clear framework provided by development plans & supplementary guidelines delivered consistently, including through development control.
2. A sensitive response to the local context.
3. Judgments of what is feasible in terms of economic and market conditions.
4. An imaginative and appropriate design approach by those who design development and the people who manage the planning process.

It is vital to bring these factors together. If policy is not set out clearly for applicants a proposed development may conflict unwittingly with a local authority's aspirations for good design. If too little weight is given to feasibility, the development may fail commercially. If too little weight is given to local context, the proposal may be opposed locally. If the design

¹⁷ Jane Jacobs (1961) *Death and Life of Great American Cities*, p14. Random House,

¹⁸ Gordon Cullen (1961) *Townscape*, p10 Architectural Press.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

approach is wrong, the site's opportunities will be missed and poor or mediocre development will result.

The planning system needs to provide the means to encourage good design everywhere. The appearance of proposed development and its relationship to its surroundings are relevant to the consideration of a planning application. Thus, from this, it is clear that local-planning officers should reject poor and encourage good designs. There should be appropriate 'tools' within the planning system to help deliver better design. In this respect, it is important that the development plans should set out the design policies against which development proposals will be assessed.

The development control process is vital. The way it is used determines whether and how the design policies in development plans and others are reflected and applied. The most thoroughly developed design policies will achieve little, if they are ignored in the development control process. Applicants for planning permission should be able to demonstrate how they have had regard to relevant development plan policies.

Using the planning system effectively to create the conditions for better urban design requires positive management, meaningful collaboration and the right skills. There is no attempt to define a single blue print for good urban design rather; we seek to describe some of the objectives of urban design. They relate to how people use buildings and urban spaces, and what they feel about the places they live and work in, and visit. What is attempted here is the need to plan sustainable developments.

The objectives are supported by a series of considerations that can act as prompts to thinking about urban design. These prompts help to relate the objectives to the form of development layout, scale, density, appearance and landscape. Achieving a successful relationship between objectives and development form depends on an intelligent response to local conditions.

We need to aim encourage a move away from a negative reliance on standards towards a more positive emphasis on performance criteria. Standards specify precisely how a development is to be designed like setting out minimum distances between buildings. Performance criteria are the extent to which a development fulfills a specific planning requirement such as maintaining privacy. Imaginative designers can respond to performance criteria with a variety of design solutions.

Ultimately achieving good design depends on the skill of the designer and the commitment to good design of all those concerned with new development. Many courses and better practice guidance cannot substitute for skilled designers and their ability to analyze places to understand how they are used and experienced and to design with flair and sensitivity.

2.1.4. Concept of Sustainable development

The concepts of sustainable development include not only environmental, but also social and economic sustainability. Urban designers need to have work with regard to social impacts, long-term economic viability, & environmental impacts.

1. Balance between short term and long term interests
2. Future generations are to enjoy environmental quality of life employed today; sustainable design and development strategies are of paramount importance.
3. Key difficulty to that environmental are often marginalized and seen as someone else problem.
4. Developments have a much lather environmental impact that is immediately apparent.
5. More sustainable urban design involves reducing the total environmental foot print by, for example reducing dependence on the wider environment for recourses, and reducing pollution of it by waste products to achieve this development (in its construction & throughout its life time) should be as self sufficient as possible.
6. Sustainable & self-sufficient development – the aim is to increase the level of autonomy by reducing that impact of the inner spheres on the outer spheres.
7. Although many urban design actions are relatively small scale, their aggregation results in major effects on the overall natural system of the neighborhood, town, city, region and eventually on the earth's biosphere
8. Some propose that urban environments should be explicitly viewed as natural eco-system.

Sustainable design principles are: Stewardship, Resource efficiency, Diversity and choice, Human needs, Resilience, Pollution reduction, Concentration, Distinctiveness, Biotic support and Self sufficiency.

2.1.5. Urban Design and Land-use policies

Land-use policies have significance role in affecting the economical, social and environmental conditions. It also molds the physical and use structure of a city development process of urban areas. Formulation of comprehensive Lands-use policy that describes not only broad Land-use policy intents but also an explanation of interrelationship of detailed policy area is very essential.¹⁹. In history of city planning there are two types of Land-use policies. These are the functional zoning policy and the mixed-use Land use policy. Urban land policies include urban renewal, public housing, and assessment and annex ion policy.

The functional zoning policy is the most common (traditional) approach to city plans that is considered as modern city planning. Most cities of the world after World War II were planned according to the principles of modern planning concepts that mainly follow functional Land-use zoning.

Modernist urban design functional zoning is a modern planning concept that comes after world war. It follows the principles of dividing parts of a city into different mono function areas, such as industrial, commercial, housing. In contemporary planning such classification is being criticized. Its weaknesses are in creating lively and well used public realm, urban sprawl, and decreased vitality

Many countries have revised their land use policies from zoning to mixed Land use approach, but still in most countries the validity of the original functional need to separate harmful unpleasant industries from housing has remained. Still strict functional zoning by every use is being practiced in many countries.

2.1.5.1. Mixed Land-use policy

The mixed Land use policy is currently the most widely accepted approach in many countries. Its acceptance has emerged against the criticism on the modern approaches. The mixed use development has gotten its acceptance for creating and sustaining viable mixed use cities, which is its respond to the key aspects of creating lively and well planned public realm, i.e. the result of the spatial and temporal concentration of different land uses and activities. The mixing of uses has become a widely accepted urban design objectives.

¹⁹ Richard, 1971

Mixed use may be either single building with multiple uses or single use building. The followings factors are identified as the benefits of mixed land use development ²⁰: More convenient access to facilities; Minimize travel to work congestion; Greater opportunity for social interaction; Socially diverse communities; A greater feeling of safety through more "eyes on the Street"; Greater energy efficiency and more efficient use of space and building; More consumer choice of life style, location and building type; Grater urban vitality and street life and; Increased vitality of urban facilities and support for small business.

Mixed land use policies have defects that may cause problems. The most common problem is compatibility of different uses. Some land uses, which are not compatible, may be located next to one another. Therefore, for mixed land use policy to be effective there should be strong policy regulations instruments to guide and control the physical development.

2.1.5.2. Urban Design as a policy issue

The nature of urban problems is complex and interdependent; as a result the need for different sectoral policies in urban environment has become apparent, especially, in cities adapting mixed land-use policy. The nature of mixed land-use policy requires a comprehensive policy framework that will guide the development process in terms of formulating implementation tools and devising control mechanisms. Urban design policy is a guide to the physical development of city in terms of preservation, growth and change, as well as aesthetic qualities.²¹

Urban design policies are not rigid rules designed to enforce in all situations, but they should be designed to provide guidance in the majority of circumstances. The goals of urban design policy may be different. Urban design policy goals may be classified under the following categories: Image; Socio cultural issues; Conservation and preservation and; Design (includes aesthetic and environmental issues)

The goal and objectives of urban design policies emanate from the six overlapping dimensions of urban design. In general the main aim of urban design policies are to achieve sustainable urban environment i.e. to achieve a balanced development between short term and long term interests.

²⁰ Carmon, 2000

²¹ Urban design elements,1998

2.1.6. The Dimensions of Urban Design

Urban Design issues are much more difficult to quantify than other physical elements, such as the placement of land uses. Since people are more mobile in today's society, they have more opportunities to select where they live, work, and shop and spend leisure time. The physical appearance of a community and its convenience weigh heavily on this decision. As a result, good urban design plays an important part in the economic well-being of a community. Thus, planning issues of great concern thirty years ago have branched out to include urban design issues today.

Urban Design considers all elements of planning, such as, land use, transportation, housing, economic development, utilities, and the environment. In general the basic elements of urban design are aesthetics, open spaces, climate, Street pattern/street design, parking, landscaping, infrastructures, time dimension & control & maintenance.

Urban Design has different dimensions that are interdependent to each other for study purposes.²² They are classified into six main dimensions. These dimensions should be considered to create convenience, comfort, efficiency, play, and pleasant to citizens. They are Morphological, Perceptual, Social, Visual, Functional and Temporal. They are the everyday subject matter of urban design that must be considered simultaneously to make urban design holistic.

2.1.6. 1. The Morphological Dimension

This dimension is used to evaluate key issues of urban design form, urban layout and urban space design. Some of the points to be considered in this dimension are urban block patterns and grid, permeable street layouts. Therefore, we can study why hierarchical, segregated & introverted layouts have come about.

When plots are transferred to others, new morphologies are created by individuals, developers or decision makers. Most of the street sides of Addis Ababa can be a good evidence for this practice. Plots may be sub divided or several may be amalgamated increasing the size of plots. The lay out of these urban blocks, the public spaces in between and a street pattern is the first element to start with an urban design project.

Visual permeability & Physical permeability are the most important urban design qualities. They are used to measure the opportunity for movement. Another related measure,

²² Carmona, 2000

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

is accessibility. Fine urban grains offer a greater choice of routes than coarse urban grains by creating a more permeable environment

Regular grids like that of most of the developments of the city Addis have often been criticized for monotony, even though they have some degree of geometric discipline. Therefore, they do not have to be entirely regular to create visual interest. Curves can be designed to enclose views, add visual interest, reduce visual permeability and discourage non- residents from entering into the neighborhoods. Cul-de- sacs change the public space from a grid to a hierarchical and discontinues pattern.

Even though urban block systems have an inherent discipline with some regulations, more individualistic strategies have been seen to come in to pay for the reason of neglecting the rules and regulations. The biggest problem in the city Addis Ababa is the improper application of regulations with the loser controlling mechanism to stop illegal modifications.

The existence of dissimilar structures motivated developers to design and build freestanding structures. Free standing buildings are created due to the desire of them to be distinctive by developers and based on the ideas of providing healthier living conditions, of aesthetic preference & to accommodate cars in urban areas & planning standards.

Recent urban design has led to attempts to organize the parts so that the whole is greater than the sum of its individual buildings & development. There are two approaches: Under Rowe's influence, considering buildings both as objects & back ground matrix of built form defining space (Texture), where as Under Aldo Rossi's influence, an approach of considering architectural types and typology. The architectural type is morphological and refers to form.

In contrast to Camillo Sitte (1889) & Zucker (1959) who concentrated on the aesthetic effect of urban spaces, krier used elementary geometry as a starting point. His brother, Leon, also identified four systems of urban spaces: Urban blocks are the result of the patterns of streets & squares; the pattern of streets & squares is the result of the position of blocks; the streets & squares are precise formal types, and; the buildings are precise formal types (random distribution, standing in space)

Morphological approaches tend to be premised on patterns of urban form rather than on economic, social or functional arguments that generate form. The suitability of the forms is not also known & it is debatable whether they can be applied in differing cultures, climate & social conditions. Bentley counters the suggestion that type approach desires potential for

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

individual genius, by arguing that the types change over time and that how they change is a function of individual human action.

In the public space network's morphological structure, the transformation from finely meshed grids to road networks surrounding super blocks was a product of the need to accommodate vehicular movement. Pavements were also created to keep pedestrian safe.

Clarence Perry's neighborhood unit of 1929 was a super block surrounded by major arterial roads with a hierarchy of roads; each sized according to the intended traffic load and deliberately less well integrated than in a grid layout. He also saw through traffic as an obstacle to community formation, and busy traffic routes as boundaries for residential areas.

New urbanisms have strongly criticized the use of cul-de-sacs and are committed advocates of interconnected and grid street patterns. However, it seems to be much loved by suburban residents & developers. Nevertheless, it is possible to design new residential districts and perhaps less easily, to retrofit old ones- with interconnected pedestrian networks as well as limited access systems.²³

Most of the time more concern is given to traffic than to pedestrians. Research in central Aberdeen showed that while the ratio of pedestrian to vehicular moment was 4:1, the space available was 1:4. Sustainable urban design requires patterns of development that is able to accommodate & integrate the demands of various environment systems, while supporting social interaction and exchange. For instance the system containing taxis need to overlap both the vehicular traffic system and the pedestrian circulation system, as can be seen in our city. However the roads are not wide enough to accommodate both.

Considering urban design projects in terms of urban blocks defining space rather than individual buildings in space, their layout is important both in determining the patterns of movement and in setting parameters for subsequent development.

The size and shape of urban blocks contributes significantly to an environment's character. Microclimate, wind and sun penetration also need to be considered. For instance tall, narrow streets in northerly or southerly climes will have limited sunlight providing spaces for developments and convenient circulation and social spaces. Smaller sizes are also often advocated to attain urban utility, permeability, visual interest and legibility.²⁴

²³ South Worth and Ben-Joseph, 1997, p, 126)

²⁴ Jane Jacob, *The Death and Life of Great American cities*, 1961, p.191-9.

Small blocks are preferred for their greater urbanity, for economic reason.²⁵ Larger blocks are often perimeter blocks with a central space used for car parking, private or communal gardens, sport facilities etc. They provide greater opportunity for bio-diversity. Martin and March (1972) provided mathematical arguments about their efficiency than tower blocks in terms of the distribution of built form & open spaces.

2.1.6. 2. The perceptual dimension

This dimension is used to evaluate key issues of environment perception and in particular, of perception and experience of place. It focuses on discussing environmental perception and the construction of place in terms of sense of place, placelessness and the phenomenon of invented places.

Visual perception relies on distance, color, shape, texture and contrast gradients, etc. Orientation in space is achieved visually. Some of our experience of texture comes through our feet or when we sit down.²⁶

Four dimensions of perception are identified: cognitive; affective; interpretative and evaluative.²⁷ Difference in environmental perception depends on factors such as age, gender, ethnicity, and life style, length of staying in an area and on the physical, social and cultural environment. In urban design, mental maps & images of places are environmental and particularly shared images are central to studies of environmental perception.

There are five key physical elements: Paths, Edges, Nodes, Districts, Land marks. These elements have left a strong image in observers' minds and none of them were thought to exist in isolation.²⁸

Environments could be memorable or forgettable, liked or disliked. However, Lynch's method tended only to record issues of meaning & symbolism are in fact important components of environmental images.

Meanings attached to the built environment become modified as social values evolve in response to changing patterns of socio economic organization and life style.²⁹ While studying signs & meanings, a key idea is the layering of meaning and it enables to distinguish the immediate function of objects from their socially sustained understanding.

²⁵ Krier, 1990, p.198

²⁶ Porteous, 1996.

²⁷ Ittelson, 1978 from Bell et al, 1990, p. 29

²⁸ Kevin Lynch, *The image of the city*, 1960.

²⁹ Knox, 1984, p.112).

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Eco (1960) shows a symbolic nature can be more important than functional nature. If we take real-estate developments, they sell images of desirable life style than the housing units.³⁰ Economic & commercial forces are, therefore, highly influential in creating the symbolism of the built environment.

Knox and Pinch (2000, p.273) note the difference between intended messages sent by developers and the received message of environmental consumers. For Barthes (1968), reading an environment involves understanding how it comes to mean different things to different people and how meanings change.

Places were essentially centers of meaning constructed out of lived experience.³¹ Individuals, groups or societies change spaces into place. Territoriality is frequently the basis for the development of distractive social milieus that mould the attitudes & shape the behaviors of their inhabitants.³² Personalization of private space expresses tastes and values, and has little outside impact. Although originally built up by someone else, individuals adapt & modify their given environment.

Three design strategies are identified to assist a sense of identity for people & groups: creating a responsive environment with deep understanding of the context, participatory approach, and creation of environments that users can modify and adopt.³³ Senses of place reside on the human interaction with these three elements. Bringing people on to the street created on animation and vitality.³⁴

The keys to a successful public realm are economic, social & cultural bases. There are ten key indicators of vitality: extent of variety in primary land uses; proportion of shops, patterns of opening hours & existence of evening activities; presence, size and specialization of street markets; availability of leisure places; availability of spaces (gardens, squares, corners); patterns of mixed use potential; availability of differing unit sizes & costs of property; degree of innovation & new confidence in architecture, and; presence of an active street life & street frontage.³⁵

³⁰ Dovey, 1999

³¹ Ralph, 1976, Place & Placelessness.

³² Knox & Pinch, 2000, pp.8-9

³³ Von Meiss, 1990, p.162.

³⁴ Jacobs, 1961.

³⁵ Montgomery, 1998, p 99.

Placelessness is defined as the casual eradication of distinct places and the meaning of standardized landscapes.³⁶ Globalization, mass culture and loss of the social and cultural relations contribute to contemporary phenomenon of placelessness. Homogenization process, mass production, and crowding out may destroy local cultures. Uniform products and places are created for people with uniform needs & tastes. Placelessness is also a reaction to the loss, or absence of environments we care about since people lack belongingness and no longer take care of their environment.³⁷

Invented places and Reinvented places depend on a high degree of control-particularity of context and on a certain scale of operation. The concept raises issues such as superficiality, other directedness- created from without, & lacking authenticity.

2.1.6. 3. The social dimension

While considering the relationship between people or space, we consider environmental determinism, environmental possibility and environmental problems. Environmental opportunities really affect what people can and can not do. People also choose among the environmental opportunities available. An original setting minimal activity may be maximized. When the environment is changed, behavior also changes. However, if people do not go to participate in the activity, places will have minimal activities. Therefore while urban design creates potential environments, people create effective environments.

The public realm has physical and social dimensions, spaces & settings support or facilitate public life and social interaction. It really function social learning, personal development and information exchange.³⁸ Ellin (1996, p.149) observed that many social & civic functions have been transferred to private learning & understand at home through TV& interned. Cars also have been seen challenging public spaces. Privatization impulses also affect the public spaces. When people use public spaces less, there occurs less incentive to provide new space and maintain existing ones. Therefore with the decline in the main tense & quality, public spaces are less likely to be used by causing decline of the space.

In broad terms, the public realm includes all the spaces accessible to and used by the public. The concern in urban design is usually with social spaces regardless of whether they

³⁶ Ralph, 1976, p. ii.

³⁷ Crang 1998, p.112

³⁸ Loukaitou- Sideris& Benerjee, 1998, p.175

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

are public or provide spaces that are publicly accessible. Mostly the interest of urban design is informal public life, which occur beyond the realm of formal institutions & entails choice.

Clarence Perry developed the most significant idea of a neighborhood during 1920's proposing four basic elements that a neighborhood should contain: an elementary school; small stores; playgrounds and; a configuration of buildings streets that allowed all public facilities to be with in safe pedestrian's access. Six physical attributes were also specified, namely, population size required to support an elementary school, boundaries, open spaces, centrally located institutional sites, local shops at the edges and, internal street system proportional to the expected traffic load.

Three interrelated stands of thinking have informed neighborhood design. Firstly, neighborhoods provide identity & character, a relatively pragmatic way of planning urban areas- a mixed use or a balancing area, and they can be seen as a means of creating areas of greater social interaction.

Talen (2000, p. 179) suggests that using specific elements of community makes better sense in the context of urban design, for instance, provision of opportunities for increased visual & eye contacts influence residential interaction. Recent developments of neighborhood design have constantly emphasized the principle of mixed use, which is considered valuable for environmental & social sustainability proposes. Leon Kier (1990) argued that there should only be mixed use urban quarters, integrating all the daily functions of urban life (dwelling, working, leisure) within a territory not exceeding 35 hectares and 15,000 inhabitants.

Other issues regarding neighborhood concepts are size in terms of population area, a combination of both or as a derivation of more social communities; boundaries enhancing the development of functional & social interaction, a sense of community & identification with the area; social relevance and meaning and; social mix & balanced communities. However, some scholars argued that the definition of a neighborhood would support social segregation. Self sufficient neighborhoods have also been criticized because of mobility & electronic communications.

Even though mixed neighborhoods provide greater diversity of building forms & scale making the area more visually interesting with local distinctiveness & character, it is difficult for adverse social mix to be achieved or sustained in a relatively free property market and contemporary desires to live with people. Lynch (1981, p.250), commented that it

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

was the concept of the large autonomous, sharply defined & rigid neighborhood unit of a standard size to which all physical & social relations are keyed.

Safety & security are very much needed in any neighborhood to be functional and livable security relates to the protection of oneself, one's family & friends, and individual and community property. Lack of security, perceptions of danger, & fear of victimization threaten both the use of the public realm & the creation of successful urban environments. Privatization usually entails the control of certain territories or spaces by means of segregation, such as physical distance, walls & gates. Gated communities prevent public access to streets, parks, beaches, trails, etc., which would otherwise be shared by all local citizens. Gates are private solutions that impose significant public & social costs.

If people do not use places for the reason of fear like dark areas, anxiety like beggars, a single crossing road for busy roads, lack of alternative entrance & pavement & signs of social & physical disorder, the public realm is impoverished & an environment which lacks control will be created. Responding to fear of victimization that causes exclusion from much of the public realm, many people take pre cautionary action through risk management.

There are two approaches to crime privation. The first focuses on reducing motives to commit crime through education & sanction, whereas the second focuses attention on the opportunity for crime introducing discrete managerial & environmental change to reduce opportunities.

In theory, reducing the motivation to offend is innately superior but because this is often difficult to effect, opportunity reduction measures are justified in practical grounds. For Jane Jacob (1961, p.40), a pre requisite of a successful neighborhood was that a person must feel personally safe and secure on the street among all these strangers. She developed situational approaches by mentioning three points: territoriality, surveillance and, activity. Newman (1973) also proposed restricting urban environments, so that they can again become livable & controlled, not by police, but by a community of people sharing a common terrain.

The CPTED approach has also an idea that says the physical environment can be manipulated to reduce the incidence and fear of crime by reducing the support it provides for criminal behavior.³⁹ Both approaches mentioned above have tended to support hierarchical (i.e. segregated) & discontinuous street lay outs. However, Hiller (1988, 1996 a) said that the more the natural presences of people is eliminated, the greater the danger. Opportunity

³⁹Crowe,1991, pp 28-9.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

reduction approaches are criticized for the reason of being oppressive to others and for being a cause for displacing crime by changing the target group, tactic, time and type of crime committed.

Oc & Tiesdell (1999, 2000) identified four urban design approaches to creating safer environments and, out of them, the management or regulatory and the animation or peopling approach offer more positive notions of urban and public spaces.

Another issues, accessibility & exclusion are also important to discuss in social dimension, some environments are intentionally or unintentionally less accessible to certain sections of society. Exclusion often establishes connotations of exclusivity or security. It is a manifestation of power through the control of space & access to it.

The idea that environments should increase choice & be inclusive is central in much of urban design thinking. Visual access, Symbolic access, and Physical access are identified as three forms of access.⁴⁰ There are two types of control, namely, Hard (active) control and, Soft (passive) control.⁴¹

Excluding undesirable groups for the well being & security of a society, & for profit making is usually risk adverse, tending to exclude too many rather than too few. A different form of direct exclusion is also possible by charging an entry fee, where as a subtle form of exclusion is practiced through visual cues symbolizing & communicating the ability to pay.

Urban design should also provide an equitable environment. It should increase the choices available to all social groups without forgetting the disables, women, the elderly & those without car access. The disabled experience the built environment as a series of obstacle courses.⁴² In an urban design context , addressing environmental disabilities involved understanding social disability & the ways in which the environment is disabling, designing for exclusion rather than exclusion or segregation, and ensuring proactive and integrated consideration rather than reactive "tacked on" provision.

Accessibility is an important point when providing an urban environment since it is related to mobility. Women and lower income groups tend to have reduced mobility & access, since they rely on public transport. Provision for the car has often interrupted linkages that made other forms of transport possible creating a gap in the walk to bus stop, the wait

⁴⁰ Carr et al,1992, p. 138.

⁴¹ Loukaitou- sideris & Banerjee,1999, pp.183-5.

⁴² Hall & Jmrie,1999, p. 409.

there and in train stations etc.⁴³ Each gap is a source of uncertainty, inconvenience, perhaps danger.

Strategies of segregation lead to social segregation and fragmentation. Segregation comprises the public realm's function of social learning, personal development and information change. It begets ignorance and thus fears, regarding social differences.⁴⁴ Desire of exclusiveness & segregation, and the ability of urban design & urban designers raise important ethical issues to balance collective & individual interests.

In general the social dimension of urban design shows the way to provide an accessible, safer, secured, equitable public realm for all, even though economic & social trends in many parts of the world are making this increasingly difficult to deliver.

2.1.6. 4. The Visual Dimension

City form and appearance must satisfy the broader public who regularly experience it. Therefore, this dimension is important in the creation of a successful urban architecture since it focuses on aesthetic preferences, aesthetic qualities of urban spaces, architecture and the hard & soft landscaping.

Aesthetic appreciation of the urban environment is primarily visual and kinesthetic. Visual appreciation of an urban environment is a product of perception and cognition. Such information is influenced by how we feel about the particular environment & how we value it. Aesthetic appreciation also has socially & culturally learnt components that go beyond simple expression of individual taste.

There are five attributes of liked environments: Naturalness, up-keep (civilities), openness & defined space, historic significance (content) and, order in terms of organization, coherence, congruency, legibility, clarity.⁴⁵ Our intuitive capacity for aesthetic appreciation has four distinct components: sense of rhyme and pattern, appreciation of rhythm, recognition of balance, & sensitivity to harmonic relationships.⁴⁶

To avoid monotony, contrast & variety are essential in achieving interesting rhythms. Although symmetry can be a powerful tool in achieving balance, symmetrical composition can appear mechanical & leaden. Asymmetrical compositions may use symmetrical elements to achieve visual balance. Balance can be perceived in highly complex

⁴³ Sheller & Urry, 2000, p.745.

⁴⁴ Ellin, 1996, pp.145-6.

⁴⁵ Jack Nasar, 1998, pp. 62-73.

⁴⁶ Smith, 1980, p.74.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

organizations of colors, textures & shapes. It can also be formed by using only static or dynamic forms to give a more static or a more dynamic balance, respectively.

As our experience of urban environment is a dynamic activity involving movement and time, the kinesthetic experience of moving through space is an important part of the visual dimension. The urban environment should be designed from the point of view of the moving person, for whom the whole city becomes a plastic experience, a journey through pressures & vacuums, a sequence of exposure & enclosure, of constraint and relief.⁴⁷ Drivers see the environment at speed, where as passengers have greater scope to observe the environment. Four of Busselmann's walks in Rome, London, Copenhagen & Kyoto are the same lengths in terms of distance, but the perception of time taken & the experience of the walk vary.

In an urban space we find positive and negative spaces as the two forms of spaces. Streets & square are the two main positive urban spaces. A good example of a negative space is the amorphous residue left over around buildings which are viewed as positive.

For all hard urban spaces the surrounding structures, the floor and the imaginary sphere of the sky overhead define the spaces. The most comfortable viewing distance for a building is from a distance of about twice its height. The weakest definition occurs when building are organized in a row or site indiscriminately with as effort to coordinate relationships.

Grouping building around a central space creates a series of spatial containment. When a corner is open between two buildings, a space leaks out through the corner. To better contain, facades can be overlapped preventing views. If streets do not pass directly through the space, a strong sense of containment is created & forces pedestrians entering to experience the space. In smaller outdoor spaces, such as gardens, parks etc., enclosure seems to create a feeling of security. A balance between enclosure and that of permeability & legibility influence how well the space is used

Streets & square are the two main positive urban spaces. Streets are roads, paths, avenues, lanes, boulevards, alleys, etc. Width to length ratios on plan of greater than 1:3 begin to suggest dynamic movement as one axis begins to dominate, defining the upper limit for the proportion of a square & by reference, the lower limit for a street. Streets & squares are also characterized as either formal or informal.

⁴⁷ Cullen, 1961, p.12.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Camillo sitte (1989) advocated a picturesque approach to urban space design of squares and argued that building should be joined to one another, no relationship should be more than three to one, favored irregular layouts rejoicing in the variety of combinations found in medieval and renaissance towns and recommended supplying a focus using monuments or public statues preferably off-center or along the edge (the center should be free).

Paul Zucker outlines five basic types of artistically relevant urban squares. These are the Closed square , the Dominant square , the Nuclear square , the Grouped square , and, the Amorphous square. However, squares rarely represent one pure type and frequently bear the characteristics of two or more.

Streets can be visually dynamic or static, enclosed or open, long or short, wide or narrow, straight or curved and, with regard to the formality or informality of architectural treatment. To these might be added considerations, such as scale, proportion, architectural rhythm and, connections to other streets & square.

Vertical emphasis in the street wall checks the horizontal flow of space & horizontal emphasis tends to increase it. Irregular skylines slow eye incidents, setbacks break down converging perspectives and spaces may be modulated in to a number of discrete sections, or given street termination features that punctuate the flow of space.

The continuity of the street wall & the height-to-width ratios determine the sense of spatial enclosure, while the width determines how the surrounding architecture is seen. In narrow streets, vertical features become more prominent, projections are exaggerated; eye details more important, the observer sees facades at an acute angle and, when facing along the street, only sees parts of them.

Streets that wind or have irregular frontage enhance their sense of enclosure and provide a constantly changing prospect for the moving observer. However, there is an idea against this saying "Straight roads are the way of a man, because man has a purpose & therefore took the shortest route".⁴⁸ In contrary to these, other scholars, such as Sitte (1899) & Cullen (1961), expressed a preference for winding streets. In visual terms, the successful design of straight streets generally depends on such factors as good proportion between length & width, the kind of structure of which they are composed & their visual termination on a building or other features that bring the eye to rest

⁴⁸ Le Corbusier, 1929, p.5.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

When analyzing height-to-width ratio for street enclosure, a ratio between 1:2 & 1:2.5 provides a good series of enclosure. A ratio of 1:1 is often considered the minimal for comfortable urban streets. If the surrounding building height exceeds the width of the space, there will occur a feeling of claustrophobia and will reduce light penetration in to the space.

The public space network creates a series of townscape effects. A townscape result from the weaving together of buildings and all other elements of the urban fabric and street scene, so that in Gordon Collen's phrase, "visual drama" is released. He argued that townscape could not be appreciated in a technical manner but needed an aesthetic sensibility. He also suggested a vocabulary of terms, such as closed vista, deflection, narrow projection and, recession- to describe particular aspects of townscape.

The visual aesthetic character is also derived from the color, texture & detailing of its defining surfaces. For instance, a space can feel harsh & inhuman, if its surface lacks final detail & interest at human scale. Cool colors give a more spacious feel unlike warm colors, which tend to feel smaller.

Recognizing the problem of repetitive and boring elevations, prefabricated for speedy erection, they should create a sense of place and mediate between inside & outside, they should suggest the potential presence of people revealing & framing internal life, they should have a character that acknowledge convection and enter in to a dialog with adjacent buildings, they should have compositions that create rhythm and repose and hold the eye, they should have a sense of mass materials expressive of the form of construction, they should have substantial, tactile & decorative natural materials and, they should also have decorations that distract, delight & intrigues.⁴⁹

The Royal Fine Art Commission (RFAC) identified six criteria as a means of structuring & informing an appreciation of urban architecture.⁵⁰ These criteria are: Order & Unity, Expression, Integrity, Plan & Section (The relationship of section, plan & local context is fundamental in terms of the site's accommodation (i.e. the plot ratio) and for the reason a facade addresses the streets in front and the section & plan that lie behind), Details (Small scale is important at ground floor, while large scale detail is important for viewing over longer distances) and, Integration.

⁴⁹Buchanan, 1988 b, pp. 257.

⁵⁰ Cantacizino, 1994.

While creating harmony, stylistic uniformity involved imitating the local architecture; the other extreme involves juxtaposition or contrast making few concessions to the local context; between these two lies that of continuity involving interpretation- rather than imitating the local visual character. The extent, quality, consistency, uniqueness and proximity should be considered with a more contextualized approach.⁵¹

The RFAC identified Sitting, Massing, Scale, Proportion, Rhythm, and Materials for the harmonious integration of new buildings into existing contexts.⁵² Plot ratios should usually be accompanied by some form of indicative massing. A building can be understood to be of human scale or not, and separately to be in or out of scale with its surroundings. Dembel city center is an example for being out of scale with the surrounding. We can see proportion from the solid to void ratio of a building's facade or the way windows are arranged in relation to the wall.

Facades give virtual or horizontal emphasis. The choice of material also affects weathering, detailing, visual interest, and facade patterning and help local distinctiveness. Consistent use of local material can give a strong sense of unity & place, while their use in new developments helps it to integrate visually. Shades & shadows on a façade can alter perceptions dramatically apart from giving a sense of visual depth & solidity.

Landscaping is frequently an afterthought in urban design- something to be added if the budget allows and once the major decisions have been taken to hide poor quality architecture and / or as a way of filling left over spaces. Poorly designed landscaping detracts from other wise well designed developments. For instance, trees reduce Co₂ and wind speeds. They also give shed and filter dust & pollution. Hence, landscape design should be developed before or in parallel with the design process.

The character of a floorscape is determined by the materials used, the way they are use and how they integrate with other materials and landscape features. The material use differentiates the use for cars & pedestrians, gives greater definition to change functions or give a decorative effect. For instance parallel lines following the street reinforce the sense of movement, where as non-linear paving tends to slow the visual space and reinforce qualities of a place to stop or linger.

⁵¹ Well-Thorpe, 1998, p-113.

⁵² Cantacuzino, 1994, pp. 76-9.

The quality & organization of street furniture are prime indicators of the quality of an urban space. For instance cluttering effects of street furniture's affect visibility of an urban space and hence decreases its quality.

There are a set of six general principles for street furniture: Design to incorporate the minimum of street furniture; Integrate elements in to a single unit; Remove all superfluous street furniture; Suiting street furniture to the quality of an environment helping it to have a coherent identity; Position them to help, create & delineate space and; Locate them without obscuring users.⁵³

Street furniture may be customized to give some degree of local identity and identity can be further developed by the design of a suite of items specific to the context. Artists or designers might be invited to design a range of street furniture to create a strong character.⁵⁴ For instance, the Ethiopian Tourist Trading Enterprise, at the Haile Gebressilassie road, used its architects to create an interesting landscape design adjacent to the street with traditional street benches, a fountain, public arts, shades, etc. in the local context and succeeded in creating visual drama and public interaction.

Soft landscaping is an important element to create character and identity. The practice of the Sheraton Addis can be an evidence for creating such an image for the capita city. Trees & other vegetables enhance the temporary legibility of urban environments during seasonal changes. They also provide a contrast to hard urban landscapes and add a sense of human scale. In some streets, they provide a sense of enclosure and continuity. In most of the urban areas it is not appropriately chosen and located in relation to the overall townscape effect.

English Heritage (2000, p.48) suggests an eight part strategy: appearance; consider the suitability of materials and their combination; design for robustness in terms of long term maintenance; cleansing; avoiding clutter; have a concern for pedestrian with clear signage and welcoming atmosphere; concern for the disabled in terms of safety, convenience, and comfort and; consideration of public transport, cyclists, and pedestrian in terms of comfort and safety.

2.1.6. 5. The Functional Dimension

Functional dimension focuses on how places work and how urban designers can make better places. The social usage concerned the functioning of the environment in terms

⁵³ Gillespies, 1995, p. 65.

⁵⁴ Gillespies, 1995, p -67.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

of how people used it, while the visual tradition reduced to aesthetic or technical criteria such as traffic flow, access or circulation.

It is only through endless walking could designers absorb in to their being the true experience of urban space.⁵⁵ As well as being meaningful and democratic, public spaces should also be responsive i.e. designed & managed to save the needs of their users.⁵⁶ They identify five primary needs that people seek to satisfy in public space: comfort, relaxation, passive engagement with the environment, active engagement with the environment, and discovery.

Comfort is a prerequisite of successful public spaces. The length of stay in a public space is a function and an indicator of its comfort. The dimensions of a sense of comfort are environmental factors, physical comfort, and social and psychological comforts. The sense of comfort may also be enhanced by the physical design of the space and/or by its management strategies.

Relaxation is a more developed state with the body & mind at ease.⁵⁷ Natural elements like trees and separation from vehicular traffic help accentuate the contrast with the immediate surrounding and make it easier to be relaxed.

The primary team of passive engagement is people watching other people and the life and activity that they bring. It leads to sense of relaxation and involves the need for an encounter with the setting, albeit without actively involved. Opportunities for passive engagement are also provided by fountains, views, public art, performances and so forth.

Active engagement involves a more direct experience with a place and the people with in it. The coincidence of people in space and time does, nevertheless, provide opportunities for contact & social interaction. Successful public spaces provide opportunities for varying degrees of engagement and also for disengagement from contact. Design of the public realm can create or inhibit opportunities for contact. The arrangement of strict furniture's such as benches, sculptures, coffee carts, etc. made more or less conducive to social interaction.

Discovery depends on variety and change. While these may come with the march of time and the cycle of seasons, they may also result from the management and animation of

⁵⁵ Beacon, 1974, p-20.

⁵⁶ Carr et al (1992)

⁵⁷ Carr et al, 1992, p. 98.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

public space. It may require some sense of unpredictability, and even danger. It might also involve programs of animation, involving, for example lunch time concerts, art exhibitions, street theatres, festivals, markets, society events, across a range of times & venues.

Whyte noted that many open spaces appeared little used, apparently failing to justify the extra floorscape given to developers and considered off-peak use provided the best clues to people's preferences. When a place was crowded, people sat where they could rather than where they most wanted to. He also found that most spaces contained well- defined sub places, often around the edge. In general, he noted that women were more discriminating in their choice of space and also sought a greater degree of privacy than men.

According to whyte, the most sociable spaces usually possessed a good location, preferably on a busy and accessible route, streets being part of the social space, spaces almost leveled with the pavement, places to sit, such as steps, low walls, benches, etc. and movable seats enabling choice, and the communication of character & personality. Less important factors included were sun penetration, the aesthetics, shape & size of spaces.

Movement through public space is at the heart of the urban experience, an important factor in generating life and activity. To design a public space, it is essential to understand movement, especially that of the pedestrians; however, origin-destination studies used to trace car movement are less appropriate for pedestrian movement. Opportunities for social interaction only occur once the car has been parked.

For pedestrians, the connection between places is important & successful public spaces are generally integrated within local movement systems. In an urban setting, a pedestrian journey is rarely a single purpose. The potential for such optional activities are termed as the "by product of movement".⁵⁸ terms Hillier's empirical research , from the analysis of the structure of the urban grid, used integration values calculated from the networking axial lines being regarded as a good predictor of natural movement: the more integrated the line, the more movement along it, the less integrated, the less the route is used.

According to Hillier, uses can not change the line's integration value and hence patterns of natural movement and of space come before land uses. However, his ideas face difficulty since it is debatable whether his method works for planned urban areas or for areas accommodating vehicular travel only. His theory also does not consider the design of spaces

⁵⁸ Bill Hillier, 1996a, 1996b.

involving more than spatial configuration. His analysis potentially understates the significant of destination ignoring the purposed of movement which is usually related to land use.

Space syntax has nonetheless been widely accepted as a useful tool for analyzing places. It reminds urban designers of the importance of permeability, and of the overarching need to consider movement in the design of urban area. Well connected places are more likely to encourage pedestrian movement and to support a vital & viable range of uses.

The design and use of public space can also usefully be considered in terms of the center and the edge. a public space without a middle is quite likely to stay empty.⁵⁹ As well as providing a sense of identity & character, elements that stand roughly in the middle such as a fountain, a tree, etc. can also prompt triangulation.

Design of the edge is, however, the most important element for a successful urban space. The life of a public square is formed naturally, around its edge to which people gravitate rather than linger out in the open.⁶⁰

Building facades should be designed so that building reach out to the street and offer an active frontage on to public space, adding interest and vitality to the public realm. The number of entrances generating activity directly visible form public space is a good indicator of the potential for street life. Blank frontages deaden part of the street and also break the content of experience that is vital for the rest of it. The public edge of buildings should also have activities that benefit from interaction with the public realm & contribute to vitality there. Large building utilizing a single entrance can have a particularly deadening impact on streets.

The edge of the public space network provides the interface between public and private realms and needs to both enable interaction and protect privacy. In terms of layout, the private backs should face onto private space and other backs. In urban design terms privacy is usually defined in terms of selective control of access and of interaction. Need for privacy and interaction varies among individuals with respect to personality, life stage, etc. and across different cultures & societies.

Privacy can be attained in a number of ways, including behavioral management mechanisms and strategies involving physical distance or the use of visual or sonic screens.

⁵⁹ Alexander et al.,1977, p.606.

⁶⁰ Alexander et al.,1977, p .600.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Built form influences on privacy take two forms: more or less permanent barriers and filters which allow individual control of privacy / interaction. In functional terms, privacy can usefully be discussed in terms of visual and aural privacy.

Issues of visual privacy typically relate to the interface between the public private realms and, in particular, the physical and visual permeability between these realms. At a development wide scale, the overly-rigid use by planners of space between dwellings standards to ensure privacy is also to be avoided because of the tendency to deliver both regimented and monotonous layout and low densities with high land take. Designers should, therefore, balance distance with design in privacy strategies.

Noise can distort and invade privacy and activities. While people can adapt to extraordinarily noisy environments, sonic pollution is an increasing concern. Noise disturbance also has a temporal dimension. Research has indicated that continual exposure to background noise in relatively noisy neighborhoods, can lead to raised blood pressure, heart rates and stress in children, reducing maturation and leading to learned helplessness syndrome.⁶¹

A broad distinction can be made between noise generating activities, such as cafes, bars, night clubs, etc. and noise sensitive uses, like housing. Design strategies can prevent the break out of noise by physical distance, sound insulation or the use of screens & barriers.

A sufficient density of activity and people has often been regarded as a prerequisite of vitality and for creating and sustaining viable mixed use. City life has much to do with density.⁶² For Jane Jacobs, New York's Greenwich Village, with densities ranging from 310 to 500 dwellings per net hectare, was the optimum environment. Barcelona, being a compact city, has an average density of about 400 dwellings per hectare.⁶³

Another key aspect of creating a lively and well used public realm is the spatial and temporal concentration of different land uses and activities. In response to the sterility produced by the functional zoning policies and practices of much post-war planning and urban development, the mixing uses have become a widely accepted urban design objective. Over the past decade, a more explicit use of form - based zoning has been used in some urban design work, notably that of the New Urbanists.

⁶¹ Evans et al. 2001.

⁶² Jane Jacobs, 1961, p-163.

⁶³ The UK's Urban Task Force, 1999, p.59

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Since all developers and property owners seek to develop or utilize their property in its highest and best possible use, there is a tendency for areas to be mono-functional. Llewelyn-Davies (2000, p.39) identifies benefits of mixed- use development that are mentioned previously in item number 2.1.5.1.

While functional zoning and mono-functional development create car dependency and reduce choice, mixed use developments enable walking, or at least, choice in travel mode and are therefore more sustainable and offer more life style choices. However, developers are averse to mixed uses for the reason that different leasing periods reduce the liquidity and the value, occupiers may not want certain other uses for security, other additional costs and hygienic purposes, and the tendency to specialize in a particular development. There may also be physical, legal or financial obstacles that prohibit or increase the cost of accommodating different land uses in a building. Therefore there is a need to find ways of proving mixed uses through persuasion, regulation, or financial incentives.

Appropriate physical provision of robust buildings or development patterns increases the possibility of a mix emerging over time. Therefore, the need is to design for the possibility. Creation of mixed uses in existing areas often involves introducing residential uses into non- residential areas or non-residential uses into residential areas. The design challenge is to gain the synergy and benefits of mixed uses, while avoiding bad neighbor situations, such as introducing symmetrical land uses across spaces & asymmetrical across blocks and using a perimeter block to accommodate a mix of uses in a number of ways.

Achieving higher densities than has been the norm in the latter part of the 20th century in the UK & the US is regarded as fundamental to the creation of more sustainable environments. Social, economical, transportation and environmental benefits are obtained from higher densities of developments.⁶⁴ While lower density was initially a response to concretions within the industrial cities of the 19th century, it became an objective in its own right in the 20th century, backed by various regulations, thus virtually mandated suburban sprawl.

An essential part of urban design is the need to provide comfortable conditions within public spaces. Levels of sunlight, shade, temperature, humidity, rain, snow, wind, and noise have an impact upon experience and use of urban environments. A number of design actions

⁶⁴ Llewelyn – Davies, 2000, p.46.

can help to make conditions more acceptable. Desirable conditions vary by season, and by the activities taking place.

Microclimate is often neglected in urban design. Features affecting the climate include the nature of the surrounding and topographical elements. Design decisions have, however, an important influence in modifying the impact of the microclimate to make spaces more comfortable. Relevant factors at this scale include: the configuration of the proposed development, and its effect on and relationship to buildings and other influences at the site boundary, the positioning of main entrances and access roads and pedestrian paths, trees and other vegetation, walls, fences and other obstructions, the orientation of internal and external spaces and facades with the direction of sunlight and shade, the massing, grouping, and space between buildings, the wind environment, the positioning of main entrances and other openings acting as a transition between inside and outside conditions, landscape, planting and pools/ fountains to enhance natural cooling, and environmental noise and pollution.⁶⁵

While traditional designs were necessarily well suited to the local climate, the close association between climate and design has been severed by the use of rapid construction techniques, and the availability of fuels and building service systems to overcome any detrimental effects.

Design penetration in to urban places and in to buildings helps to make them more pleasant places. It also encourages out door activities, reduces mould growth; improves health by providing the body with vitamin E, encourages plant growth and provides a cheap, readily available source of energy for passive and active collection. While places in the sun are desirable at some times of the year, at other times shade is preferred.

Orientations in northern latitudes, south facing elevations receive the maximum sunlight and north facing elevations at least-and overshadowing and shading. Pitts (1999) considered the sun's position relative to public space and to the principal facades of buildings, site orientation & slope, existing obstructions on the site, the potential for overshadowing from obstructions beyond the site boundary, and the potential to overshadow nearby buildings and spaces.

Solar access can be evaluated by the use of charts such as a stereographic sun chart. Trees will provide obstruction solar access. If deciduous, they will perform the dual function

⁶⁵ Pitts, 1999.

of permitting solar penetration during the winter and a degree of shading in the summer. The spacing between tree and building is again critical.

Wind flow has a substantial effect on the comfort of pedestrians, the environmental conditions with in public spaces and around buildings entrances and the activities that might occur there. To minimize the effect of wind pressures, the large building dimension should not face in to the predominating wind, building layouts should avoid creating tunnel effects, the facades of tall buildings should be staggered and stepped back with increasing height away from the prevailing wind, protection of pedestrians by the use of canopies & podiums, buildings should be grouped in irregular arrays, but with in each group, the highest should be similar and the spacing between them kept to a minimum, and shelter belts (trees, hedges, walls, fences, etc) can provide a degree of protection for buildings and pedestrians. They are most effective when correctly oriented & with a permeability to air flow of about 40% allowing wind to be diffused. In very humid climate, external spaces may need to be deigned to encourage a greater through flow of cooling air. In more arid climates, fountains and water features in public spaces help cooling through the evaporation of water vapor.

Trees and other vegetation tend to filter air, while rainfall scrubs it. In high concentrations, pollution will tend to kill natural vegetations. To dissipate air pollution, good air circulation about buildings and within urban spaces is required. Air flow inside buildings can be created by natural ventilation or by artificial mechanical ventilation or air conditioning. If air flow is to provide natural ventilation and cooling, the plan form needs to be relatively shallow. For successful cross- ventilation, the cross ventilation depth should be a maximum of five times the floor- to- window head height.

Natural lighting makes an environment have a character being functional and esthetical with the play of light (aesthetic dimension). The amount of visible sky- particularly over head, where it is brighter than at the horizon- is crucial to the quality of day lighting. A basic rule thumb, used in UK, is the obstructions which subtend an angle of less then 25 degrees to the horizontal will not usually interfere with good day lighting while grater obstruction need not interfere with good day lighting, while greater obstructions need not interfere provided they are relativity narrow.⁶⁶

⁶⁶ Littlefair,1991.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

The quality of the day lighting in a room depends on the design and position of fenestration relative to the depth and shape of the room, and on whether surrounding buildings obstruct light penetration. Shallower plan will be better lit than deeper ones.

In practice, the lighting of streets at night derives from a wide range of sources. Street lamps, borrowed light from buildings, shop signs, etc. and the ensemble needs careful consideration to meet both statutory and amenity needs. Well lit streets & spaces are particularly important in making users feel safe & secure.

The major capital web considerations in urban design are the providing of public open spaces, road and foot path design, parking and servicing, and other infrastructure.

Public open space offers recreational opportunities, wildlife habitats, venues for special events, and the opportunity for the city to breathe. At smaller scale, standards are often set by the public authorities to ensure minimum provision. For instance, in the UK, the National playing fields Association require 2-4 hectares per thousand populations. Such provision should be within easy walking distance of all homes. Local areas of play should be within 100m of homes.⁶⁷ The provision of open space is highly important in higher density environments. They should be an integrated & important part of the urban design vision for a place, often as a key focus for the public life. Integration of natural & built environments is a key objective of sustainable development.

The requirements of cars rather than people often dominate the design of urban environments. This can be seen in the ring road development of the city Addis. If vehicular speed is lowered by controls and regulations, by speed bumps or other obstacles, or, more subtly, by manipulating and configuring sight lines- the car oriented standards can be lowered as well. In general, the contemporary ethos is to design pedestrian dominant rather than car dominant environments.

Road & foot path design has a set of basic requirements: maintaining safety & personal security, increasing permeability & access by all modes of travel, but particularly by foot, encouraging directness acknowledging the desire lines, designing in sympathy with the local context, and increasing legibility to make the overall structure and local visual reference clear. The new design guidance proposes that highway considerations should move beyond matters of safety and vehicle flow efficiency, to encompass concern for environmental

⁶⁷ The NPFA, 1992.

quality, pedestrian permeability and three dimensional space designs.⁶⁸ Advise in the 1997 “Essex Design Guide”, suggested spaces should come first, with buildings arranged to fit the context and roads plumbed in later, designing 20 mph zones in residential areas, adopting a network of spaces rather than a hierarchy of roads, adopting a sustainable movement framework and using connected rather the Cul-de-sac road layout.⁶⁹

The priority of movement should be first by foot and cycle then public transport, and, finally by car. This requires routes for pedestrians or cyclists being built in to the plan from the out set because fitting them in latter will be difficult, if not impossible.

Parking is a requirement of contemporary living that is likely to remain for the foreseeable future. Even though integrating it into the street scene is problematic it needs to be sufficient to cater for contemporary needs, convenient for all users, attractive by limiting its visual intrusion, and safe and secure. Establishing maximum rather than minimum parking standards can discourage car use.

Above ground, the capital web incorporates the public space network and landscaping framework, any transport network and infrastructure, public facilities and services. Below ground it incorporates water supply networks, sewage disposal systems, electric grids, the gas supply networks, telephone networks, cable networks, combined heat and light systems and underground transit system.

Architects, planners, and urban designers have tended to neglect networked infrastructure and the flows and mobility that they support.⁷⁰ In general, there is a need to consider the seen & unseen capital web in the design process, to plan for flexibility and future changes /additions/ and to integrate development in sustainable manner, minimizing the need for new elements, especially public transport, are also a means to improve the public realm.

2.1.6. 6. The temporal dimension

As time passes, space become lived in places, made more meaningful by their time thickened qualities. we experience the passage of time in the urban environment through rhythmic repetition and through progressive & irreversible change.⁷¹ Space & time are the

⁶⁸ Carmona, 2001, p.283.

⁶⁹ Carmona, 2001 p.306.

⁷⁰ Graham and Morrin, 2001 p.18.

⁷¹ Kevin lynch, 1972, p.65.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

great framework with in which we order our experience.⁷² For Patric Geddes, a city is more than a place in space; it is a drama in time.⁷³ Environments are used differently at different times. Urban designers need to understand time cycles and the time management of activates is space. Secondly, although environments relentlessly change over time, a high value is often placed on some degree of continuity and stability. Urban designers need to understand how environments change, what stays the same, and what changes over time. They also need to be able to design and manage environments that can accommodate the inevitability of time's passage. Finally, urban environments change overtime, and urban design projects, policies, etc. are implemented overtime.

Facilitating & encouraging the use of urban spaces requires on understanding of the effects of the cycles of day & night, the seasons, and related cycles of activity. At different times of day and night, the urban environment is perceived and used differently. Cycles of activity are also grounded in the changing seasons. Urban designers may deliberately exploit the changing day and the changing seasons to bring greater variety and interest to urban spaces. Environments designed to reflect & enhance the changing day & season add to the richness of the urban experience. Features highlighting the passing of the seasons add to the temporal legibility of urban spaces.

In the same way that electronic communication has freed us from the constraints of space, there is also greater freedom from the constraints of time.

Activity must also be considered in temporal terms. Nonfunctional areas tend to be narrowly time specialized. Occupancy in housing mainly by working people may result in lower levels during the working day, but more in the evening and at night.

Urban designers need to understand activity patterns, how to encourage activities through different time periods, and how to achieve synergies from activities happening in the same place and time. Many spaces are used intensively for certain periods, and then stand empty for longer time. The timing of activities needs to be managed. Activities may be prohibited at certain times to prevent conflicts, be separated in time to alleviate congestion, or be brought together in time to allow connections and a sufficient density of use (e.g. on

⁷² Kevin lynch, 1972 26, p.241.

⁷³ Cowan, 1998, p.1.

market days.⁷⁴ Urban places that are well peopled enable complementary activities to overlap in space and complexly interrelate, resisting the narrow time specialization that fragments and compartmentalizes activities. Montgomery (1995, p.104) argued that than animation of public spaces can be simulated through planned programs of cultural animation across a range of times and venues encouraging people to visit, use and linger in urban spaces. As people visit an area to see what is going on, urban vitality is further simulated and the public realm becomes animated by having more people on the streets and in cafes, etc. Montgomery stresses that attention to the soft infrastructure of events, programmers and activates is important for successful urban animation as the hare infrastructure of buildings, spaces, street design, etc.

A wide spread problem is lack of activity in the public realm during evening and at night with few uses and activities to attract a broad range of social groups. A particular issue is the dead period in city centers between the end of working day and the start of night time economy when people return to the center to get entertained.

Urban environment are continuous and inexorably changing. Any intervention in to the physical fabric of a place irreversibly changes its history for all time, becoming part of that history. Every city can be read as a multi-layered text, a narrator of signs and symbols in such a way that a built environment becomes a biography of urban change.

Since the industrial revolution, the pace and scale of change have increased as both the process, have radically altered. City growth has become mechanical and artificial. Modernists argued than the means of controlling & directing processes of change needed to be radically rethought. The post war period saw a dramatic acceleration in the pace and physical scale of the cycle of demolition and renewal in most cites in the developed world. The past and its values were rejected in favor of a brave new world whose creation threatened to destroy all trace of preceding architectural achievement. By the mid 1960's the social effects of destruction were becoming evident. Polices protecting historic areas were introduced all over the developed world during 1960's & 1970's and conservation become an integral rather than peripheral part of planning & development, provoking a fundamental re-evaluation of ideas in architecture, planning and urban development.

⁷⁴ Lynch,1981,p.452.

Accepting that the reasons for conservation of historic building and environments are many, and often context and building specific, the more common justifications are: aesthetic value for architectural diversity and contrast, value for environmental diversity and contrast, value for functional diversity and contrast, value for functional diversity, resource value, value for continuity of cultural memory and heritage and economic and commercial value.⁷⁵

Conservation policies and strategies came in three waves. The first involves protection of individual buildings and historic/ancient monuments. A second wave of policies emerged during the 1960s and 1970 s concerning with groups of historic buildings, townscape, and the spaces between buildings, and formed a reaction to the evident social, cultural and physical disruption caused by clearance and comprehensive redevelopment and by road building. The third wave was the development of local revitalization policies, stemming from realization that once historic buildings and areas were protected, they needed to be in active and viable use. While the initial preservation policies had largely been concerned with the past ness of the past, the later conservation and revitalization policies were increasingly about a future for the past.⁷⁶

2.1.7. Using the guide

Urban design framework provides guidelines for areas undergoing change, or where growth and change needs to be promoted a framework.

1. Explains and illustrate how development plan policies will applied in an area:
2. Sets out compressive design principles for the area:
3. Links strategy to practical proposals
4. Provides guidelines for development control

An urban design framework goes well beyond the level of detail appropriate for area-specific design policies in a plan. It draws on detailed area appraisals and sets out urban design principles. An urban design framework usually covers an area of which only some parts will be potential development sites. A framework goes beyond a traditional master plan, for example by including an implementation strategy. Many cities in the development world have been guided by urban design in order to create a successful place for their citizens.

⁷⁵ Tiesdell et al,1996, pp 11-12.

⁷⁶ Fawcett,1976.

2.2. Literature review in the context of Ethiopia

2.2.1. Analysis of Urban Growth

The demographic stand is dominant in defining urban station using the number of people living in a settlement to define urban total category (Divas & Raked.) of people living and working in dense settlements and attendant changes in social structures and styles of life.⁷⁷

The number based definition of urbanism poses a problem on what the hold of population size should be to define urban ness. These variations could span from few hundreds of people to tens of thousands making it difficult to compare situations in different urban centers. Such situations indicate not only problems of development planning but also how to evaluate policies.

Western theories of urban growth seem to have developed from two main bases; economic & social factors.⁷⁸ A third line of analysis that of spatial aspects of urban growth, seems to have been used by most social reformers in pre-20th century too - Economic of population as a result of the need for labor in industries. Thus urban growth is seen as a direct result of economic growth. The proportion of people living in urban areas has been increasing rapidly for the last several decades. By the year 2000 about 47% of the world's population was urban and out of the total, about 52% live in developing countries (UN 2000).

The main cause of population growth in urban areas in mostly more rural-urban migration on worldwide scale; however, in the least developed countries the shake of rural urban migration is still high.⁷⁹ Migrants leaving family in rural areas in search for jobs created a system with one family but two households.⁸⁰ In Addis Ababa, migrants outnumbered the city-born until the 1980s (CSA, 1987). This brings on interrelating between 1st generations migrating in urban areas & affects the types of social relations including the choice of dwelling locations. The increase in urban population brings about growth in the physical dimension of urban areas. The view of physical extension & the manner of

⁷⁷ Friedman, 1966, p-78

⁷⁸ Payne, 1977.p.31.

⁷⁹ Findlay, 1993.

⁸⁰ Weiner, 1972; Gurgler, 1996a.

managing development has been changing with the view of population growth & development theory.

Addis Ababa is claimed to have 85% its population living in informal housing.⁸¹ Expansion area that may be an aerial continuum beyond the jurisdiction of one urban center was rather termed urban sprawl. But these areas are exhibited as combination of new and old values. Although central areas of urban centers in developing countries are better served than outlying areas, the magnitude of demand for urban land is so high that most development has to take place at the urban edge. Governments during various periods in the past have tried to limit the sizes of their cities, which span over a variety of issues, such as defense, hygiene, safety, economics and beauty.

The current tendency towards decentralization of administration and fiscal planning in most countries has reduced the time span and spatial units of development plans to fiscal units and action areas increasing the implemental of plans thereby increasing the predictability of social and spatial patterns.

The social dimensions of planning is related to the unit of social organization & considered an entity based on certain criteria. Different sizes of social unit were proposed in relation to social, political, economic and environmental problems of the economic, social & spatial aspects and therefore start to operate in the informal times, by Plato poverty Owen, Charles Fourier Phalanx Terries and Ebenezer Howard. In all these proposals the social unit was to have local facilities, and ample working and living spaces for community life.

2.2.2. Urban housing situation in Ethiopia

The housing problem in Ethiopia, both in rural and urban areas, is very acute. The problem manifests itself in the poor quality of residential environments and the crowded situation of individual dwellings. The 1994 national population and housing census shows that the national average occupancy rate in urban areas is about 4.8 people per housing unit while the average household size in urban centers of more urbanized regions and in those centers that are higher in the urban hierarchy is larger than those in the lower level. This might be as a result of more relatives from rural areas living with nuclear families in major cities where the attraction is greater than in lower level urban centers.

⁸¹ (UN CNS, 1984).

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

The national average occupancy rate in urban areas is about 2.2 persons per room. This figure obscures the acute shortage of housing; but if seen in the light of the distribution of households in relation to housing units, number of rooms, room size, availability of services, and quality of internal space, the severity of the problem is alarming. The 1994 census indicated that a significant number of multiple households co-inhabit housing units. Most housing units are predominantly one or two roomed and the rooms are small in size (for example, in Addis Ababa one and two roomed houses make up about 60% of the housing stock and most of these houses are less than 30sq.m each).

In terms of services 27% of urban households lack piped water; 42% lack toilet facility, 35% have no electricity for lighting, and 39% have no proper cooking space. The proportion of households who lack services is higher in secondary towns than major cities.⁸² It is unlikely that the housing situation will be any better in the near future. Government programs are concentrated in few market towns, the programs are donor funded and come with different requirements, which are in some cases unrealistic for the context. The currency devaluation, the cost-recovery principles, the retrenchment of government employees as a result of the gradual privatization of most government held sectors as required by structural adjustment programs, has created an environment where the low income groups are increasingly marginalized in the housing market.

The restructuring of the income profiles of project beneficiaries from the low income to high income groups in donor funded housing developments is a clear sign that the low income groups are getting excluded from the formal housing market. No one wonders that informal settlements on illegally occupied lands (Cherkabets) are growing fast at the fringe of most urban centers. The urban pattern and social grouping in different urban centers varies due to a host of factors.

One of the major historical similarities between most of the urban centers is their unplanned development. Therefore, to understand transformations that have come due to planned developments, it is necessary to study the manner of growth in earlier periods. The next section is devoted to doing that for the city of Addis Ababa.

⁸² (CSA 1999, Tables 6.12, 6.14; 6.16; and 6.17)

2.2.3. Addis Ababa in space – time perspective

Addis Ababa, the Federal Capital City of Ethiopia, has an area of 540 km² and has an estimated population of over 3 million and grows annually by 3%. Situated at a height ranging from 1,800 meters to 2,500 meters above sea level, the climatic Zone of Addis Ababa is cool to warm climate with an average annual temperature of 15⁰C. The metropolitan city of Addis is sunny for the most part of the year, except the months of July to September, which gives it favorable climatic condition.⁸³

Addis Ababa is the last capital city to be established by Ethiopian monarchs in the 19th century. In the tradition of former capital cities, Emperor Menilik II founded Addis Ababa as a garrison town in 1886. 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 period of the 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.

The Federal Capital of Ethiopia has remained as the seat of central governments for over 100 years. The city is administratively divided into ten municipal quarters. The city is also the seat of the African Union, the United Nation Economic Commission for Africa and important regional & international Organizations, embassies & consulates. It is a cultural, business & commercial center of the Nation.

The development of the city was in an organic manner and different neighborhoods were formed following the settlement of churches and houses of popular noble men. The ‘The Addis Ababa Style’ give a certain characteristics feature for the city. Names of the neighborhood (Sefers) were given after their function, historical attachment, and the name of it's founder or institutions and ethnic name of first settlers, such as the Dejach Wube Sefer, Talian Sefer, Gibi Gabriel, Alga Werash Gibi, Cherkos, Wello sefer, CMC etc...

The diplomatic relationships and the invasion of Fascist Italy played an incredible role for the introduction of modern buildings and inter linking road network system. However, the city is entangled with multi faceted problems like urban poverty, unemployment, shortage of housing, inadequate sanitation, low urban management capacity

⁸³ Tourist Trading enterprise, Tourist Handbook, The city of Addis Ababa, pp.31

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

& lack of information. Moreover, the unrestrained exodus of needy citizens from every corner of the country hosted to an intolerable standards of living in congested slums.

Housing is a critical component in the social & economic fabric of all nations. Thus, most nations, in one form or another continued to solve their housing problem. As clearly mentioned in the introduction, Addis Ababa is facing a series problem of housing, poverty, and low urban management capacity. Even though the city is serving as the capital of Africa, the standard of the city is in a poor quality. There are 300,000 housing backlog and congested slums right in the poor standard of living & high level of unemployment are characteristics of the city.

The dilapidated feature of the existing houses coupled with the shortage demanded on aggressive housing scheme in the vicinity. This can be further be substantiated by the bad image the old houses in the center reveal and distort the scene by out lookers from outside and are shame to the citizens as well. Therefore demolishing this will address the revolution by which the city administration envisages.

Apart from this the imbalance between the rates at which the houses are being built and the population increase has a very big difference. It has been a future exercise that resulted in huge backlog of houses. It is estimated that about 250,000 houses are needed to complement this gap.

The housing problem is very much pronounced due to the neglect of the sector for a number of decades. This has called the utmost attention of the city administration to solicit remedial measures in due point in time. Therefore strategies have been drafted to avail land to housing cooperatives, individual home builders, and real estate developers. To this effect the city administration established a Grand Housing Development Project Office to ameliorate the zeal commitments of the city administration. To accomplish this task it was decided to implement a new system of condominium housing.

Another problem related to the dwellers in the metropolis is unemployment, which affected 42% of economically active city inhabitants. But this grand housing program catalyzes the employment creation endeavor of the city administration. In doing so the construction industry will get a chance to progress and add value for the rapid development of the city. For the next five years the city administration planned an ultimate goal to provide 150,000 – 200,000 housing units, create job opportunity for 60,000 people, expand the number of micro scale enterprise up to 2000 and reduce slums by 50%.

Even though the new private condominiums, including those developed by the government, were planned for the low & middle income groups, most of the completed units are being transferred and used by the high income group. Another failure of the development is that the consideration of urban design principles has been ignored since the focuses was providing housing units efficiently on the available land and solve the need of housing.

2.2.4. Goals and objectives of the revised 2002 master plan (ORRAMP)

Even though Addis Ababa is the capital city of Ethiopia, the diplomatic capital of Africa, and the seat of many international and national organizations, the status of the city is below the international standard. There is absence of adequate facilities and services of international standards and the socio – economic status of the city is also weak & below the potentials it has.

The city has a planning history of about six decades that date back to the Italian occupation (1936-41). After the first master plan of the city, about five different major planning proposals have undertaken. Despite all these, large part of the city-both planned and unplanned parts, characterized as haphazardly developed, which is manifested by its poor image and an urban environment. This shows that the absence of urban development controls in the city or the systems have not been effective in creating identity and character for the city at large and neighborhoods in particular. From current practice for controlling physical development, we can see that the absence of efficient tools and mechanisms and lack of coordination among different actors can be considered as the causes for the poor urban quality of the city.

Some of the identified problems in the city that have resulted from the lack of controlling mechanisms & coordination are: poor relationship between buildings, open spaces, street and movement of people, disordered planting materials on street sides and along medians, lack of standard for landscaping, & limitation of Building Construction Permit considerations only to the individual buildings. As a result disorder has been introduced in newly developed neighborhoods at the expansion areas.

The main defects in achieving policies goals and objectives of the master plan resulted from the poor institutional capacity in plan implementation and enforcement, lack of codes and regulations that govern the implementation process, and lack of comprehensive policy guidelines in formulating codes and regulations

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

The capacity of the available codes and regulation in controlling development in terms of creating quality urban environment is weak. This makes the city to lack good image & design. This character results from malpractice among professionals working in the authority responsible for the planning and implementation of the city's physical development, the traditional trend of professional practice registration and licensing mechanism used in controlling quality of services, the practice of unskilled people in building design and construction, the lack of proper planning of infrastructure and utilities, the lack of coordination in their implementation, and the lack of detail standards that guide the construction of streets, curbs, pedestrians etc.

The absence of visual policies in the city has also brought the lack of preservation and conservation of natural, historic and cultural elements, lack of guidance in the development of public spaces in terms of urban design dimension, & the absence of regulation in controlling the completion time of construction after the commencement date. This affects the neighborhoods activity, its visual quality and health of citizens by pollution from wind & dust. Other problems are lack of standards for proper plantation in streets, the absence of standards for the quality of sign boards (bill boards), the lack of standards for construction materials and quality of construction, the absence of controlling mechanism for placement of different functions in mixed use buildings, the lack of standards for placement of car parking, and the absence of control in the realization of the permitted plan.

Most of the open spaces in communities do not have the quality of common places. The Housing developments in expansion areas do not have their own character and identities. They lack sense of place ness because of the unregulated neighborhood scale and pattern of development they have. The details of streets such as curbs, sidewalks, traffic signs, etc. are poor in their quality of materials and design.

Upgrading of existing roads and construction of new ones seems to solve the vehicular traffic only. Most of the road median size is not proportional with the road; sidewalks are narrow, landscaping elements, like planting materials are absent & absence of controlling the construction process after permit. However, People are modifying the plan after receiving the plan permit and construct structures by violating the regulations & standards set to control developments, such as parking, set back, building height etc.

The need for revising of the 1986 master plan revision has come for two main reasons. These are the change of political and economic order in the country, and anticipating

the socio-economic changes in the city's development. Therefore it was needed to revise the master plan. The vision of the revised plan is to make the city safe and livable by 2010, to make the city a diplomatic capital of Africa and to create a safe and clean environment, by improving the physical and socioeconomic status of the city. Therefore, the need of a broad policy that guides the overall physical development to create a quality, clean & safe urban environment is very much important for the city.

2.2.5. Urban development control in Addis Ababa

The 1986 master plan was a typical traditional master planning i.e. functional land use zoning. The need for changing the land use policy in the revision to mixed use policy and the planning approach to structure and strategic planning is to meet the dynamic social-economic and spatial growth of the city in terms of efficient utilization of resources.

Even though the revised 2002 master plan has many elements of urban basing issues, most of the uses in the plan require detail policies, codes and regulations. The present physical development controls in Addis Ababa as mentioned above is not effective in creating quality urban environment. The available control tools and mechanisms are weak to control & guide the implementation of the goals and objectives of the revised master plan

The system of implementation of the goals & objectives of the revised master plan in Addis Ababa is not successful to create quality urban environment. This may resulted from ineffective available codes & resolutions in controlling physical development & from the lack of urban design codes & regulation.

The standard and norms of the structure plan provides guide to implementation strategies essential for the development process. Among these strategies there are three main tools used to control the physical development of the city. These are LDP, urban planning regulations and construction permit regulations.

2.2.6. The land use policy in Addis Ababa

The mixed land use development policy in Addis Ababa can be taken as the main strategy for sustainable development of the city. Because mixed use-developments have social, economic and environmental benefits, in spatial terms, they increase the vitality of urban area by enhancing the quality of the environment, the area, the diversity and choice.

The main problems that appeared with mixed-use development are compatibility of different functions. Impact of the new development on the existing environment creates

traffic problems, infrastructure load on the existing infrastructure & pollution. In order to minimize problems created by mixed-use developments, there should be strong and clear regulatory measures as well as effective development control tools and mechanisms.\

2.2.6.1. Local Development Plan (LDP)

LDP has taken as the main implementation strategy in the plan tools development control. The master plan has selected areas and prepared LDP. It is an instrument that combines urban planning, urban design, concrete regulations, and complementation tool for specific area. LDP focuses on areas designated as strategic investment areas. The over all aims of LDPs are to give a set of physical & social guidelines, rules & regulations for development of a specific location. This will be attained through maintaining the quality of the city, traditional and modern.

Principles that guide the preparation of LDPs are participatory approach, & conformity with the attritional plan. There is no clear policy statement that used to guide LDP. They are prepared mainly based on the wider city scale, considerations of the plan provision set standard or the structural plan. The areas selected as strategic, by the ORRAMP need clear policy statements according to their criteria of selection. Their study does not provide anything about the architectural style. It also has no any provisions of creating image.

Therefore, citywide broad policy guide regulations & standards for LDP process should be prepared. Highway & traffic standard emanated from the broad urban design policy. It is a holistic approach that relates different actors. Urban street standards, infrastructure development, & Conservation strategies should be considered.

2.2.6.2. Planning & construction permit regulation

These tools use to control the implementation processes that are not efficient in addressing problems related to the physical growth and change of the city. They lack components, which affect the environment & mainly focus or are designed to control individual building development.

These tools lack issues of environment such as preservation & conservation, aesthetic & environmental quality, landscaping, climate, topography, balance between open space & development at neighborhood level in existing settlements, provision of minimum standard, building height and grain sizes & building codes: safety (structural), fire safety, environmental protection and utilizations.

2.2.6.3. Planning Consent

The main purpose of a planning consent is providing minimum and maximum building height. Regulating is based on street hierarchy & the height requirement provided to developers based on the plan for the area, have maximum & minimum requirement. While providing this, there is no clear provision for Plot Area Ratio and Floor Area- to- Plot Ratio. There is no clear provision in order to control density. In the planning consent the municipality provides only the land use of the individual plot. For instance in a planning consent that specifies a plot for mixed-use development, there is no any provision about the composition of functions.

Chapter Three

3. Existing situation and analysis of the case study area in the touch of urban design dimensions.

3.1. Description of the Study area

The front task of the analysis is to select a site where new housing developments are going on, to make a reasonable & logical analysis of the case study area with respect to the conventional urban design dimensions. Therefore, the existing situation of Gerji - Keble 10/11, which is found in the Bole sub-city, will be described below.

3.1.1. Establishment

The first establishment was started two decades back in the attempt to develop new housing expansion area at the previous regime. The establishment of the "Anbessa Garage" has dated long before any other development structures have been erected like imperial Hotel, which is one of the results of mixed economic period in the last years of Derge regime.

The government rental houses were produced by the previous régime between the year 1985 & 1986. Most of the housings cooperatives were also developed in the 1980's with a low cost scheme where as the Gerji condominium pilot project was completed by the government in March, 2005 with a long-term payment mechanism. It took 8 months to transfer the condominium housing units to the beneficiaries since the completion time was not as planned. There are also other four government condominium projects & a private real estate development of condominiums by Sunshine Construction plc. that are under construction, yet.

The construction of the government & sunshine condominium houses are planned to contain different sizes of a studio type, one bedroom type, two bedroom type and three bedroom type units. An interesting point in the sunshine real estate is that the ongoing construction is not done based on the original design which had provided adequate parking places, green areas & open spaces. The real estate manager and professionals working in the real estate department complained about the approved design since it didn't accommodate adequate open spaces. The company accepted the decision since the site was given lease free

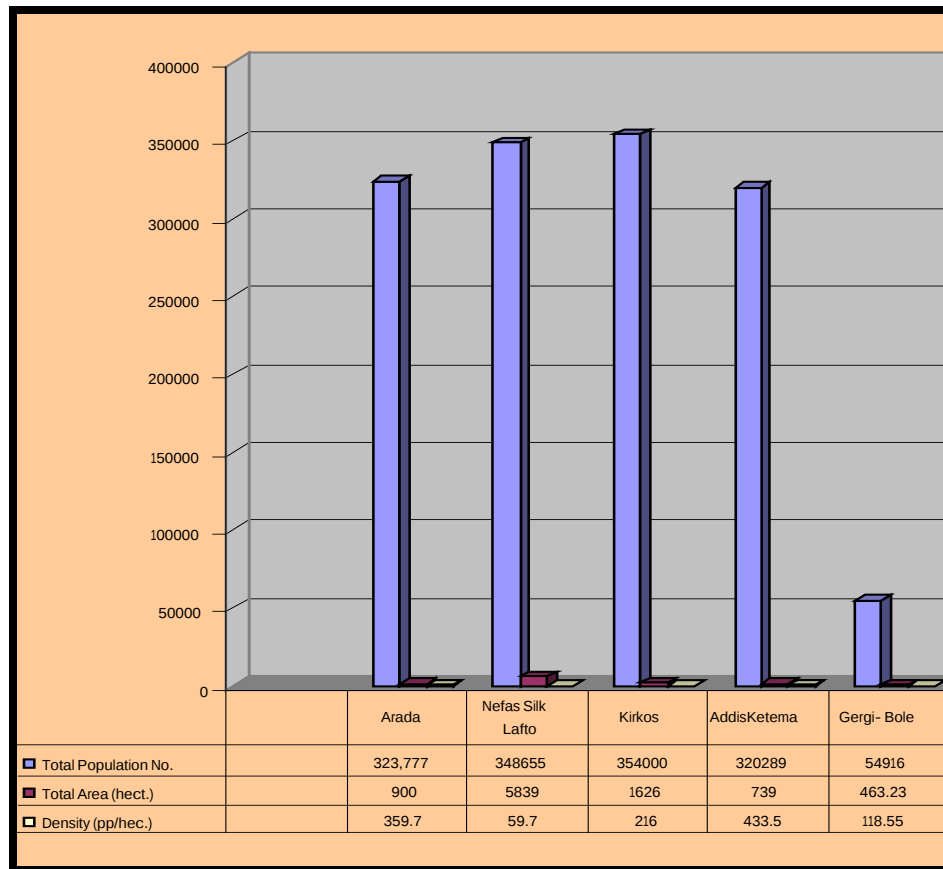


Fig.1. Bar chart showing density of “Gerji” relative to other four sub cities in the city

Source: Respective Sub cities

to encourage the production of so many housing units to ensure efficiency with a certain typology that can accommodate more than 500 households. For this reason the available open spaces were replaced by a number of G + 4 blocks.

The following section will deal with the basic facts about the case study area concerning on: Location, Area, & Administrative structure, Topography, Climate, Land use, Socio economic & physical characteristic, Population size and demographic characteristics, Economic characteristics, Ownership & characteristics of Houses, Facilities (Social & infrastructural services), Street pattern, Blocking, Open spaces, Parking, and Landscaping.

3.1. Grahical analysis of the existing situation of the case study area

3.1.2. Location & Area:

1. The case study area is located in the southeastern part of Addis Ababa, nearly at the center of the bole sub - city, & at the southeastern side of the “Bole to Megenagna Ring road” section.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa



Fig. 2. Location Map of the case study area

Source: Nortech map

2. “Gerji” is adjacent to the Bole international Airport at the south, “Yerer” area at the east, the new proposed international stadium site and “Adwa Park” at the West, and “Mebrathail” and “Egzarhab” neighborhoods at the north.
3. The total area of the case study area is about 463.23-hectares with a perimeter of 12 kilometers.
4. The administrative structure of the case study area was formerly ruled under Woreda17, Kebele 25 and currently administered under the Bole Sub – city: Kebele: 10/11.

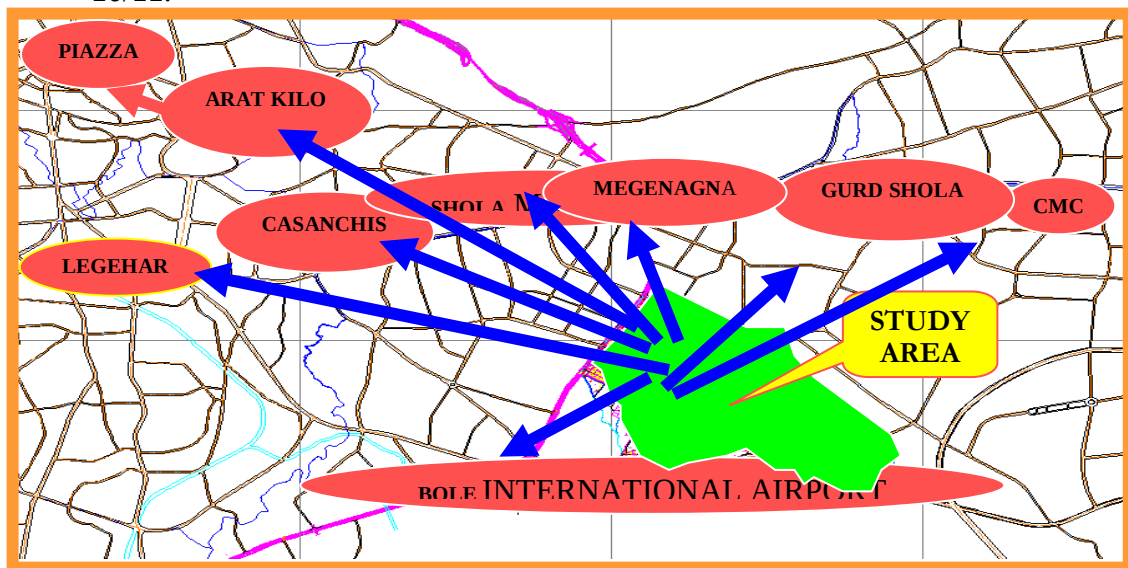


Fig 3. Location Map showing the relation ship of the case study area with other areas of the city

Source: GIS map

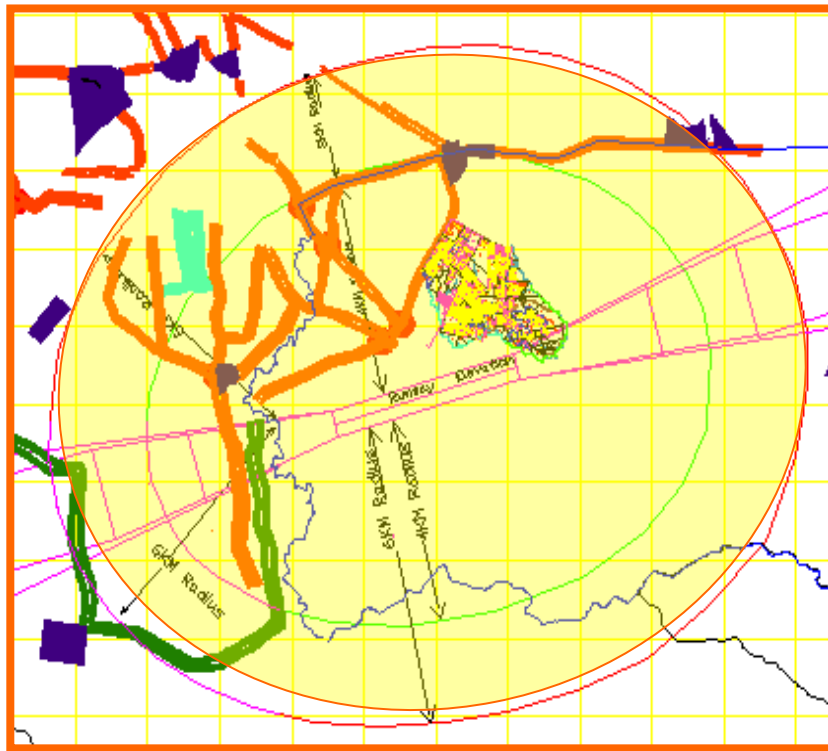


Fig. 4. Map showing 1st & 2nd zone – Aviation flight obstacles

Source: GIS map



5. Since the case study area is in the 1st zone - aviation flight obstacle radius of 4km, the maximum height of buildings is limited to 45 meters - plot area Elevation, above the sea level of the runway.

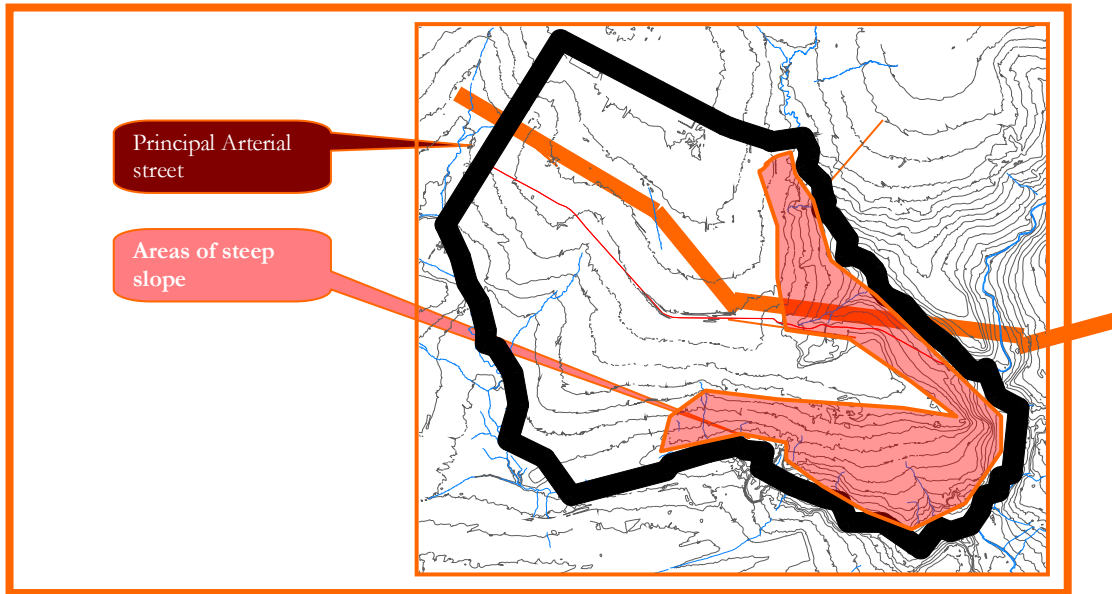


Fig. 5. Map showing Topography of the case study area

Source: GIS map

3.1.3. Soil type

Most part of the case study area is of black cotton soil, which requires a careful and detailed design analysis & safety. It makes the cost of substructure expensive because of deeper excavation when constructing any structure.

3.1.4. Climate

This section deals with the types & directions of sun that affects the existing blocks.

1. Situated at a height ranging from 1800 meters to 2,500 meters above sea level
2. The climatic zone of “Gerji” is "Woina Dega", meaning cool to warm climate, with an average annual temperature of 15 °c.
3. The climate in general is pleasant and invigorating.
4. The case study area is sunny for the most part of the year, except the months of July to September.

3.1.5. Topography

1. The case study area is a large neighborhood, which is crossed by a principal arterial street.
2. Most of the area is nearly flat land but steep slope exists to some extent in the southeastern part of the case study area.

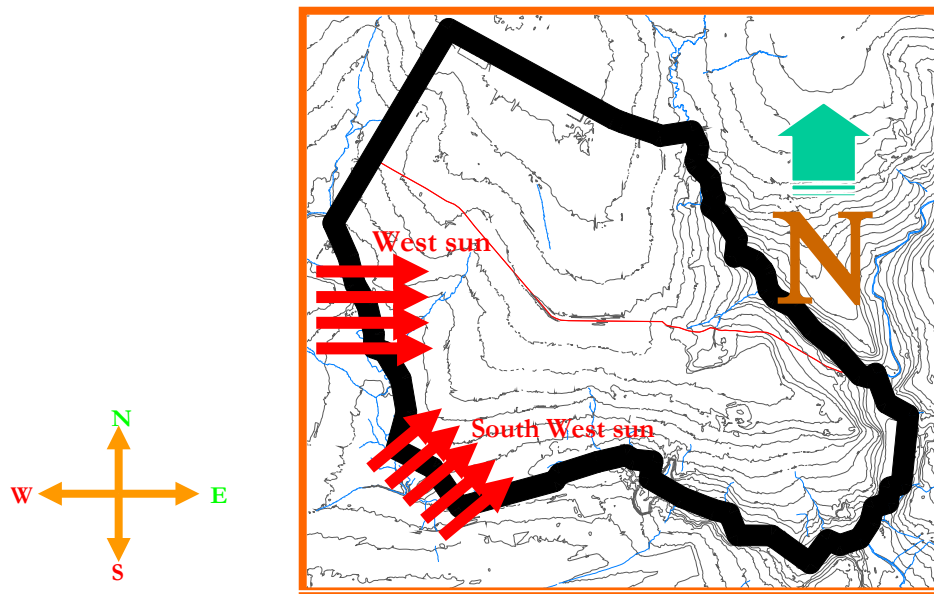


Fig. 6. Map showing direction of sun in “Gerji” area

Source: Nortek map

3.1.6. Land use

The land use of the study area consists of: Residential (42.42%), Mixed Use (1.64%), Commercial (1.90%), Garages and Workshops (4.55%), Hollow Concrete Block factories (2.33%), Manufacturing and Industries (0.91%), Social services (7.03%), such as schools, colleges, churches, a mosque, part of “Adwa park” (8.06%), “EELPA” sub station (0.39%), Land fill site (2.63%), unknown (17.60%), and Streets and Vacant spaces (11.18%).

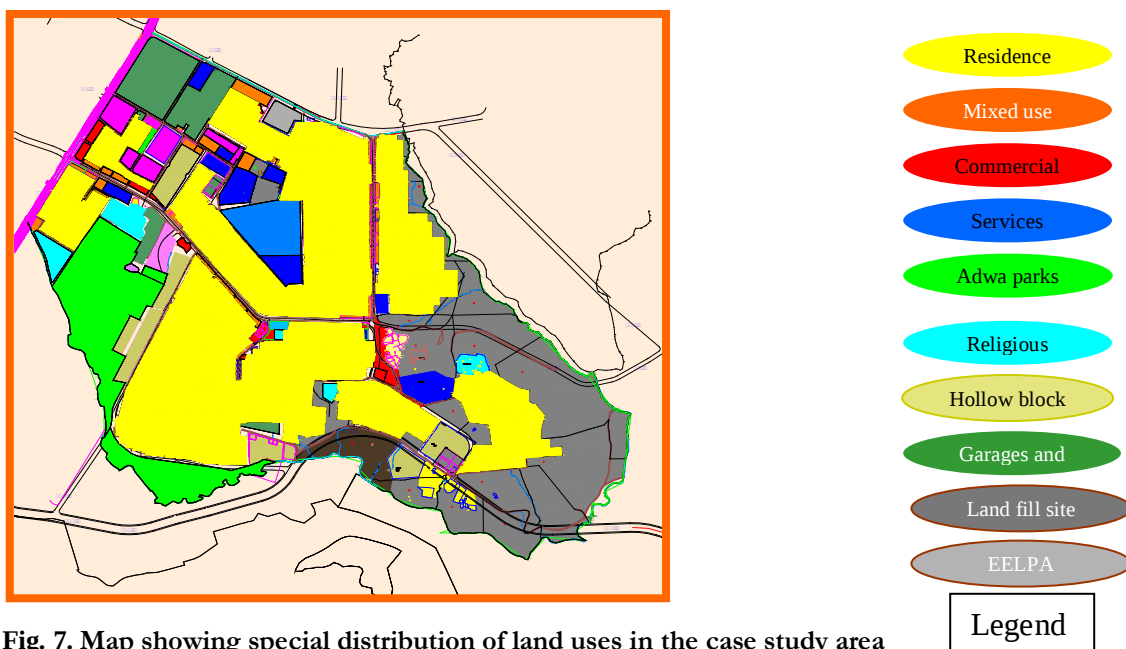


Fig. 7. Map showing special distribution of land uses in the case study area

Source: GIS map

3.1.7. Population size and demography characteristics

Considering an average number of 5 people per households, the case study area is expected to reach a total population number of 54916 when government Condominiums & real-estate houses are completely transferred to the beneficiaries

Table 1. Demographic characteristics of the case study area					
Zone 03 Woreda 17 Kebele 25 or Bole sub-city, kebele 10/11	Both Sexes	M	F	No of households	No of housing units
Census of 1994	20631	9491	11140	4302	4143
Increase between (1995-2007) avg. annual population growths $r = 3.79\%$ $p_2 = p_1 * (1+r)^n$	12830			893	860
Increase due to infill developments (govt. condominiums & real estate.	21455			4291	4132
Total	54916			9486	9135

Source: The 1994 population and Housing census of Ethiopia and A.A housing development agency.

1. The case study area will have a total housing number of 9,135, including the new condominium housing units of the government & a private real estate.
2. Out of the total housing units, 3410 housing units are found in the government Condominiums, 542 housing units are found in the sunshine real estate & 792 housing units are government rental.
3. The Gross density of “Gerji” is expected to be 118.55 peoples/hectare & 19.7 housing units /hectares with an average BAR value of 0.41 & an average FAR value of 1.62.
4. The net density is calculated to be 142.34 peoples/hectare and 23.67 housing units/ hectare

3.1.8. Ownership

In the case study area there are G+0 and G+1 government rental houses, G+0 housing cooperatives, medium rise government condominiums, private real estate, detached private houses and informal houses. In general there are two types of ownerships:

1. Private ownership, and
2. Rental ownership

3.1.9. Housing characteristics

Two types of residential building structures were observed in the case study area, low rise and medium rise houses. The type of these houses is further classified into four, namely: Detached houses (G+0-G+3), Semi-detached houses (G+0), Row houses (G+0 & G+1), and Apartment flats in the form of condominiums (G+2-G+4)

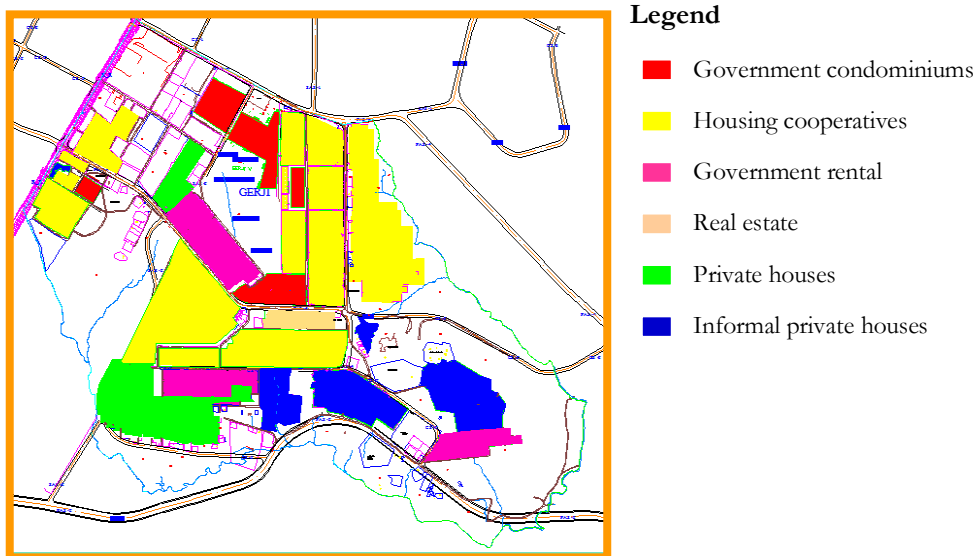


Fig. 8. Map showing the type of Ownership in the case study area

Source: GIS map



Fig. 9. Detached house (G+1)



Fig. 10. Row houses (G+0)



Fig. 11. Semi-detached houses



Fig. 12. Row houses (G+1)



Fig.13. Condominiums (G+3)

Source: Field Data, 2007

3.1.10. Physical and Socio-Economic Characteristics

To understand the Socio economic and Physical condition of the case study area, questioners were distributed to about 81 sample households.

3.1.10.1. Socio-economic Characteristics

Majority of the respondents, i.e., 70% of the sample households was found to be men. However, in the Gerj condominium pilot project, majority of the respondents were found to be women in the document released by the HDEOAA, since 2005. In general, 27% of the respondents in the case study area were found to be women. Only 3% of the sample households did not respond about their sex. From this result, we can conclude that hard works in developing the case study area would be possible & urban design solutions should consider the needs of the majority. (Source: Field Data, 2007)

Table 2. Showing Sex of Respondents			
	Gender	No of Respondents	%
1	Men	57	70
2	Women	22	27
3	No respond	2	3
	Total	81	100

According the questioners distributed, 68 % of the respondents were found married, 24% were found single & 5 % were found widow. Only 3% of them did not respond. This analysis can tell us that both family heads could share economical & social responsibilities in the majority of the sample households. (Source: Field Data, 2007)

Table 3. Showing households by Marriage			
	Households by Marriage	No of Respondents	%
1	Married	55	68
2	Widow	4	5
3	Single	20	24
4	No respond	2	3
	Total	81	100

The type of tenure in Gerj area can be classified as rental occupied and owner occupied. According to the questioner distributed to the 81 sample households, 59% of them were found to be private owners and 41% of them were found to rent G+0 & G+1 lows cost houses provided by the rental housing agency & rented by individual owners. Most of the privately owned houses of the respondents were low cost houses developed through the system of cooperative housing & some others transferred through the system of

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

condominiums of the Grand Housing Program of the City Administration. Some good quality detached (G+1, G+2 & G+3) houses were also seen owned by few respondents in the case study area and some sub-standard informal houses were also observed owned by respondents. Most of the informal houses emerged illegally a decades ago taking the advantage of election periods & because of the loose controlling system of the previous city administration.

Table 4. Showing rental cost			
	Rental cost (birr)	No of Respondents	%
1	< 100	2	3
2	100 - 500	19	23
3	500 - 1000	3	4
4	1000 - 1500	4	5
	Total	81	100

Table 5. Showing households by Ownership			
	Ownership	No. of Respondents	%
1	Owner	48	59
2	renter	33	41
	Total	81	100

Source:-Field Data, 2007

Questioners were also distributed to find out the type of structure in the case study area. The types of structure in the case study area were found to be single-family structure in the detached & semidetached houses and multi - family structure in the governmental condominiums. The beneficiaries did not occupy all the governmental & real estate condominiums, except that of the Gerj pilot project. In the Gerji pilot project of governmental condominium, mixing of different income groups was observed while increasing social interaction.

Majority of the respondents, i.e. 43% of the sample households, responded that they have more than 3 rooms in their houses. Those respondents having 2 rooms and 1 room were found to be 14% and 12%, respectively. Households responding to have only 3 rooms were almost equivalent to the sum of those having one & two rooms, i.e. about 27%.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Table 6. Showing number of Rooms			
	Number of Rooms	No. of Respondents	%
1	One Room	10	12
2	Two Room	11	14
3	Three Room	22	27
4	> three rooms	35	43
5	No respond	3	4
	Total	81	100

Source:-Field Data, 2007

According to the questioners distributed, 41% of the sample households were found to have more than 5 family members. Out of the total sample, 17% and 15% of them responded that they have 4 & 3 family members, respectively. 14% of them have 5 family members, 7% of them are single and 5% of them have only 2 family members. (Source: Field Data, 2007)

Table 7. Showing number of family members			
	Number of family members	No. of Respondents	%
1	One	6	7
2	Two	4	5
3	Three	12	15
4	Four	14	17
5	Five	11	14
6	Five	33	41
7	No respond	1	1
	Total	81	100

The questioners distributed to the sample households could tell us that 42% of the respondents have ages of between 40- 50, 30 % of them have ages of 50-60 and 16% of them have ages of 25-40. From this result, we can conclude that majority of the respondents are in their working time and have energy to participate in any developmental activities with their money & labor. From the total households, only 6% of them passed the age of sixty.

Table 8. Showing households by age			
	Age of respondents	No. of Respondents	%
1	25 - 40	13	16
2	40 - 50	34	42
3	50 - 60	24	30
4	60 - 70	1	1
5	70 - 80	4	5
6	No respond	5	6
	Total	81	100

Source:-Field Data, 2007

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Among the sample households, about 36% of the respondents were found to be government employees, 28% were privately employed, & 15% were self-employed. However, 9 % of the sample households were found to lead their life by the assistance of their relatives. Those who retired and did not respond were found to be equal, each scoring 6%.

Table 9. Showing households by Job			
	Households by Job	No of Respondents	%
1	Self employed	12	15
2	Government employee	29	36
3	Private employed	23	28
4	Retired	5	6
5	Foreign Assistance	7	9
6	No respond	5	6
	Total	81	100

Source:-Field Data, 2007

Out of the sample households, 42% of them were found to have college diplomas and 28% of them completed Grade 12. Those having first degrees were found to be 15% and only 4 % of them had second degrees. According to the respondents, those who could read & write and those who were found to be illiterates, were found to be 9% & 1%, respectively.

Table 10. Showing households by Education			
	Educational status	No. of Respondents	%
1	Reading & writing	7	9
2	Grade 12 completes	23	28
3	Diploma holders	34	42
4	Degree holders	12	15
5	Second degree holders	3	4
6	Unable to read & write	1	1
7	No respond	1	1
	Total	81	100

Source:-Field Data, 2007

Majority of the respondents, i.e. 33% of them, responded that their monthly income is between Birr 500 & 1000. Those respondents with a monthly income, between Birr1000 – 2000 and 100 –500 were found to be 23% and 19%, respectively. From the sample households, about 17% of them were found to earn above Birr 2000 and 4 % of them, below Birr100. From this result, we can conclude that majority of the respondents are middle-income groups who don't have a luxuries life.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Table 11. Showing proportion of income			
	Households by income	No of Respondents	%
1	< 100	3	4
2	100 - 500	15	19
3	500 - 1000	27	33
4	1000 - 2000	19	23
5	> 2000	14	17
6	No respond	3	4
	Total	81	100

Source:-Field Data, 2007

The distributed questioners could show that 42.5% of the sample households are taxi users. 28.5% use bus and 10% of them use office services as a mode of transport. 11% of the respondents have private cars to go to their work place and 5% of them walk. Those who use both taxi & bus alternatively, and both, taxi & walk, alternatively, were found to be 1%, each. From this analysis we can conclude that about 80% of the respondents use public transports and taxi, alternatively and attention should be given for their comfort by providing convenient & appropriate bus stops with standard shelters & convenient & safer taxi stops, with attractive plantation that provide shade & with good quality hard landscaping to answer the requirements of the visual dimension. The major arterials road should be designed with elevated median in between and pedestrians should be allowed with comfortable pavements being separated from the vehicular access.

Table 12. Showing mode of transports			
	Mode of transports	No of Respondents	%
1	Private car	9	11
2	Taxi	34	42.5
3	Bus	23	28.5
4	Service	8	10
5	Walk	4	5
	Total	81	100

Source:-Field Data, 2007

According to the questioners distributed to the sample households, 33% of the respondents said that they stayed in the case study area for less than 5 years, 31% of them responded that they stayed in the case study area from 10-15 years, 17% of them stayed from 5 – 10 years, & 15% of them stayed from 15-20 years. Only 4% of them responded that they stayed in the case study area from 20 –40 years. From this result we can conclude that 96%

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

of the case study area was developed in the last 20 years unlike the old settlements of Addis Ababa.

Table 13. Showing households by the time			
	Year of stay	No of Respondents	%
	1 - 5 years	27	33
	5 - 10 years	14	17
	10- 15 years	25	31
	15- 20 years	12	15
	20 - 40 years	3	4
	Total	81	100

Source:-Field Data, 2007

Majority of the respondents, i.e. 89% of the sample households responded that they are willing to participate in any developmental activities. Out of them, 49% of are willing to spend their money and labor, together, for any community developmental activities. 25% of them responded to spend their labor and 12% of them responded to spend their money, only.

Table 14. Showing Willing to in Community Development			
	Willingness	No of Respondents	%
	Willing	72	89
	Not willing	8	10
	No responding	1	1
	Total	81	100
Table 15. Showing Choice of participation in Community Development			
	Choice of participation	No of Respondents	%
1	Labor	20	25
2	Money	10	12
3	Both	40	49
4	No respond	11	14
	Total	81	100

Source:-Field Data, 2007

In the questioners distributed, 80% of the respondents said that the have “Idir” and 15% of them responded that they don’t have “Idir”. Those who did not respond were found to be 5%. Therefore, the participation of the majority in “Idir” would make it easy for the sub-city and for any NGO, to organize those who are willing to participate in any community development works, in terms of labor or money.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Table 16. Showing households having Idir			
	Households having Idir	No of Respondents	%
1	Having Idir	65	80
2	No Idir	12	15
3	No respond	4	5
	Total	81	100

Source:-Field Data, 2007

According to the questioners distributed to the sample households 38% of the sample house holds responded that they badly need the provision of community entertainment centers. Among the total sample households, 10% of them were found to be in need of adequate health centers with fair price, 7% of them were found to be in need proper sewerage system & 4% of them were found to be in need of supermarkets.

Table 17. Showing need of service to be provided in priority			
	Necessary social service	No of Respondents	%
1	Supermarket	3	4
2	Entertainment	31	38
3	Bank	1	1
4	Market	2	3
5	Hospital	8	10
6	All are not available	1	1
7	All are available	3	4
8	Asphalted road	1	1
9	K.G.	2	3
10	Sewerage	6	7
11	Police Station	1	1
12	Fire brigade	1	1
13	School	1	1
14	Parking	1	1
15	Parking	1	1
16	Road & Electric	2	3
	Total	81	100

Source:-Field Data, 2007

Those respondents who were in need proper market, kindergarten and proper infrastructure, like functional & a good quality road surface, each were found to be 3%. Those who were in need of bank service, asphalted road, police stations, a fire brigade, primary and secondary schools, parking, each were found to be 1 %. However, 4 % of the total respondents said that adequate social services are available in their surrounding, but 1% of the total, responded that nothing is available in their neighborhood.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

From these responds, we can conclude that entertainment areas and community centers are badly needed by the community and any concerned body should give priority when providing social services when planning any development scheme. The increasing number of new developments by infilling spaces can be considered as the main cause in decreasing the number & size of the available open spaces. Even though there are 2 new hospitals that are constructed recently, the respondents said that they couldn't afford to get the service anytime in the hospitals.

	Table 18. Showing available community center		
	Community center	No of Respondents	%
1	Available	29	35.5
2	Not available	50	61.5
3	No respond	2	3
	Total	81	100

Source:-Field Data, 2007

The need for supermarkets was responded from the high-income groups who don't have time to process everything in the traditional way. The need for police station, fire brigade, & asphalt roads were found less since the case study area has a planned nature with a grid street pattern, having maximum physical & visual permeability, and the type of construction materials used can not in a situation to cause fire & other security problems. However, the street pattern, since it has a lot of "Ins & outs", the pattern invites new comers to enter visually & physically. 69% of the sample households responded that they are not secured since the quality of their fences is not good enough to protect them from thieves & their blocks are in a very near distance from the local road.

	Table 19. Showing Security		
	Security	No of Respondents	%
	Secured	24	30
	Unsecured	56	69
	No respond	1	1
	Total	81	100

Source:-Field Data, 2007

Out of the total sample households, 87 % of them responded that markets are available and only 12% of them responded that they are not available. However, the type of the market available in the middle of the case study area is not formal and it needs order, proper location & organization in a planned manner.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

	Table 20. Households by Availability of Market place		
	Market place	No of Respondents	%
1	Available	70	87
2	Not available	10	12
3	No respond	1	1
	Total	81	100

Source:-Field Data, 2007

About 47% of the respondents responded that play lots are available in their compound and the same percent of respondents said that play lots are not available. Therefore the provision of play lots is an important issues since half of the respondents don't have the service & to avoid social inequity.

	Table 21. Showing available p lay lots		
	Play lots	No of Respondents	%
1	Available	38	47
2	Not Available	38	47
3	No respond	5	6
	Total	81	100

Source:-Field Data, 2007

About 83% of the total sample house households responded that they have social interaction with their community through “Idirs” and cooperative housing development works. Only 17% of them responded that they are isolated & do not participate in any social activities.

	Table 22. Showing households by Social Interaction		
	Households by Social Interaction	No of Respondents	%
1	Maximum interaction	67	83
2	Minimum interaction	14	17
	Total	81	100

Source:-Field Data, 2007

Households who were found to use gas, wood, coal & electricity, alternatively, as their mode of energy, were found to be 39.5%. 34.5% of the sample households responded that they use Gas only as a means of energy. Those who were found to use electricity, coal & wood were found to be 7%, 6 %, & 4 %, respectively. 1% of respondents were found to use coal & gas, alternatively, and 3% of them were found to use electricity & gas, alternatively, as a means of energy. From this analysis, we can conclude that most of the households were not found using wood as a means of energy & this may play a significant role for the sustainability of the case study area.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Table 23. Showing mode of energy used			
	Mode of energy	No of Respondents	%
1	House holds electricity	6	7
2	House holds Coal	5	6
3	House holds Wood	3	4
4	House holds Gas	28	34.5
5	House holds all	32	39.5
6	House hold coal & Gas	1	1
7	House holds electricity & Gas	2	3
8	No respond	4	5
	Total	81	100

Source:-Field Data, 2007

When the sample households were asked whether they are willing to be relocated, 61.5% of them were not found to be willing since their location is good with the necessary infrastructure services. Only 35.5% of them responded that they are willing & among those who are willing, 43% of them responded that they are willing to be relocated in the nearby area where infrastructure service is allocated. Only 15% them responded to be relocated any where in the city. Most of the sample house holds who responded to be relocated were living the government rental houses, privately owned rental houses, & in the areas of informal settlements. This interest of relocation may arise from the lack ownership & the lack of legal tenure ship in the informal areas. Therefore, there should be a policy for legal transfer & the provision of legal tenure ship in order to ensure security, decrease the sense of placeless ness & increase the image & quality of the urban architecture.

Table 24. Showing households willing to be relocated			
	Willingness to be relocated	No of Respondents	%
1	Not Willing	50	61.5
2	Willing	29	35.5
3	No respond	2	3
	Total	81	100

Table 25. showing choice of relocation area			
	Choice of relocation area	No of Respondents	%
1	In the nearby area	34	42
2	Any where	12	15
3	Places with infrastructure	1	1
4	No respond	34	42
	Total	81	100

Source:-Field Data, 2007

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Respondents who said that very few social spaces are available were found to be 54%. About 42% of them responded that social spaces are not available. Only 4% of them did not respond. Among the entire sample households, 61.5% of them responded that community centers are not available and 35.5 of them responded they have the service near their compound. Only 3% of them did not respond. From this we can conclude that the provision of entertainment area should be given for more than 60% of the community & social spaces should be provided for more than 40% of the community, with sufficient space & proper landscaping.

Table 26. Showing Social Space			
	Social Space	No of Respondents	%
1	Available	44	54
2	Not available	34	42
3	No respond	3	4
	Total	81	100

Source:-Field Data, 2007

From the 81 samples house holds, 91% of them responded that they are very near to the available social spaces but only 9% of them responded that they are far from them. From this analysis we can conclude that at least the available social services are in a reasonable distance from the households. According to the investigation the respondents who said that they are far from the available services are those whose location are at the periphery of the case study area.

Table 27. Showing Proximity to the available Social Services			
	Proximity	No of Respondents	%
1	Near	74	91
2	Far	7	9
	Total	81	100

Source:-Field Data, 2007

3.1.10.2. Physical Characteristics

According to the questioners distributed to the sample households, 73% of them responded that they have electricity, telephone and water services. 5% of them responded that they have only telephone line. Those that responded to have both water service and electricity & both telephone line & electricity were found 1%, each. However, 3% of the respondent did not respond. From this analysis we can conclude that the city administration provided almost all the necessary infrastructure services. However, according to the

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

interview made with the households, majority of the services were installed recently and infrastructure services had been their major problem for a longer time.

Table 28. Households by Infrastructure			
	Available physical infrastructures	No of Respondents	%
1	Telephone Line,	73	90
	Pipe water line, &		
	Electric Line		
2	Telephone Line Only	4	5
3	Electric & Telephone Line	1	1
4	Electric & water Line	1	1
5	No respond	2	3
	Total	81	100

Source:-Field Data, 2007

With respect to utility service, 75% of the sample households responded that they have their own private toilets, 21% of them were found to share common toilets, and however, 4% of the sample households did not respond. Therefore, we can conclude that majority of the sample households achieved privacy since they don't share common toilets.

Table 29. Showing Utility service			
	Households by Utility	No of Respondents	%
1	Private toilet	61	75
2	Common toilet	17	21
3	No respond	3	4
	Total	81	100

Source:-Field Data, 2007

The sample households were asked about the quality of their houses and neighborhoods, respectively. 54% of the sample households responded that the qualities of their houses are fair and 42% of them responded they have good quality houses. Only 4% of the respondents said that the conditions of their houses are bad. Out of the total sample households, about 81% of them responded that their neighborhood is good looking when compared to the old & traditional settlements of Addis Ababa. Only 19% of them responded they have bad neighborhood. From this analysis, we can conclude that the case study area has a good habitable environment when compared to the old settlements of Addis Ababa.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Table 30. Households by Quality of house			
	Quality of houses	No of Respondents	%
1	Good	34	42
2	Fair	44	54
3	Bad	3	4
	Total	81	100
Table 31. Households by Quality of neighborhood			
	Quality of neighborhood	No of Respondents	%
1	Good	66	81
2	Bad	15	19
	Total	81	100

Source:-Field Data, 2007

From all the respondents, about 67.5% of them responded that the type of road adjacent to their plot is a gravel road and those respondents who were found to have an asphalted road were 14.5%. 11% of them responded that they type of road adjacent to their plot is an earth road and those with stone paved road were found to be 3%. Only1% of them said that the road finish adjacent is sand. From this we can conclude that majority of the respondents were provided substandard local roads with gravel floor finish which are not comfortable to walk, to drive & as well serve as a media for swamp & dust particles. The quality of all the local roads is not good & therefore it is not comfortable to walk and drive during rainy season & cause dust to get in side the houses whenever wind blows.

Table 32. Showing the type of road in front of the residential plots			
	Type of road	No of Respondents	%
1	Asphalted road	12	14.5
2	Gravel road	55	67.5
3	Earth	9	11
4	Sand	1	1
5	Stone paved	2	3
6	No respond	2	3
	Total	81	100

Source:-Field Data, 2007

According to the questioners, sample households whose houses are constructed with hollow block wall were found to be 70%. Those having mud and wood houses were 14%, mud plastered with cement houses were 6%, & brick walled houses were 4%. Those

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

respondents with walls of concrete and sheet metal houses & stone walled houses were found to be 1%, each. From this analysis we can conclude that majority of the sample households have houses made from hollow block walls with cement floor finish. The cement floors were seen affecting the room temperature causing a colder effect during the nighttime and relatively, the hollow block wall could resist fire when compared to the mud & wood houses. Since most of the blocks owned by the respondents were found to have the same construction material, similarity dominates the case study area and their thermal effect is relatively lower when compared to Brick houses found in the case study area. Therefore we can conclude that the construction materials & the floor finishes could tell us that low cost houses dominate the case study area.

Table 33. Showing exposure for fire			
	Exposure for fire	No of Respondents	%
	Exposed to fire	25	31
	Not exposed to fire	55	68
	No respond	1	1
	Total	81	100

Source:-Field Data, 2007

Majority pf the respondents, i.e. 76% of them, said that they have a cement floor finish. 12% of them were found to have PVC floor finish, 4% were having earth floor, & 3 % of them responded that they have a wooden floor finish. However, 1% of them were found to have mixed type of floor finishes.

Table 34. Households by Construction material			
	Construction material	No of Respondents	%
1	Hollow block	57	70
2	MUD + wood	11	14
3	MUD + Cement	5	6
4	Brick	3	4
5	Concrete	1	1
6	Sheet metal & stone	1	1
7	No respond	3	4
	Total	81	100
Source:-Field Data, 2007			

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Table 35. Showing the type of floor finish			
	Floor finish	No of Respondents	%
1	Cement floor	62	76
2	PVC floor	10	12
3	Earth floor	3	4
4	Wooden tile	2	3
5	All	1	1
6	no respond	3	4
	Total	81	100

Source:-Field Data, 2007

According to the questioners distributed, 52% of the sample households have a plot area of 105 m². Those who were found to have 250 m², 75 m² & 175 m² were found to be 12%, 10%, & 7%, respectively. Those households having plot areas of more than 500 m² were found to be 4% only. Therefore, we can conclude that majority of the sample households were found to have smaller plot areas with low cost houses & only 19% of the total have plot areas greater or equal to 250 m².

Table 36. Showing plot area			
	Plot area	No. of Respondents	%
1	75 m ²	8	10
2	105 m ²	42	52
3	175 m ²	6	7
4	250 m ²	10	12
5	500 m ²	2	3
6	> 500 m ²	3	4
7	No respond	10	12
	Total	81	100

Source:-Field Data, 2007

From all the sample households, 59% of the respondents said that they did not maintain their houses & 16% of them said that they maintained their houses only one time. Those who maintained their houses for 2 times and 3 times were found to be 14% & 6%, respectively. Only 5% of them said that they maintained their houses for more than 3 times. From this analysis we can conclude that sense of placelessness dominates in the areas of the sample households and this was found to affect the image & quality of the urban architecture. The reason for the lack of belongingness were probably the type of ownership & the economical status of the respondents, since most of the low cost houses are owned by the government and majority of the owners don't have a sufficient monthly income to maintain their private houses, respectively.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Table 37. Households by maintenance			
	Time of maintenance	No. of Respondents	%
1	One time	13	16
2	Two times	11	14
3	Three times	5	6
4	More than times	4	5
5	No respond	48	59
	Total	81	100

Source:-Field Data, 2007

About 86 % of the respondents said that they don't have small shops in their plot. However, 14% of the total respondents were found to have one or more commercial units by subtracting the front portion of their plots, adjacent to the main road. From this analysis we can conclude that almost all households adjacent to the main road made the street side mixed use introducing some business activities. From this we can conclude that the development of the area did not consider the future prospect of the case study area & this can be seen in the proposed land use plan of the revised master plan.

The street sides would be better if they were made to accommodate with mixed-use high density & multistory buildings. Therefore the proposal needs further study revising the height regulation & land use for the sides adjacent to the principal arterial road. This will make the right & left sides of the street very active & increase the image of the case study area. The diversified morphologies created by the individual households were found affecting the image of the street sides, even though the distribution of diversified business activities were found convenient & nearer for the dwellers.

Table 38. Showing households Subtracting their plots for business			
	Households having shops	No of Respondents	%
1	Having shop (s)	11	14
2	No shop	70	86
	Total	81	100

Source:-Field Data, 2007

According to the questioners distributed, 53% of the respondents were found to appreciate the location of their houses. 28% of them appreciated the efficiency of construction, 9% of them appreciate the size of their plot area, & 4% of them appreciated both, the construction cost & the location. Only 1% of the respondents were found to appreciate location, cost, & plot size. Since the majority appreciated the location, we can

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

conclude the case study area is a very good habitable area and the cost of land would become variable with an increasing trend.

Table 39. Showing strong beliefs of households about their houses			
	Strong side of the house	No of Respondents	%
1	Cost	14	17
2	Location	43	53
3	Area	7	9
4	Construction material	9	11
5	Cost & location	3	4
5	No respond	4	5
7	All	1	1
	Total	81	100

Source:-Field Data, 2007

About 52% of the total households responded that there is no landscaping, 42% of the respondents said that there are some landscaping in the case study area, & only 6% of them said that there is good landscaping. From this analysis we can conclude that 50 % of the case study area needs to be given attention in terms of landscaping. According to the physical investigation done in the case study area, only the southern and south western part of the case study area has diversified greeneries, trees and formal landscaping in the compounds & fences of privately owned individual houses.

Table 40. Showing availability of Landscaping			
	Landscaping	No of Respondents	%
1	Not available	17	21
2	Some landscaping	34	42
3	No landscaping	25	31
4	Good landscaping	5	6
	Total	81	100

Source:-Field Data, 2007

The area reserved for a park called the “Adwa Park” has a greater potential in making the section pleasant & habitable with some greeneries & trees in its territory. However, the park is not yet treated and for this reason it looks vacant. Some portion of the park is given temporarily for hollow block & pre-cast beam manufacturers & another small portion is fenced for a play ground by a primary school called “Enbut primary school”, located at its northeastern side of the park across the road. But the land development department of the

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Bole sub-city has been doing design in collaboration with the environmental protection authority & the design is prepared with a metaphor of “African map” with a variety of entertainment services & good landscaping such as a parking cinema, amphitheatre, good quality floors cape, garden seats, fountain, etc.

Majority of the respondents, i.e. 42% of the sample households, responded that the major problem in their house is lack of adequate space. This can be observed in the semidetached low cost houses and in the Gerj condominium pilot project. Lack of private parking spaces, play lots, social spaces convenient place for dish antennas, cloth washing & drying places, adequate size of internal rooms are some of the major problems of the case study area with respect to space. Some of the semi – detached low cost houses observed not to have parking spaces inside their plots, and therefore, they are forced to park car at the adjacent local road. According to the questioners distributed to the sample households to study the major problem of the case study area, 21% of the respondents said that their major problem is lack of proper sewerage system & 12% of them responded that the distance from their work place is a major problem. About 9% of them responded that the provision of infrastructure is their major problem & only 5% of them complained about the expensive rental fee for the house they rented.

Table 41. Households by Major Problem			
	Major Problem	No of Respondents	%
1	Narrow space	35	43
2	Sewerage Problem	17	21
3	Infrastructural Problem	7	9
4	Distance from Work place	10	12
5	Higher rental & Cost	4	5
6	No responds	8	10
	Total	81	100

Source:-Field Data, 2007

Majority of the sample households, i.e. 90% of them responded that they have car access road into their houses. Among the total sample households, 59% of them responded that they have parking space in their compound and 38% of them responded that they don't have a parking space. However, some of the fences were seen widened during the nighttime by modifying the main gate to be foldable & open out wards. This creative modification was

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

found to decrease the width of the local road & would be difficult for visual and as well for any physical movement (if fire starts suddenly at night).

The available communal parking spaces were seen inadequate for the number of the housing units & most of them were seen misused. Since 40% of the respondents responded that they don't have parking spaces, an alternative should be given to provide enough communal parking spaces in order to make the available spaces functional & bring social equity in the case study area. However, every household is observed to have access to its main gate showing that accessibility is possible throughout the case study area.

Table 42. showing Car Access Road			
	Car Access Road	No of Respondents	%
1	Having car access road	73	90
2	No access	6	7
3	No respond	2	3
	Total	81	100
Table 43. showing available Parking Space			
	Available Parking Space	No of Respondents	%
1	Yes	48	59
2	No	31	38
3	No respond	2	3
	Total	81	100

Source:-Field Data, 2007

According to the questioners distributed to the sample households, 66% of them live in G+ 0 houses, 18.5% live in G+ 1 house, & 5% live in G+2 houses. The rest were found to live in governmental condominium houses.

Table 44. showing types of House			
	Number of stories	No of Respondents	%
1	G + 0	53	66
2	G + 1	15	18.5
3	G + 2	4	5
4	Condominiums	9	10.5
	Total	81	100

Source:-Field Data, 2007

3.2. Existing Facilities (Social & infrastructural services)

3.2.1. Available educational services in the case study area

1. “Gerji elementary school”
2. Secondary high school
3. “Unity University College”
4. “Horizon Youth Academy”
5. “Ethio – Parents” elementary school
6. Kindergartens
7. “Enbut” elementary school
8. “Vision Academy”



Fig.14 Unity University



Fig.15 High School



Fig.16 Horizon Youth Academy



Fig.17 Enbut School

Source:-Field Data, 2007



Fig.18 East African kindergarten

3.2.2. Available Health services in the case study area

1. Health post
2. Private hospital
3. Korean hospital
4. Private clinics



Fig.19 Korean hospital



Fig.20 Miriam Mother & Child hospital



Fig.21 Kebele 11 health post

3.2.3. Available Community centers

1. Telephone booths
2. Social gathering spaces
3. Communal parking



Fig.22 Kebele entertainment



Fig.23 Public telephone booth



Fig.24 Football field



Fig.25.Adwa Park



Fig.26.Communal parking

Source:-Field Data, 2007

3.2.4. Available Religious Centers

1. St. Mariam church
2. St. Giorgis church
3. Mosque
4. Protestant church



Fig.27. St. Mariam church



Fig.28.St. Giorgis church

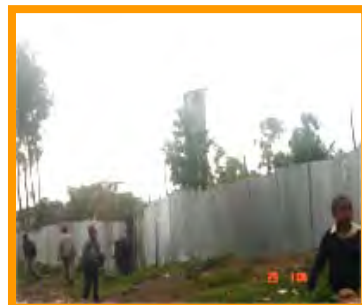


Fig.29.Mosque

3.2.5. Available administration offices

1. Kebele offices
2. Police stations



Fig.30. Police station

Source:-Field Data, 2007



Fig.31 Kebele 11 administration



Fig.32. Kebele 10 administration

3.2.6. Available Commercial services

1. Informal open markets
2. Street side shops
3. Flourmills
4. Bars, restaurants and cafeterias
5. “Roba Bakery”
6. “Mena Bakery”
7. “Markos Pastry and Bakery”
8. Men and women Beauty salons
9. Boutiques
10. Building materials shops
11. Internet cafes
12. “Imperial Hotel’
13. “G-G royal Hotel”
14. “Imad Furnished Apartment”



Fig.33. Imperial hotel



Fig.34. Street side shops



Fig.35. Flourmills



Fig. 36 Shops on residential plots



Fig.37. Sami Building



Fig.38. Open market



Fig 39. Fuel station

Source:-Field Data, 2007

3.3. Street pattern

1. Grid layout dominates
2. There are some bad junctions in the grid layout.
3. Hierarchy: There are Principal arterial, Sub-arterial, Collector and Local Streets in the case study area
4. The main arterial street is observed to intersect with a number of local streets without hierarchy.
5. Both, the collector & the local streets, in front of the former “Russian camp”, form a T-junction, at an acute angle, with the main arterial street. Even though T-junction has only three collision points, the existence of the two streets within a shorter distance in between was observed to cause accident.

6. Most of the local streets inside the neighborhood intersect in hierarchy with the Collector Street.
7. Sizes of the local streets are not enough to exercise both on- street parking and entry to the compound at the same time. As can be seen in the picture below, some of them were observed serving as a social space.



Fig.40.Width of Local Street to human scale



Fig.41.Using a Local street as a social space

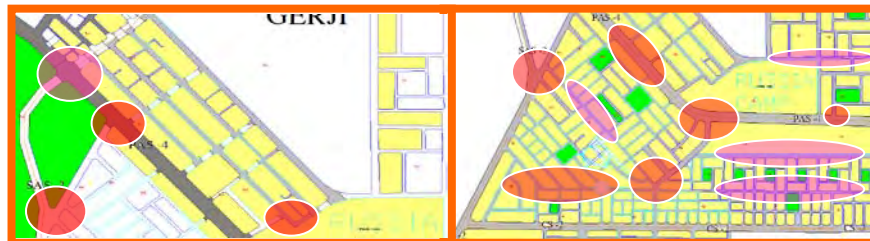


Fig.42/43.Maps showing Good & Bad connections

Legend

- Good connections
- Bad connections

Source:-Field Data, 2007 & GIS map.

8. The use of grid street layout consumes so many lands to be used for open spaces.
9. Lack of alternative route, which can connect the study area to the major city center area i.e. the bole road in a shortest length.
10. There exist principal arterial streets bisecting the neighborhood into two
11. Local streets have similar width and are many in number because of the grid layout.
12. Almost all the local gravel roads have bad surfacing and deteriorated. Asphalted roads are only the principal arterial and the one which leads to the Korean hospital.



Fig.44. Streets with shade



Fig.45. Cars on the local road



Fig.46. Movement (cars & pedestrians)



Fig.47. Deteriorated road
Source:-Field Data, 2007



Fig.48. Deteriorated road



Fig.49. Asphalted road

Permeability

As can be seen in the picture below, there exists maximum permeability due to grid layout.

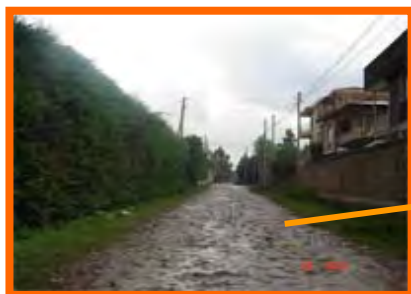


Fig.50.Photo showing Permeability

Legend

- Residential Blocks
- Open spaces
- Grid Street lay out



Fig.51. Map showing Permeability

Source:-Field Data, 2007 & GIS map

3.4. Blocking

There are different types of Block arrangement in the case study area such as “Linear” arrangement of rectangular blocks, “Swastika” arrangement of rectangular blocks, “Unit block” and “Irregular” arrangement of irregular blocks.

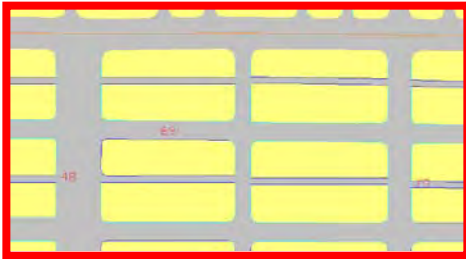


Fig.52. Linear arrangement of blocks

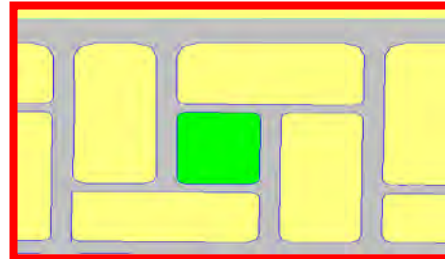


Fig.53. Swastika arrangement of blocks



Fig.54. Irregular arrangement of blocks

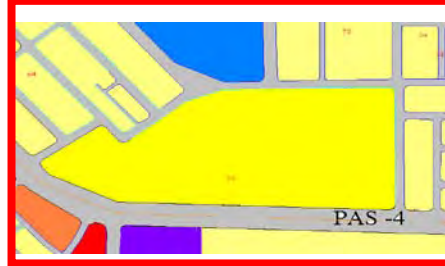


Fig.55. Unit block

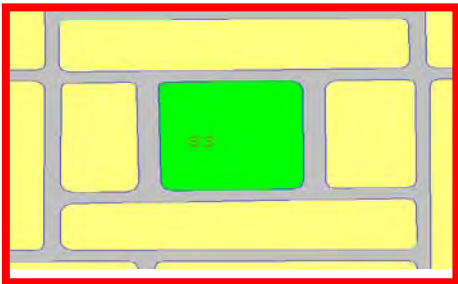


Fig.56. Grid arrangement of blocks



Fig.57. Unit block

Source:- GIS map

3.4.1. Orientation of blocks

The case study area is sunny for the most part of the year, except the months of July to September. The different arrangements of blocks make the housing units to have different degrees of heat & sun light penetration.

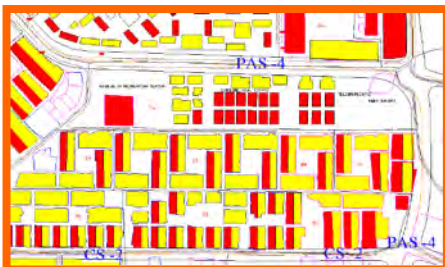


Fig.58. Map showing orientation in condominium, real estate & housing cooperative blocks

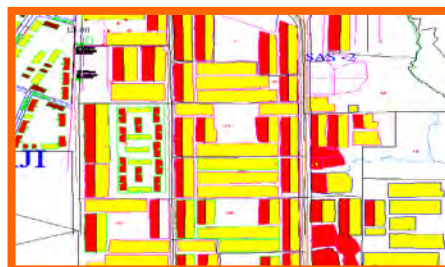


Fig.59. Map showing orientation in housing cooperative blocks

Legend

Good orientation

Bad orientation
Facing west sun

Source:-GIS map

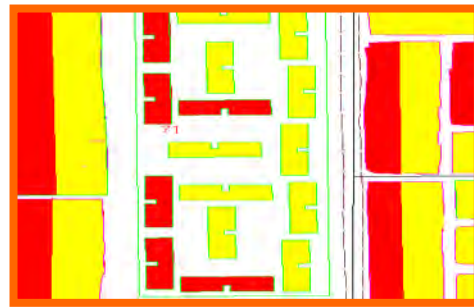


Fig.60. Map showing orientation in condominium blocks

Open spaces enclosed by the blocks are better in the government condominiums where as arrangements of blocks are in order in the low-rise houses & sunshine real – estate.



Fig. 61. Map showing order of blocks & relationship b/n the leftover open space & the blocks



Fig.62. Similar blocks enclosing an open space creating a clustered composition

Source:-Field Data, 2007 & GIS map



Fig.63. Lack of relationship b/n open space & the blocks

3.4.2. Plot pattern

There are three types of sub division in the case study area. They are:

1. Sub division of individual parcels
2. Unit plot development
3. Irregular plot subdivision

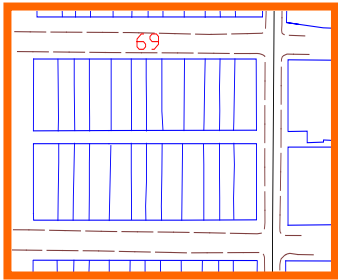


Fig.64. Rectangular shape dominates the subdivision

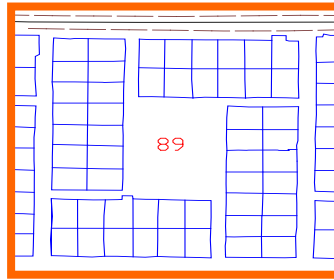


Fig.65. Sub division of individual parcels

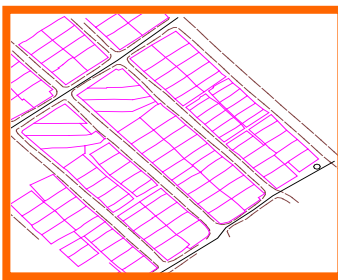


Fig.66. Diagonally arranged plots, balancing similarity

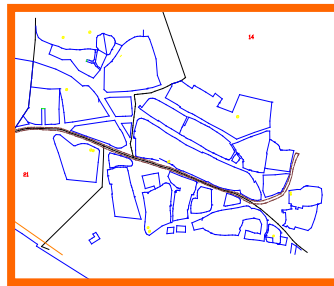


Fig.67. Irregular subdivision

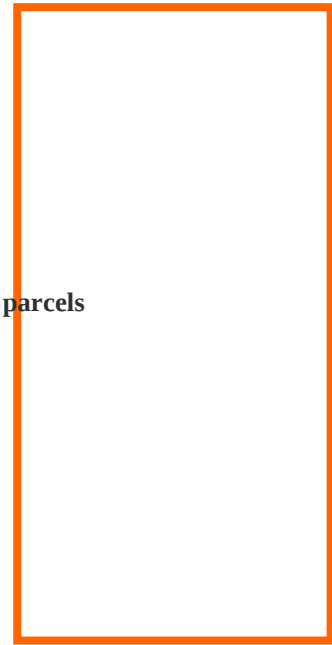


Fig.68. Unit plot development

Source:-GIS map

3.4.3. Types of building structures

The existing low rise and medium rise residential houses are further classified as:

1. Detached houses.
2. Semi-detached houses.
3. Row houses (G+0 & G +1)
4. Apartment flats in the form of Condominiums.



Fig 69. Photos showing private building structures



Fig70. Condominium buildings

Source:- Field Data,2007

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Table 45. Gerji/ in front of the former Russian Camp			
G+1(12 units) and G+2(3 units) Houses		Apartment (33 blocks)	
Planned	Sold Out	Planned	Sold Out
15	15	564	546

Source:-Field Data, 2007



Fig.71. Lack of aesthetics



Fig.72. Modification of single storey houses to high-rises



Fig.73. Aesthetics



Fig.74. Similar heights



Fig.75. Texture as aesthetics



Fig.76. A harmonious composition



Fig.77. Balancing Vertical elements



Fig.78. Disordered



Fig.79. Lack of consistency

Source:-Field Data, 2007

3.5. Open spaces

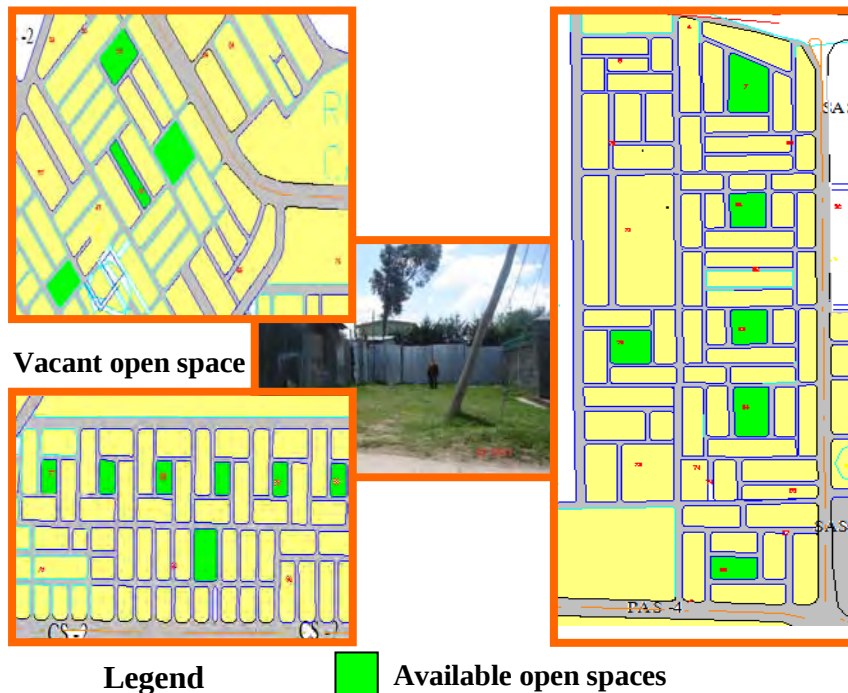


Fig. 80/81. Maps showing available formal open space in the case study area of the case study area.

Source:-Field Data, 2007 & GIS map

Morphology



Fig.82. Maps showing open space to built up area ratio of the case study area.

Source:- GIS map



Fig.83. Photos showing some of the vacant spaces in the case study area.

Source:-Field Data, 2007

3.6. Parking

The existence of many plots without compound car parking reduces the quality of the settlement as a good living area. Types of parking modalities in the case study area are:

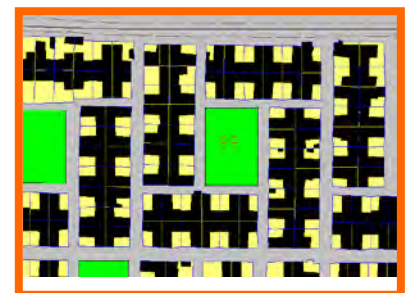
1. Compound parking
2. Private
3. Communal
4. Parking out of the compound, and
5. On - street parking

Legend



Parking space

Blocks



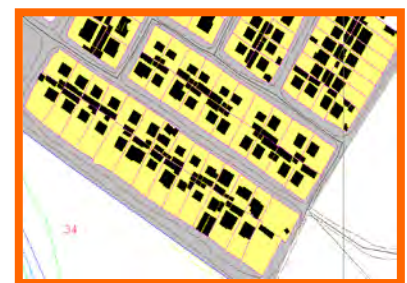
Plots with compound car parking



Communal parking



On - street parking



Plots with compound car parking

Fig.84. Photos and Maps showing available parking spaces in the case study area.

Source:-Field Data, 2007

Compound Communal Parking

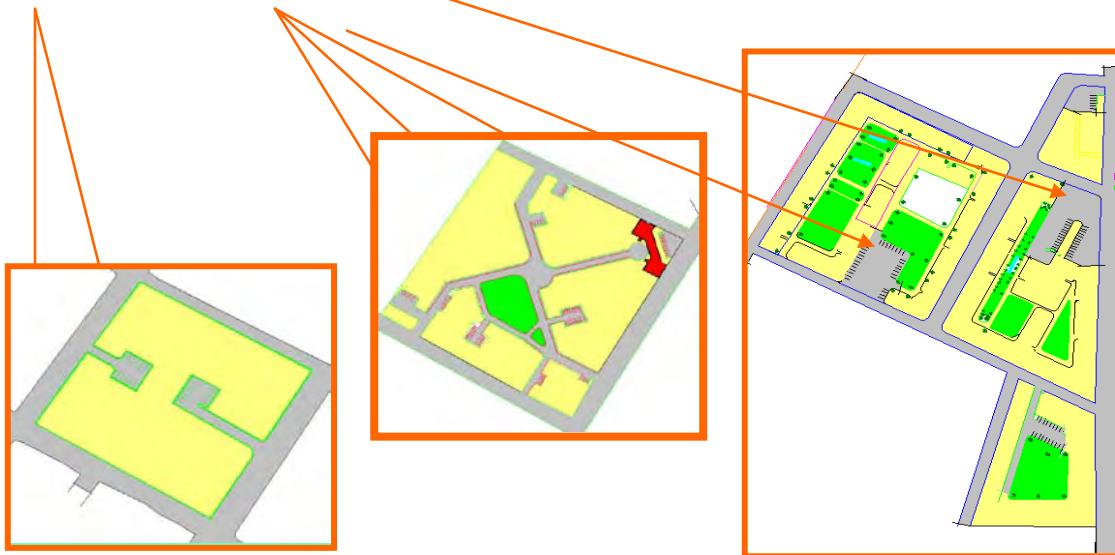


Fig. 85. Compound communal parking in condominiums

Source:-GIS map



Fig.86. On - street parking



Fig.87. Lack of proper taxi stop



Fig. 88. Communal parking



Fig.89. On - street parking



Fig.90. Communal parking



Fig.91. Communal parking

Source:-Field Data, 2007

3.7. Landscaping

The only landscaping elements are electric poles, Telephone booths & signage though they create a cluttering effect in the case study area.



Good landscaping



No landscaping in the
minor arterial street



Good landscaping

Fig.92. Map showing the level of landscaping in the case study area.

Source:-Field Data, 2007

There is an attempt of transforming the vacant space occupied by “Adwa Park” into a functional park accommodating different services with it to meet **C1C2EP1P2**.



Existing condition of Adwa Park



Proposed design of Adwa park

Fig.93. Map showing open space to built-up area ratio of the case study area.

Source:-Field Data, 2007 & Bole sub city

3.8. Testing the Neighborhood on the touchstone of Urban Design Dimentions

3.8.1. Social dimension

As mentioned in the literature review this dimension raises issues concerning values and different choices with regard to the effects of design decisions on individual and group in society.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

In order to understand the social character of the existing situation from social point of view, questioners were distributed to 81 sample households. (Refer the socio- economic analysis). The result of the questioners contained issues of social status, size, social relevance, social mix, fear of victimization and the approaches to crime prevention. The graphic analysis showed issues about accessibility and exclusion in terms of forms of access such as visual, symbolic and physical access. Other important issues analyzed in the touchstone of social dimension are the creation of equitable environment in terms of disability, accessibility, exclusion, mobility, social segregation and fragmentation.

According to the analysis made to distinguish the level of privacy, more than half of the housing units were found to be single-family compounds in detached, semi detached & row houses. The privacy level of most of the residents was found to be to the maximum, despite the fact that some of them lack social interaction. Multi-families, in contrary to single-family, were found to have a lesser privacy level not only due to the culture of sharing some elements in the condominium building structures, but also due to the absence of compound fencing.

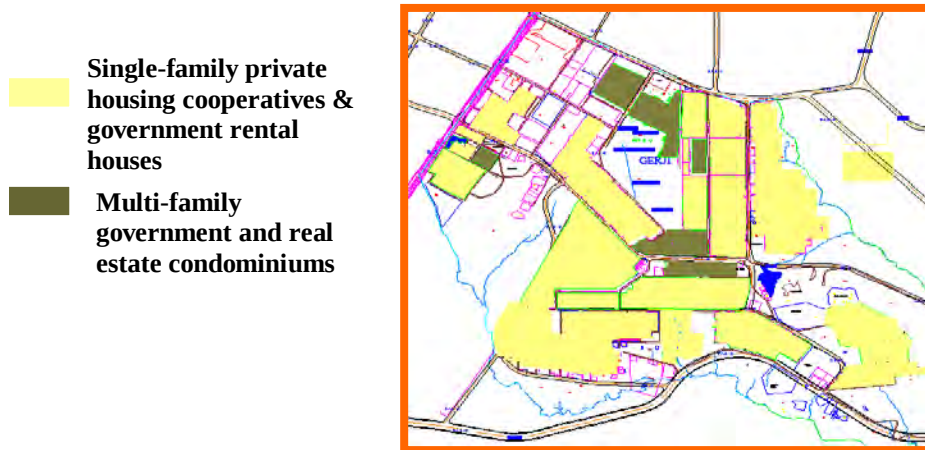


Fig.94. Map showing distribution & extent of family structure in the case study area.

Source:-GIS map

Social-mix.

The socio - economic and the graphic analysis indicated that there is an attempt of social mix in the case study area. There are government condominiums holding different kinds of income groups, housing cooperatives, government rental houses, a real estate,

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

formal private houses and informal private houses. The existing Ownership types are Income group organization; Low cost schemes; Real estate development; and Housing cooperatives.

Therefore, we can say that there is an attempt to attain mix of different income groups in the case study area. In terms of religion, the case study area constitutes Christians and Muslims. However, the number of Christians exceeds that of the number of Muslims. There are three churches, one for Protestants and two for orthodox Christians, where as there is only one mosque serving the Muslim society. According to the census of 1989, there were about 9491 males and 11,140 females in the study area, implicating that the number of females exceeds that of males.

When we analyze the available social services, there exist an unbalanced distribution and insufficient social service centers. The problem is exaggerated for the segregated residential districts found in the western and south eastern side of the case study area. There exists a cemetery for Orthodox worshipers, where as the rest do not have any longer. This can be a sign for the existence of inequity in the case study area.

Even though there are two big hospitals that are serving in a citywide scale, majority of the dwellers were found not to afford the service charges since their monthly income does not allow them to do so. According to the socio - economic analysis done, majority of the sample households were found to earn an average monthly income of birr (500 -1000). They were found willing to participate in any community development works with labor and contributing money so that community base organizations and the government could approach them to solve the problems. Even though there is a small health post in kebele 10, Gerji lacks adequate health centers proportionally with the existing population number.

There are some playgrounds provided in the case study area but majority of them were originally reserved for communal parking, indicating a conflict of use and still their number is not adequate enough to serve the dwellers. Some two schools were seen to have play grounds across the local road and these uniquely reserved open spaces would create car accident to the students while crossing the road. Majority of the sample households were also found not to have entertainment areas in a conventional place being a primary need Gerji.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

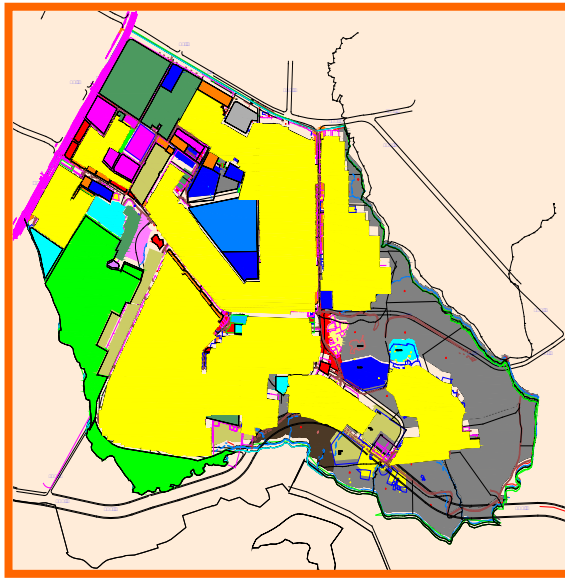


Fig.95. Map showing distribution of social services.

Source:-GIS map

Another important issue while analyzing social dimension is “equity” and “security”. Since the topography of the case study area is flat, except for some parts of the case study area in the east, the streets are friendly to walk and drive easily. However, the flat character of the site is always making the deteriorated gravel road to hold water during the rainy season and allow dust to blow inside the adjacent houses. This affects the comfort and health of households and pedestrians while walking and driving along the roads. The problem would become exaggerated for those who are disabled and the elderly people.



Fig.96. Photo showing deteriorated road.

Source:-Field Data, 2007

Since there are no streetlights in most of the local streets, the degree of fear of victimization is higher even though some two or three policemen regularly control the neighborhood. There exist a police station & a Kebele Office inside the neighborhood of Kebele 11 playing a role in decreasing criminal activities in the surrounding area. The only light is from individual households, which should be encouraged till streetlights are fully

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

installed in the local streets. However district of government officials were provided street lights at the local roads indicating again the existence of social inequity.

Even though the grid street pattern is accessible visually and physically, it has been observed to encourage strangers to enter the neighborhood easily. Big trucks are also entering inside damaging the local roads more and affect the safety of pedestrians walking on the local roads. Dangerous Street finishing in the main arterial street also decreased the degree of safety in the case study area. In addition to this, the existence of high electric cable tension decreased the safety of dwellers in the northern districts.



Fig. 97. Photo showing a guard house in a communal parking.

Source:-Field Data, 2007

3.8.2. Morphological dimension

Morphological dimension is the study of the form and shape of settlements depicted by the layout and configuration of urban form and space. Therefore, the case study area is analyzed with respect to this dimension to analyze the existing condition of the form and shape of the settlement with the street layout.

When we analyze buildings and Spaces in between (density), there has been a trend of densification in the open spaces of the original settlement. The uncontrolled modification of morphology by various actors, like shops created adjacent to the major streets and informal settlement near planned settlements, has affected adversely on the healthy development of the area. Residential blocks, along the streets, are mostly laid out well in alignment to give an organized definition to the streets & enclose open spaces. BAR ranges from 0.29 (for government condominiums) to 0.49 (for other privately owned & rental houses) with an average of 0.41. FAR ranges from 0.54 (for other privately owned & rental houses) to 1.31 (for government condominiums) with an average of 1.62. Building height ranges from G+0 to G+7, while the G+4 buildings are dominant. But the residential buildings range from G+0 to G+4.



Fig. 98. Map showing morphology

Source:-Field Data, 2007

According to the analysis done, the total area of the case study is about 463.23 hectares with a perimeter of 12 kilometers. The net area can be calculated excluding the Adwa Park, schools and small scale manufacturing areas. It is a large neighborhood that is crossed by a major arterial street. Most of the area is nearly flat but steep slope exists to some extent in the eastern part of the case study area.

Land use	Area (Ha.)	%
Residence	199.4	42.42
Mixed use	7.6	1.64
Commercial	8.6	1.9
Social services	32.6	7.03
Adwa parks	37.8	8.06
Social services	10.8	2.33
Hollow block production	21.1	4.55
Garages and workshops	1.83	0.39
EELPA	4.2	0.91
Manufacturing	12.2	2.63
Landfill site	81.5	17.6
Unknown	51.8	11.18
Street & vacant	463.23	100
Total		

Table. 46. Table showing area of land uses.

SourceFieldData, 2007 & GIS data

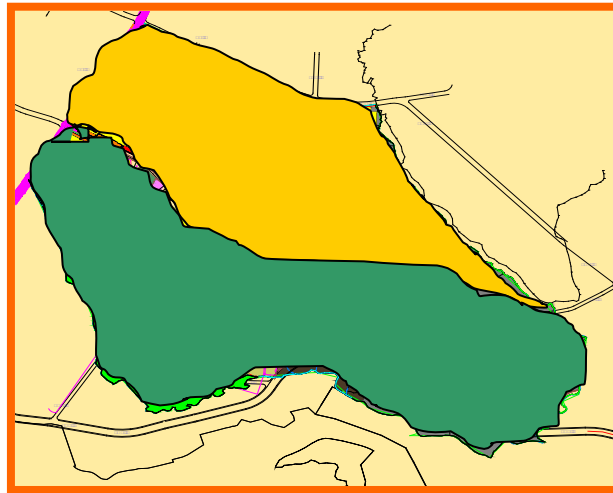


Fig. 99. Map showing the intention of an arterial Street bisecting the neighborhood

Source:-GIS map

There are unbalanced activities in the northern & southern side of the major arterial street. Majority of the units adjacent to the street became mixed uses and individual cooperative house owners create most of them. However, a residential land use dominates the case study area and is found to be more than five times the area covered by the Adwa Park. Some residential districts of the neighborhood are segregated from the rest being far away from the available social services. The area covered by the available social services is about 6.06% of the total area of the case study area. The percentage of mixed land uses is 1.64% and commercial land uses account for about 1.14% of the total area. Street and vacant spaces were found to be about 11.18% of the total area. The maximum height of building is limited to 45 meters- plot area elevations above the sea level of the runway of the Bole international Airport.

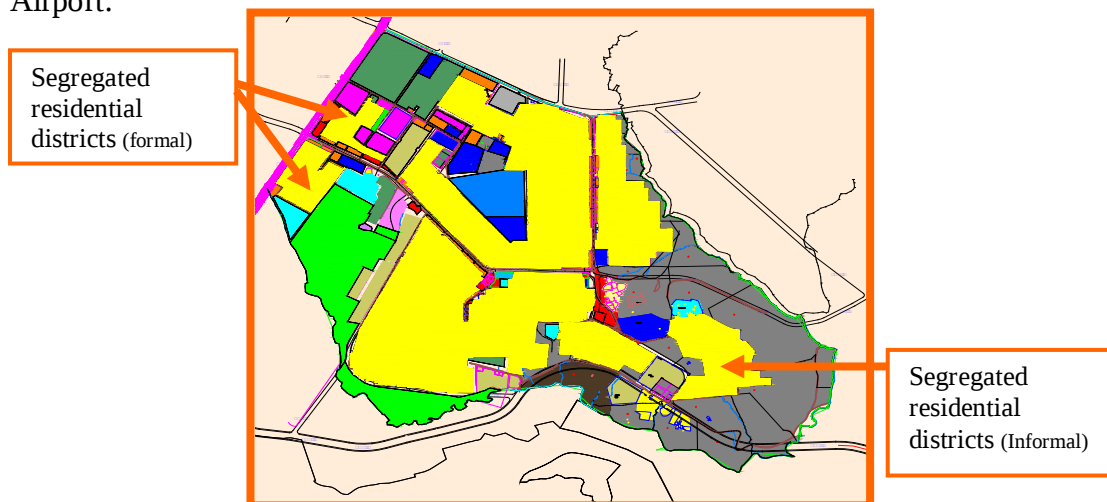


Fig. 100 Map showing segregated residential districts

Source:-GIS map

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Morphologically, the case study area has different kinds of block patterns and permeable and finely grided street layout. To ensure permeability, all streets should lead somewhere and terminate in other streets or spaces rather than in dead ends. Therefore, the case study area was found to have permeable grids based on such a principle.



Fig. 101. Photo showing permeability

Source:-Field Data, 2007

However, most of the local streets encourage vehicular movement inside the neighborhood against the safety and comfort of the dwellers. Most of the vehicles are entering into the newly developed condominiums found in the neighborhood damaging the surface of the road. A solution may be to prioritize and provide for other forms of movement, and then to accommodate the car. There is no single stoppage element at the entrances to the neighborhood or signage that tells the permitted tones of vehicles that cannot enter in to the neighborhood.

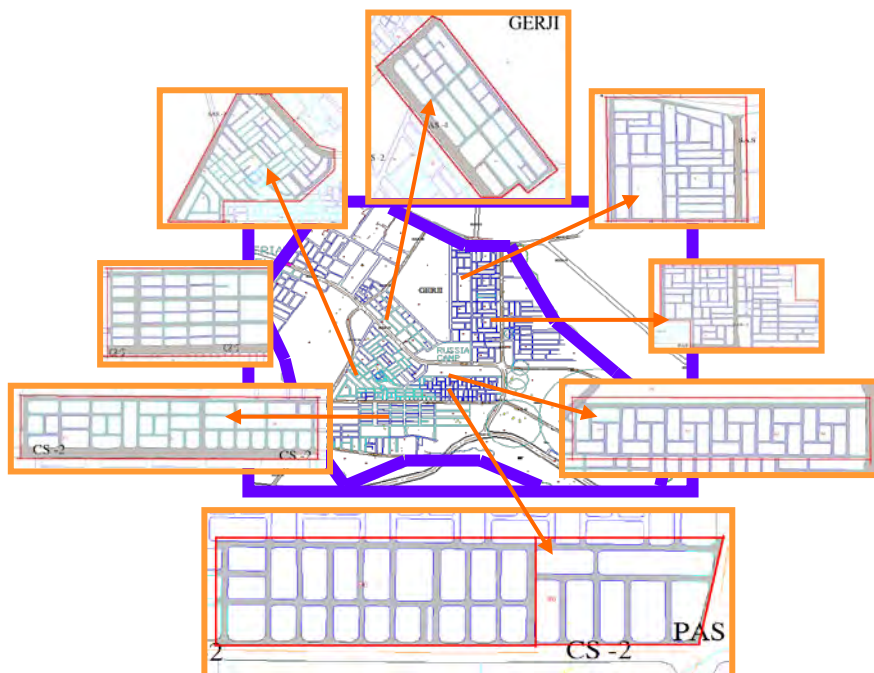


Fig.102. Map showing Street pattern at different districts of the neighborhood

Source:-GIS map

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Most of the local roads join the major arterial street without hierarchy. They should either be closed or modified to alleys to encourage residents enter their neighborhood easily and avoid the possibility of traffic accident. Private cars should enter to the neighborhood through a collector street and then to the local street hierarchically. Cul-de-sac or loop streets should be introduced to make the streets safe, secured and accessible.

The hierarchy of roads observed in the case study area is:

- 1) Main arterial
- 2) Collector Street
- 3) Local Street

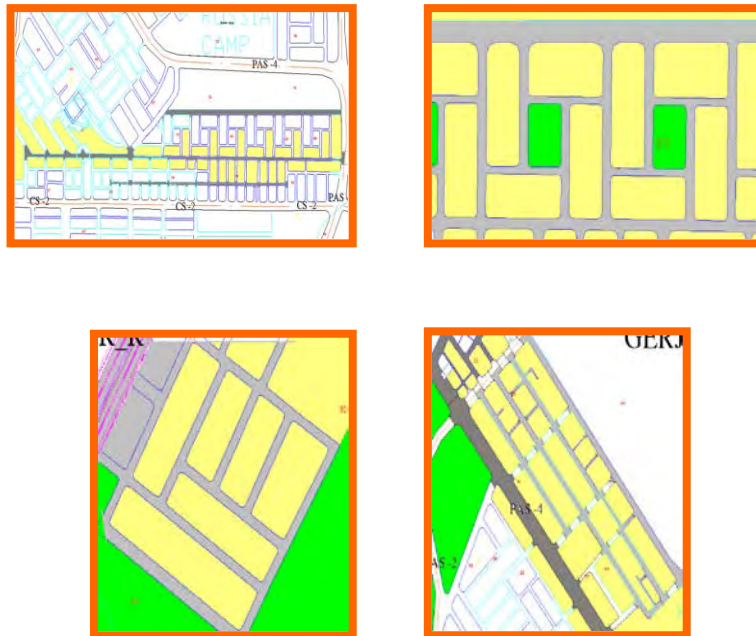


Fig. 103. Map showing samples of street pattern

Source:-GIS map

The presence of a number of girded layouts were observed to consume a lot of spaces in the case study area that could be used for social spaces and parking. Unless & other wise the girded pattern is modified, we cannot get extra open spaces. However, the density of the area has been increasing with the in fill development of condominiums. According to the census of 1994, the total population number was 20,631. Nowadays the population number is expected to increase to 54,916 because of the current infill developments. According to the analysis done, about 3,956 new housing units are constructed with a total number of 210 new

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

shops in the case study area by the infill development of the government and Sunshine Construction PLC.

Since there is lack of open spaces, car owners are forced to park on the local road and others were seen narrowing the local street by constructing a foldable door bulging outside their plot. The communal parking in the neighborhood is not adequate enough to serve the dwellers. Though there are some private & communal parking spaces in the neighborhood, all of them are not adequate enough for the community.



Fig104. Photos showing an innovative solution of parking

Source:-Field Data, 2007

According to the analysis done in the case study area, “Gerji Model House” has been found to have 68 parking spaces for 696 housing units and 54 shops. The other condominium site, the “Adwa Park”, has only 24 parking spaces for 344 housing units and 3 shops. The third condominium site called “Gerji V” has been found to have 111 parking spaces for 862 housing units and 44 more shops. “Gerj III” condominium site has only 80 parking spaces for 1188 housing units and 645 shops. The last government condominium site in the case study area called “Gerj II” has been found to have only 34 parking spaces for 320 housing units. A real estate owned by sunshine Plc. has been found to accommodate about 142 parking spaces for the expected 546 housing units and 184 shops.

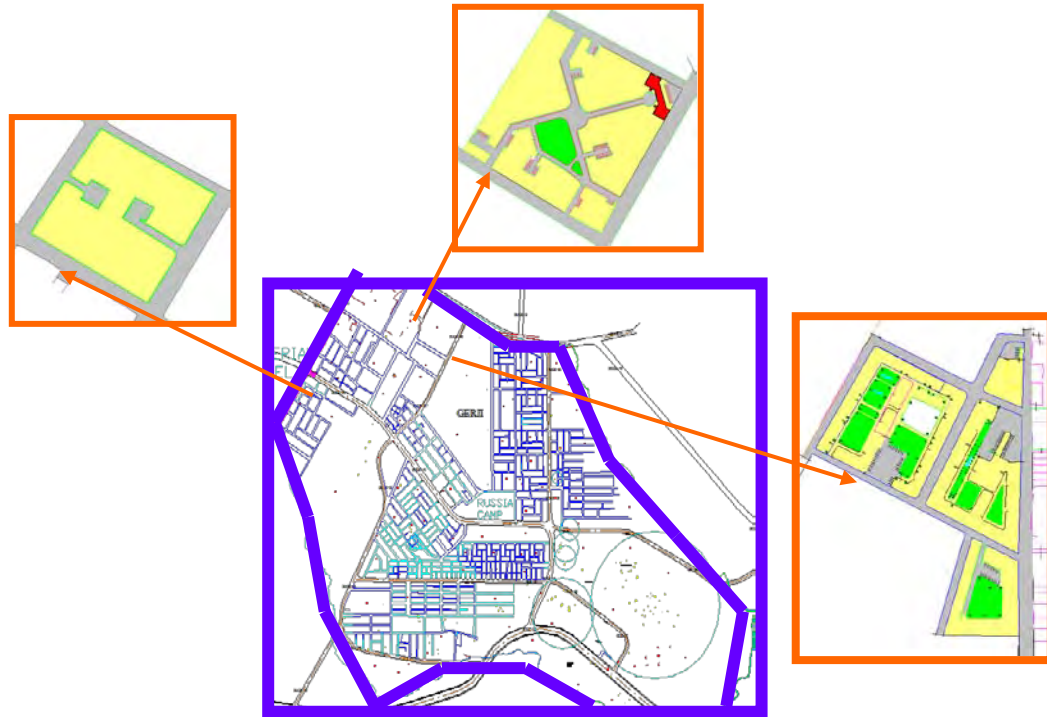


Fig. 105. Map showing Cul-de-Sac Street in the government condominiums

Source:- GIS map & A.A Housing Development Agency

The different kinds of block arrangement existing in the case study area can be considered as exemplary for other new developments. Some of the arrangements are linear, swastika, unit, girded and irregular. Majority of the subdivision of individual parcels were found to be rectangular and monotonous. These subdivisions are observed to have similarity dominating the case study area, since most of them were developed with low cost schemes and repetitive typologies. Therefore the created monotonous character should be balanced by introducing some complexity in the case study area to have a good urban architecture.

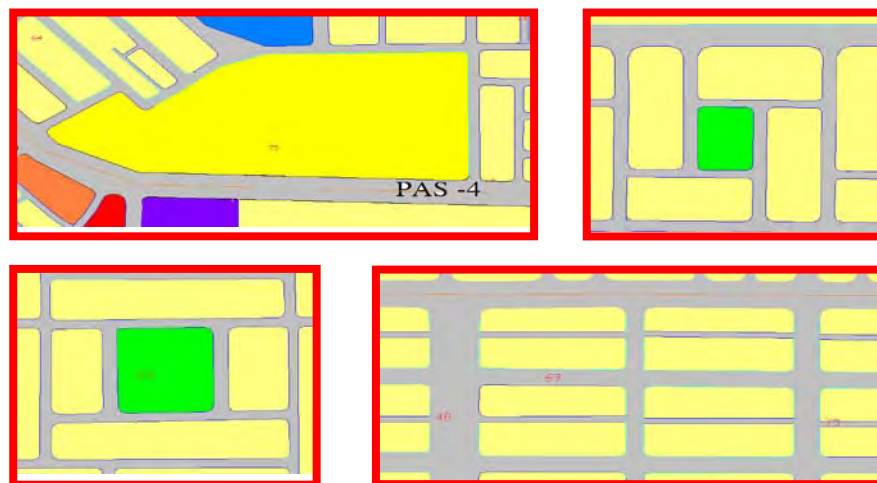


Fig. 106. Map showing different kinds of block arrangements

Source:-GIS map & A.A Housing Development Agency

When we see the type of block arrangements, there were found detached, semi-detached, row and apartment flats in the case study area implicating the availability of different kinds of blocks in terms of shape & height. The arrangements of the blocks have different compositions and among the different type of blocks, the low cost houses were found to have some order even though similarity dominates in the arrangement.

Most of the low-rise houses define the local streets and their lower heights allow visual permeability in the neighborhood. Where as the arrangement of the blocks in the “Sunshine” real estate development, there exist order but relationship of the blocks with the left over open spaces are not proportional. They could bring a psychological impact on the beneficiaries since the amount of open spaces left for greeneries, parking and play lots are not good enough and proportional with the expected number of units. The shorter distances between two blocks can make individual households lack their privacy and proper sunlight. It will also allow strong wind to blow through the narrow space affecting the health of beneficiaries.

3.8.3. Visual Dimension

This part of the analysis deals with the integration of paths, nodes, edges and landmarks with open spaces in such a way that it creates the sense of belongingness to the spaces. It also considers elements and principles of architectural design, considers design tools to control density and landscaping. Therefore the case study area is analyzed with respect to this dimension to understand the existing visual character.

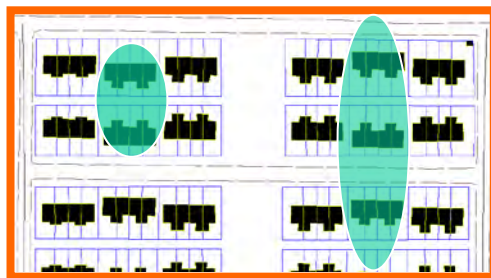


Fig. 107. A rhythm in the linearly arranged blocks

Source:-GIS map



Fig. 108. Street unifying condominium blocks

Source:- A.A Housing Development Agency

The only formal space available in the case study area is the green podium left for Adwa Park. Even though this area has a new proposed design, the area looks vacant and the

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

arrangement of the open space in relation to the landmark does not help to create correlation between the elements. Some portion of the park is given temporarily to building material producers and a small portion of an open space is fenced by the nearby elementary school, to serve as a playground.



Fig.109. Photos showing the condition of “Adwa Park”

Source:-Field Data, 2007

The other predominant open spaces are informal leftover spaces that are currently used either as dumping sites or for selling construction materials such as sand, concrete, hollow block, etc. There is also a lot of smaller left over spaces between some blocks that are used as a grazing field by cows & sheep.



Fig. 110. A place fo people

Source:-Field Data, 2007



Fig. 111. Vacant space

Source:-Field Data, 2007

When we analyze patterns and aesthetic orders in the case study area majority of the urban elements are brought together without any of the following principles: The principles of Similarity, Proximity, Repetition, Proportion, Enclosure and Continuity. Existence of repetitive similar houses can characterize the case study area as a distinctive character.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

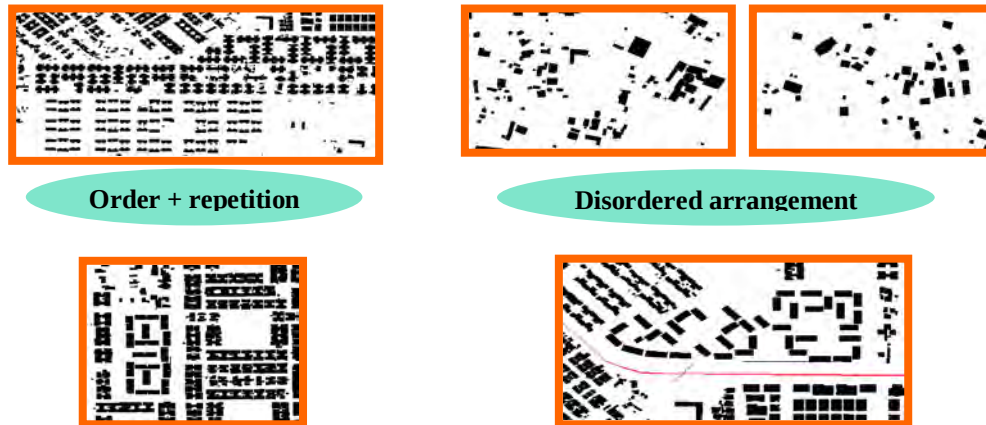


Fig. 112. Maps showing order & disorder in the arrangement of blocks.

Source:-GIS map

Landscaping is another important issue to be considered in visual dimension since it is done as an after thought as in most of the design instances. Majority of the plots owned by individuals are big enough to accommodate proper soft landscaping. However, individual households in the low-cost houses were seen to plant some smaller trees and flowers out side their fence. The northern part of the site lacks soft landscaping where as the southern part of the case study area has some good soft landscaping since there are some detached villas with wider plots.



Fig. 113. Photos showing attempt of landscaping

Source:-Field Data, 2007

The main arterial road and the local roads lack proper plantation of soft and hard landscaping along the pedestrian walkways and in open spaces. One can hardly see trees along the streets. There are no trees planted to contrast the large mass façade of

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

condominium buildings. The plantation attempts in the communal parking spaces are not enough to give shade to the cars. As mentioned earlier, due to the absence of enough open spaces in most private compounds of “housing cooperatives” and government rental districts, the existence of trees is to the minimum.



Fig. 114. Photos showing places that lack plantations for shading

Source:-Field Data, 2007

Most of the green elements have some shortcomings such as trees are not planted as per desired orientation, improper usage of their specious and integration among the different types of trees, shrubs, climbers, grass and flowers, relationship with the surrounding buildings both in scale and function is not appropriate, most of the soft elements serve the visual needs inside the houses and do not protect pedestrians' path, and fences and main gates do not have any uniformity in pattern and standard

In the case study area there is lack of proper path and surfacing of pedestrian walkways. The floors cape could be used for different purposes and functions, to create direction, comfort and the pedestrian walkways. In the case study area, there is no proper floors-scape for pedestrians. Some of the existing floorscape failed to maintain consistency. Construction materials on different sites and improperly functioning ditches prohibited pedestrians not to enjoy the space. They should be designed according to the pattern of movement.



Fig.115Improper floor scape
Source:-Field Data, 2007



Fig.116. Fences lacking consistency

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

It has been already mentioned that there is no as such a landscape design in the streets of the case study area. The predominant street furniture one can witness is a light pole, water tanks & telephone booths, which fail to be integrated with one another. The fact that the elements by themselves are below standard, also aggravated the scenario further.

For the purpose of clarity, this paper focuses on the landscaped elements on the streets and the public open spaces to achieve an interrelated street scene with the surrounding elements i.e. a very good capital web. Streets have disorganized alignment of electric & telephone poles and overhead lines. These lines are seen to create a cluttering effect to the vision of viewers. There are no bus shelters. The locations of public phone booths in front of the former Russian camp were seen to obstruct traffic vision, enabling a traffic accident to occur. There also exist a high-tension electric cable line and electric towers that can cause accident in the neighborhood. The cylindrical & rectangular water tank towers look like a landmark for the district found in the northern direction, though they are not visible.



Fig. 117. Map showing the available street furniture in the case study area

Source:-Field Data, 2007



Fig. 118. Map showing the available street furniture in the case study area

Source:-Field Data, 2007

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Even though an attempt of signage is observed in the main arterial street, no one can identify an individual house easily since majority of them are similar and lack proper signage that could tell the name of the district or individual owners.

Another issue is the definition of streets. There is uneven and unbalanced definition of the major arterial street. However, there are so many defined local streets, even though some longer local streets exist inside the neighborhood. It is boring when observed from a point. The major arterial streets are not properly defined in scale with the adjacent buildings.

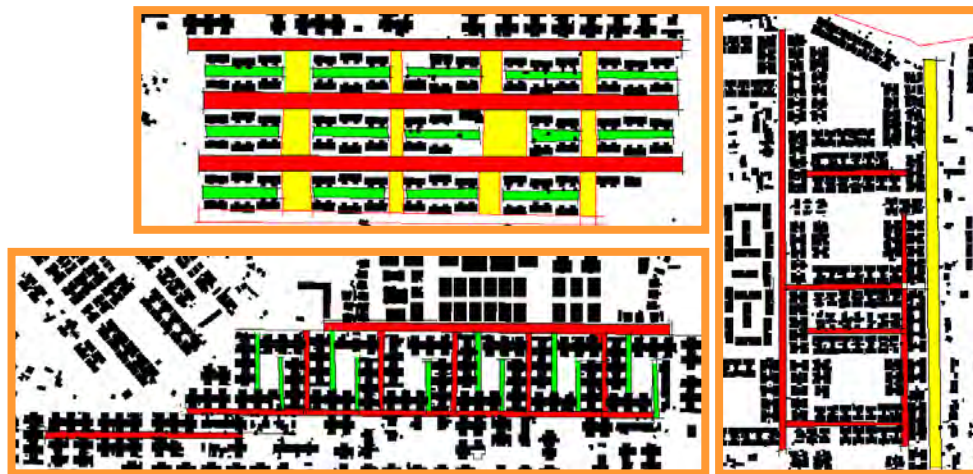


Fig. 119. Map showing the extent of street definition in the case study area

Source:-GIS map

Since the case study area has a finely grided layout, most of the junctions are properly treated and intersect with right angle. However, there are some junctions that are not properly treated enabling an accident to occur in less than 3.5 seconds of reaction time. A very good example is seen in front of the former Russian camp where local and collector streets meet the main arterial street with acute angle. The other example is the four junctions near Roba Bakery having 16 collision points. Majority of the local streets coming out from the internal neighborhood meet the main arterial street without hierarchy. The island near the Imperial Hotel has been always a bottleneck for car users since the width of the street and the island is not to the standard in order to accommodate vehicular movement comfortably.



Fig. 120. Map showing bad junctions in the case study area

Source:-Field Data, 2007 & GIS map

During the physical investigation, the mentioned junctions were seen busy with people and vehicular movements at peak hours. They could be modified as attractive nodal points for the case study area. Even though they look busy, there lacks proper bus & taxi stops with shade and shelters.

When we see the urban architecture of the case study area from visual point of view, there dominated monotonous urban out look due to so many similar low cost houses and similar width of local and collector streets. However, their form can give an expression to recognize their function. There are some aristocratic design typology developments in the case study area, which neglected the pleasure of end users in many governmental condominium housing development projects.



Fig.121. Map showing the available street furniture in the case study area

Source:-GIS map

When we consider urban design tools to control density the case study area has an average BAR, value of 0.41 and average FAR value of 1.62. There are about 9135 housing

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

units in the case study area for a projected population number of 54,916. The density of Gerji is 118.45 people / hector and 21.0 housing units per hectare in the total area of 463.63 hectares of land. Average BAR value of Government condominiums, Sunshine real estate and the Governmental rental and Cooperative housings were found to be 0.29,0.45 & 0.49 respectively. Average FAR value of government condominiums, Sunshine real estate and the governmental rental and cooperation houses were found to be 1.31, 1.12 & 0.54 respectively. Majority of the blocks have cement floor finish and are made of hollow core block walls. This is because of the fact that most of them were developed with a low cost housing scheme. However the inside of the house is colder at night and one cannot sit putting his back on the plastered wall since it immediately causes pain at the back.

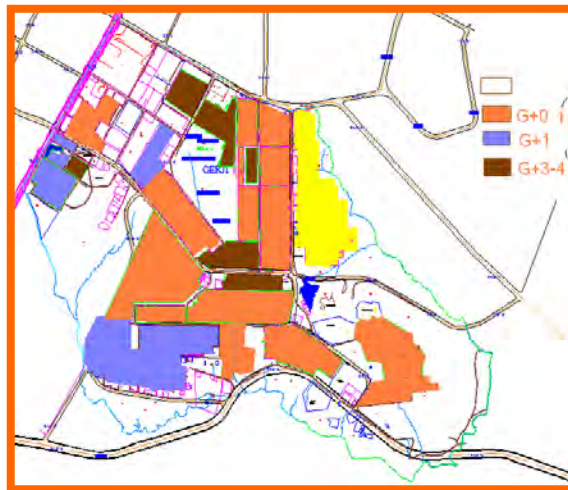


Fig.122. Map showing distribution of building with similar height height

Source:-GIS map

Dynamic spaces



Fig.123. Dynamism in blocks

Source:-Field Data, 2007



Fig.124. Dynamism in streets

Positive and negative spaces

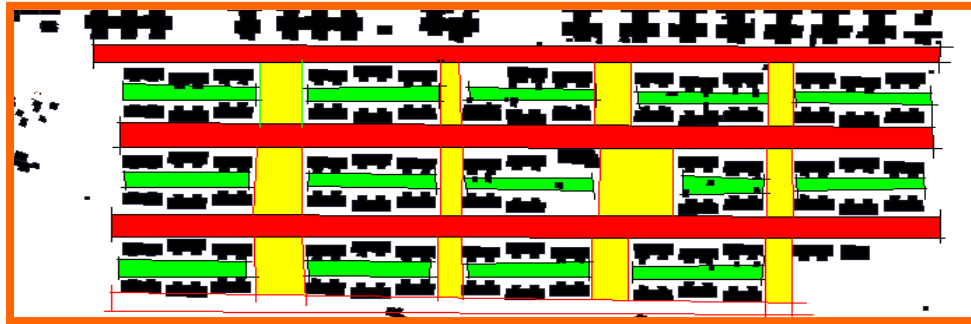


Fig. 125. Map showing the relationship of positive & negative spaces

Source:-GIS map

Expression & unity in urban architecture



Fig.126. Expression of function

Source:-Field Data, 2007



Fig.127. Staircase unifying blocks

Kinesthetic experience can be achieved looking through the street pattern



Fig. 128. Map showing the kinesthetic experience of spaces in the case study area

Source:-GIS map



Fig. 129. Photo showing an invented Structure

Source:-Field Data, 2007

3.8.4. Perceptual dimension

This dimension considers environmental meaning and symbolism, the construction of place and sense of place. This dimension is used to analyze the case study area so that it can help to forward a lot of recommend solutions for the problems with respect to perceptual situations of the area.

Considering the location of the area, we can see the effect of the Bole international airport at the southern part of the case study area and the existence of some manufacturing firms like plastic industries. During night time one can hardly sleep with out listening the sound of airplanes with a certain interval. One cannot build above 45 m-elevation heights from the sea level of the runway that determines the character of building in terms of height. However, the existence of industries has not brought any severe hygienic problem and environmental degradation. The only problem is dust blowing inside the housing units from the deteriorated roads.

What make the case study are distinct from other areas is that there is a dominant residential land use function and uneven development of street side plots along the main arterial which as a result diminishes the image of the neighborhood. The case study area lacks landmark, which gives specific character to the area except the former white curved roof structure of the Russian camp and the abandoned cylindrical and rectangular water tank towers that are found in front of the new Korean Hospital. The existence of disconnected neighborhood districts whose location is difficult for the provision of social centers at a convenient location and comfortable to all directions of the neighborhood is a significant character of the case study area.



Fig.130. Map showing the available structures to be modified as a land mark

There seems no sense of place by the residents living in the government rental houses. The reason for this could be the type of ownership by which individuals pay rental fees to the rental-housing agency rather than owning the house. Therefore, there should be a mechanism of transferring the rental ownership to private ownership and a practice of legalization of the informal houses by giving title deeds for the informal households. The questions distributed to the sample households showed that those respondents in the rental houses were not found maintaining their houses. The economic status of most of the sample households does not also allow them to maintain their houses too.

In the case study area, there exist some invented places such as government condominiums and Sunshine real estate. However, the real estate has architecturally good quality blocks but the government condominiums are constructed without fulfilling the need of beneficiaries.

The case study area has been developed with phases at different times and this made the area to have different history of densification. Currently, the development of the case study area by infilling vacant spaces has made the area to lack open spaces. However, social and physical services and facilities have not been provided proportionally to the increasing number of population.

The provision of extra parking spaces, additional community centers, playgrounds and other related components of urban design would become a burning issue in the case study area. People were seen to create their own territory and a sense of personalization is seen as a character in some parts of the case study area. For instance, some households were observed to widen their fences and one can easily identify different districts according to the type of people settled in the specific areas, such as the 'white houses' for the government rental houses, 'parliament houses' for the G +1 government rental houses, 'Ministers houses'

for the newly developed G+1 – G + 3 houses of higher government officials and ‘Kashinchis houses’ for the those relocated from Kashinchis because of the LDP implementation. The study area is bounded by small rivers at the south area, southwest and northeast directions and by the ring road at the northwest direction as an edge for the case study area.

3.8.5. Functional Dimension

This dimension of urban design considers issues of climate, land use patterns, infrastructure, privacy, the use of public spaces, mixed use and density consideration, environmental design and aspects of the capital web. Public spaces are analyzed in terms of comfort, relaxation, passive & active engagement, the social use of spaces and movement. While making the analysis, physical observation was one of the research methods and therefore so many underutilized communal open spaces and social spaces were observed in the case study area. Some of the uses of open parking spaces were also seen to be used as play grounds indicating the existence of conflict of uses. There was also observed a communal open space facing the ring road with out function in the case study area.

Considering mix uses, one can easily identify unbalanced land use adjustment and the existence of informal or unplanned market area development in the case study area. There also observed a transformation of land use to incorporate addition functional needs of a neighborhood along the main arterial and local streets. This may solve the problem faced by concentrating commercial services and facilities at one place only. Individuals were observed to reach in shorter distance to the distributed services even though the chaos morphology created by various households decreased the image of the case study area. However, this trend can remind professional and decision makers to come up with a properly designed strip commercial development with some rules & regulations.



Fig. 130. Photo showing the transformation of streets & residential areas into a commercial use.

Source:-Field Data, 2007

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Climate is another issue that should be analyzed in the functional dimension of urban design. Even though the case study area is sunny except for the months of July-September, the local roads were observed causing problems for the housing units adjacent to them. Since the surfacing of roads is deteriorated, there always occurs dust particles blowing in side the rooms and the roads usually hold water during the rainy season. Apart from this, the arrangements of blocks were seen to have different degrees of sunlight penetration. Longer sides of most of the blocks were seen facing west and southwest sun and therefore are always in a position to be visited by the worst afternoon sun. These blocks should not have so many wider openings or need to be blind in order to decrease or avoid the worst penetration of west & southwest sun. In contrary to these blocks, longer side of blocks facing north and east are always safe and comfortable since the penetration is less when compared to west and southwest sun.



Fig.131. Map showing climatic condition of the case study area

Source:-GIS map

The basic physical infrastructures are almost provided and therefore majority of the dwellers have electric, telephone and water lines. According to the questions distributed to 81 sample households, 90 % of the respondents were found to have all the services mentioned above, even though they were provided recently. However, there are some water tanks without function & there exist no central sewerage and drainage line system. Public toilets and dust bins are also absent in the case study area.



Fig. 132. Photo showing the condition of infrastructure in the case study area

Source:-Field Data, 2007

Even though the denser development by infilling vacant places has brought the advantage to construct a central sewerage line, there are a number of septic tanks constructed in the government condominiums making the cost and management expensive and complicated. For instance, the existing septic tanks in the model condominiums were observed to fill frequently. However, the Addis Ababa Housing Development Agency Office has made a study to install a central sewerage line though it requires a big investment and contribution of money from the residents.

Privacy is also an issue to be considered in the functional dimension of an urban design. Majority of the one story private houses have their own fences allowing them to have maximum privacy. However, those living in the condominiums do not have fences and they share common staircases making them lack their privacy and security.



Fig. 133. Photo showing the extent of privacy in the case study area.

Source:-Field Data, 2007

3.8. 6. Temporal dimension

This dimension considers issues of time and historic significance in the specific urban environment. When we see the time factor there has been occurring uncontrolled in fill development in the original settlement. The area has been one of the newly developed places however the street has been neglected in the past decades and has never gone through serious urban design changes that would have made it adaptable to the ever increasing population size and the proportional dynamic global thinking.

There is no historical building or structure to be preserved or renovated except the curved roof structure of “Russian Camp” and the cylindrical and rectangular water tanks standing without function. However the different housing developments have their own character that make them to be identified individually like the white government rental houses that were developed with low cost scheme in the middle of the 80’s.

The Day and night activities have their own character. Mixed-use buildings were seen busy till 10 o’clock at night where as the activities in the internal neighborhood become dead after 8 o’clock at night. The only thing continuous the whole night is the sound of landing and taking of airplanes from the nearby airport.

3.9. Can the existing mass housing developments be a benchmark?

3.9.1. Housing Cooperatives

Housing cooperatives were introduced by the previous regime during the socialist period with a low costs scheme in an attempt to economize land delivery by increasing the density of residential areas. There are more than twenty housing cooperatives and majority of the households living in this houses were having an average income of 300 birr during the time of delivery and were subsidized the cost of land and given a chance to construct the houses with a bank loaning mechanism. The types of the houses are one-story row houses and G+1(double story) low-cost houses

Even though the provision of infrastructures was one of the biggest problems for more than a decade, majority of the households are now provided physical infrastructure such as electric, water and telephone lines. According to the physical analysis done, majority of the respondents said that they are provided the services and most of them said that they have private toilets too.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

The need of parking spaces had not been a problem for housing cooperatives. However, the current trend of transferring housing cooperatives for second and third parties has increased the need for more parking spaces. Some of the households who bought the former low cost houses were observed to maintain and reconstruct the low cost houses into two and three stories. The introduction of G+1 and G+2 houses has been seen to play a role of adding little complexity in the existing arrangement of blocks. There was also observed an attempt of personalization by the new comers though the plot areas are not adequate enough to provide parking spaces, proper landscaping and play lots.

The households living in the housing cooperatives were seen to innovate a new kind of parking space in such a way that half of the space is inside the compound and half of it is on the local road. This made the local roads narrow, especially at night-time and during weekends. The available communal parking spaces are not adequate enough to accommodate all the cars found in the neighborhood, others were seen serving as a playground and some others were seen vacant.

During field investigation, some of the dwellers were seen using the local roads as a social space whenever they have social obligations like weeding. All these practices outside the private compounds narrow the local roads temporarily like the innovated parking spaces mentioned above. Majority of the local roads adjacent to the housing cooperatives lack good surfacing since the earth surfaced and gravel finished roads are deteriorated. These roads were observed to hold water during a rainy season because of the flat topography and cause dust particles to blow inside the individual houses during a windy day. They also lack proper landscaping which is not environmentally agreeable and decrease visual satisfaction and comfort of the dwellers.

The construction material of most of the housing cooperative is hollow concrete block and the floor finish is cement screed making the spaces inside colder at nighttime. This condition may cause a health hazard to the residents of housing cooperatives. Most of the houses have a two-meter high-corroded iron sheets on eucalyptus supports served to define ones territory and also render security and safety functions. There is no consistency in the fences of the housing cooperatives and this has been seen decreasing the image of the neighborhood.

Architecturally, the houses lack quality and similarity dominates. This character can be seen both in the subdivision of the plots and form of the blocks. The same character is

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

seen in the local streets since most of them have a grid layout. Since they are not mixed with Cul-de-sac, they take more areas that could be used for social spaces. The districts need a mechanism of adding complexity to balance the monotonous character of the districts.

The streets adjacent to the housing cooperatives lack streetlights so that they are darker mostly at night-time. The only lights are from the compounds of individual households and this should be encouraged till streetlights are installed in the local streets.

In conclusion, most of the housing cooperatives lack quality when seen on the touchstone of urban design dimension and cannot be used as a benchmark to adapt good qualities from them. They are good examples for attaining efficiency since they were introduced with a low cost scheme and smaller plots were subdivide unlike the private detached houses.

3.9.2. Government rental low cost houses

The government in the mid 80's developed these types of houses and they were introduced to solve the need of housing by giving an advantage for the low-income and middle income groups to rent governmentally owned houses. The rental cost ranges from birr 43 to birr 450 and the value varies for the three types of houses available in the neighborhood. These three types of government rental houses are: White houses, Low-cost houses, and G+ 1 house.

Table 47. Rental Houses Owned by the Rental Housing Agency					
Woreda	Kebele	New Kebele	Type of Houses	Rental Cost (Birr)	Quantity
17	25	10/11	White houses	196	211
17	25	10/11	Low cost houses	43-143	250
17	25	10/11	G+1 houses	245-450	331
				Total	792

Source:-Rental housing agency

There are about 792 formerly developed rental houses in the central part of the neighborhood, which were transferred to low to middle-income group. Majority of the G+ 1 house were transferred for parliamentary representatives of the federal government and the one-story houses were transferred for other low to middle income group. In most of the rental

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

houses a sense of placelessness dominates than the housing cooperatives since the houses are owned by the government. These conditions made the houses to lack quality and can not have good qualities unless they are transferred to individual houses holds by selling through a mechanism of long term or short term payment.

There are also newly developed government rental houses in the southeastern part of the neighborhood, which were developed for those relocated from “kashinchis” area because of the recently implemented “Urban Renewal Resettlement Program” from the city centers. The housing units were observed to have lesser quality than that of the previously mentioned rental houses. All the settlers do not yet start paying rental fees though they are expected to start payment after settling in the area.

According to the field investigation, most of the government rental houses have the same character as the housing cooperatives described above. Both have regularly arranged similar sizes except that the government rental houses are arranged in rows whereas, housing cooperatives are arranged both, in rows and some are semi-detached. Even though the purpose of the open spaces is not clearly defined, the derivative of this phenomenon is that the open spaces available have definite and legible spatial pattern.

The housing units were observed to have low quality than that of the private detached houses found in the neighborhood. However, the housing units of cooperatives and government rentals are densely clustered resulting in high built-up area ratio (BAR) of 0.49 as computed from GIS data. (Table 50).

Therefore the government rental houses cannot be used as a benchmark to adapt good qualities for new developments in the case study area. They cannot answer the interest of increasing efficiency and quality together since they lack to have comfortable and adequate open spaces, except for their development through a low cost scheme and their small size of plot, like the housing cooperatives.

3.9.3. Sunshine real-estate condominiums

Sunshine real estate was established since 1992. The company is mainly engaged in the construction of roads, buildings and other similar civil works. By expanding its activities Sunshine Construction has started Real-estate development since 2005 with a capital of 42,000,000 birr. The development started by initially putting 30% of the project value in blocked account and the bank wrote a confirmation letter to the municipality.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

NO	BUILDING SAMPLE	HOUSIG UNIT	NO. OF STORIES	QUANTITY OF BLOCKS	BUILT UP AREA	PLOT AREA	FLOOR AREA	BAR	FAR
1	Cooperative detached	1	G+0	1	123.24	417.4	123.24	0.3	0.29
2	Copperative detached	1	G+0	1	147.84	329.63	147.48	0.45	0.45
3	Copperative row	1	G+1	1	75.03	168.35	150.6	0.45	0.89
4	Copperative detached	1	G+0	1	94.04	232.14	94.04	0.41	0.41
5	Government rental	1	G+0	1	88.33	220.14	88.3	0.4	0.4
6	Government rental	1	G+1	1	57.12	179.32	114.24	0.32	0.64
7	Copperative row L-shaped	1	G+0	1	76.86	109.09	76.86	0.7	0.7
8	Copperative row L-shaped	1	G+0	1	94.04	108	94.04	0.87	0.87
9	Resettlement row	1	G+0	1	73.21	144.17	73.21	0.5	0.5
10	Resettlement row	1	G+0	1	42.44	144.02	42.44	0.29	0.29
11	Resettlement row	1	G+0	1	41.92	89.61	41.92	0.47	0.47
12	Copperative semi-detached	1	G+0	1	87.76	129.15	87.76	0.68	0.68
13	Copperative semi-detached	1	G+0	1	70.69	131.4	70.69	0.54	0.54
Average								0.49	0.54

Table 48. Built up area and floor area ratio of Housing Cooperatives and Government Rental Low cost Houses

Source:-Field Data, 2007 and GIS map

The sites are located in front of CMC, behind CMC, and in front of the Russian camp, in Gerji. The total plot area of the Gerji site is about 2.8 hectares .The real-estate has about 15 detached villas of G+1 and G+2 for high income group and thirty-three condominium blocks for about 546 households.

Our interest in this analysis is the way condominium blocks are designed with respect to urban design consideration or with addressing the need of the government only. According to the interview made with professionals in the Marketing and Real estate departments of the company, the lay out allocation of the site was made based up on the agreement between the municipality and the real estate developer. There was modification in the original layout in order to increase the number of households by decreasing the required open spaces. This condition can be a good evidence for proving the imbalance between the need of efficiency and the need of creating a comfortable and functional urban architecture in the case study area. Such kind of decision is a character of an invented urban environment where dominates a top down planning system.

The real estate has a higher BAR value of 0.46 when compared to the government condominiums i.e. 0.29. One can easily ignore adapting their quality from urban design point of view since the blocks are densely arranged without leaving adequate open spaces for parking, greeneries, and play lots. They don't have plantations to give shade and beneficiaries would lose their privacy since the blocks have maximum distance of 2 meters in

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

between. The spaces also cause wind to blow with speed through the spaces and therefore may affect the health of beneficiaries. They also lack proper sun light specially those whose windows are opened in between the blocks. However the architectural qualities of the blocks are better than the government condominiums other housing developments found in Gerji.



Fig. 134. Photo showing better architectural quality of Sunshine condominiums.

Source:-Field Data, 2007

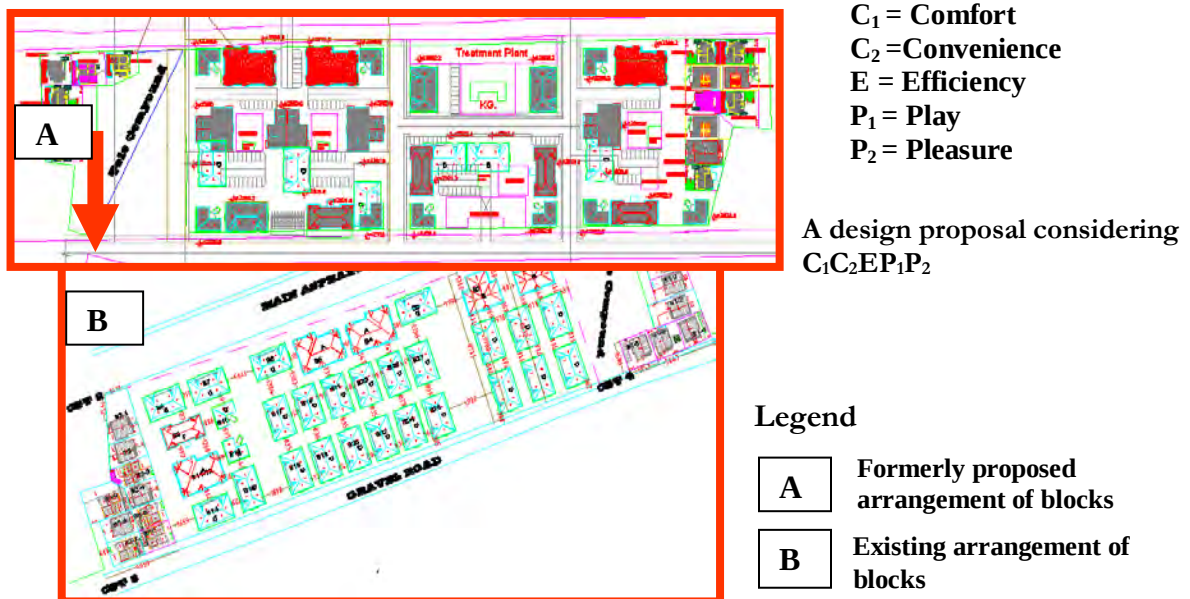


Fig.135. Map comparing proposal and existing plan of sunshine real estate's

Source:-sunshine real estate Plc.

NO	BUILDING SAMPLE	HOUSIG UNIT	NO. OF STORIES	QUANTITY OF BLOCKS	BUILT UP AREA	PLOT AREA	FLOOR AREA	BAR	FAR
1	Sunshine Apartement	508	G+4	32	11,016.56	23,892.00	55,082.80	0.46	2.31
2	Sunshine B2,9	1	G+2		163.42	496.23	410.86	0.32	0.83
3	Sunshine B2,8	1	G+1		125.86	270.66	251.72	0.47	0.93
4	Sunshine B2,7	1	G+2		150.22	283.57	397.06	0.53	1.4
5	Sunshine B2,6	1	G+1		150.22	268.87	273.64	0.56	1.02
6	Sunshine B2,5	1	G+1		150.22	256.16	273.64	0.59	1.07
7	Sunshine B2,4	1	G+1		125.87	250.18	251.74	0.5	1.01
8	Sunshine B2,3	1	G+2		151.42	313.26	398.26	0.48	1.27
9	Sunshine B2,2	1	G+1		125.86	302.31	251.72	0.42	0.83
10	Sunshine B2,1	1	G+1		125.86	479.32	251.72	0.26	0.53
11	Sunshine B1,6	1	G+1		155.92	322.29	271.73	0.5	0.84
12	Sunshine B1,5	1	G+1		120.51	328.25	241.02	0.37	0.73
13	Sunshine B1,4	1	G+1		157.13	277.13	275.5	0.57	0.99
14	Sunshine B1,3	1	G+1		125.86	405.08	251.72	0.31	0.62
15	Sunshine B1,2	1	G+1		125.86	310.71	251.72	0.41	0.81
16	Sunshine B1,1	1	G+1		125.86	315.46	251.72	0.4	0.8
17	New Block (isolated)	19	G+4	1	232.53	386.77	1162.65	0.6	3.01
	Total	542					Average	0.45	1.12

Table 49. Built up area and floor area ratio of sunshine real estate detached houses & condominiums rental houses

Source:-Field Data, 2007 and GIS map

3.9.4. Governmental condominiums

The systems of introducing condominium housing comes up with the effective use of land, saving cost of infrastructure & time to reach to work place or other institutions. The government condominium housing developed through the contractor ship of GTZ/IS with the housing development project office in collaboration with a local consultant called MH Engineering Plc. through a technical support provided by GTZ/LCH which is still consulting the government in the process of providing condominiums.

According to the plan of the Addis Ababa city administration, the Gerji model housing was planned to be economical, comfortable and socially effective. The plan included residential houses and commercial units & used as a model for the rest of the condominium projects. The project has been carried out by inviting micro & small-scale enterprises and encourages the concepts of saving.

However, the study made by the Housing Development Agency Office in December 2005 & the physical analysis in the specific area, could show that there are a lot of social & physical problems that are being faced by the beneficiaries after the housing units were transferred. The project could be said successful only for solving unemployment through a mechanism of micro financing small-scale enterprises. However, the goal of solving housing

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

need of the low & middle income groups was not met, since most of the housing units were transferred for those who paid 100%. During physical investigation, it was possible to see luxurious cars that were parked in the compound & some housing units that were rented up to 1000 birr.

NO	Name of the sites	NO. OF HOUSING UNITS	NO. OF SHOPS	NO. OF STUDIOS	NO. OF ONE BEDROOM	NO. OF TWO BEDROOMS	THREE BEDROOM M	NO. TOTAL UNITS	
1	Gergi Model house	696	54.00	144.00	249	291	12	750	
2	Adwa park	344	38	74	106.00	164	0.00	374	
3	Gergi v	862	44.00	156.00	188.00	464	54.00	906	
4	Gerji II	320	0.00	128.00	96	64	32	320	
5	Grgi III	1188	64.00	230.00	804.00	150.00	4.00	1,252.00	
	TOTAL	3410	200	732	1443	1133	102	3602	

Table 50. Types of housing units and number of units in government condominiums.

Source:-Field Data, 2007 and GIS map

However, while implementing the densification there were some social and physical problems created. Some of these problems in the pilot project are mentioned below in order to create awareness in the future developments of mass housing.

Drainage Works: The available system is not tight so that water from the toilet & kitchen flow back into the rooms and also from the upper floors to the houses at the lower floors. These pipes apart from letting water to leak & seep, they are visible in side the rooms crowding the space and depraving aesthetics of the rooms.

The way window glasses are fitted is not done properly so that in rainy season water enters into the rooms making the space wet & cold. This affects the comfort of the beneficiaries. Water also drained through the walls since the external walls have not been plastered, causing the same problem as that of window glasses.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Another important problem concerning the system of water is that the absence of water tank brings shortage of water especially when the flow of water is interrupted. This is affecting the health condition of the beneficiaries.

Toilets: Another problem happening to the beneficiaries is the condition of toilets. Of course when compared to their former toilets, the beneficiaries responded that the system is better than their previous toilet system. However, the water level has not been built properly making the water flows back into the rooms causing hazardous health problem. The septic tank built for the community is usually full and the waste flows back into the room causing hygienic problems. Toilet fixtures were not properly fixed creating problems at the time of usage. When the water is interrupted from the main source the toilets will stop functioning. The system should have provided alternative dry toilets outside the building to solve the problem.

Cloth Washing Basin & Water Tank: In the whole system, water tanks & cloth washing basins are not provided. The absence of water tank was observed to bring shortage of water especially when water is interrupted from the main source and therefore it would affect the health of the beneficiaries. Since there is no cloth-washing basin the beneficiaries complained about not being able to wash their cloth periodically. They are forced to wash clothes on the pedestrian pavement making the area ugly and degraded the surrounding area by the detergent left over the soil.

Electric Lines: It is obvious that the system of condominium housing minimizes infrastructure cost. But problems are being observed in the installation of electric lines. The beneficiaries are complaining about the light points, sockets & switches for not being functional. Professionals did not install the electric lines properly so that women, who are majority in the blocks, were not able to make “Injera” and “Bread” regularly.

Roof Leakage: Another series problem when installing the system is leakage. The leakage that is dealt in this paragraph is from the corrugated sheet that covers the whole block as a whole. During a rainy season, water leaks & seeps into the room through the holes of the roof. Water also seeps & leaks from the roof pipe and gutters & down pipe into the verandah & the house too. Mostly those who suffer from roof leakage are beneficiaries of the last floor.

Verandahs & the Staircase Verandah: The verandah support is constructed from hollow concrete blocks, which make it easy to fall apart and bring problems to the

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

beneficiaries. The system should be done with iron bar reinforcement so that it cannot easily fall apart and stays strong. The staircase verandah is also facing other problems. It lacks common light and some one crosses over somebody else's house, which has created a problem of privacy & security.

Pedestrian Passage Ways: As it can be observed physically the pedestrian passageways are not built properly. Therefore, they create a disgusting effect and are not functional.

Windows Openings & Door: The model houses were made with windows without grills. This forced beneficiaries to cover windows with different kinds of grills that lack consistency and standard. The way the glasses are fixed to the frames is not tight letting in rainwater inside the rooms. Doors are not placed with order, which affects the aesthetical quality of the system.

Vent Pipes: When the beneficiaries are interviewed they complained about vent pipe connected to the walls. The problem is caused since its termination in the interior part causes a very bad odor. Therefore, they wanted it to be extended to the external part.

Noise: The walls constructed bring problem of noise by letting in sound. The noise that comes from a room disturbs the other people next to it. But it should have been studied to solve the problem by using soundproof material. Mostly this kind of problem occurs when a walls is shared by two neighbors.

Landscaping: There is no proper landscaping in the government condominiums. The available cars parked in the compound do not get shade and the compound lacks trees except some greenery that is not treated well.

Parking spaces: Parking spaces are not adequate enough to accommodate the need. This is caused since the available spaces were meant for the built up structure.

Fencing: There is no proper fencing so that the dwellers lack privacy and security. One can easily see the inside and enter since the controlling system is weak

Density: There is an attempt to settle many households even though the necessary components are lacking.

3.9.4.1. Problems caused by residents in Government condominiums

It is obvious that we usually modify our houses by different techniques to make it suitable for our self. It is a common trend to see that private owners of houses extend their territories illegally by constructing new fences, which usually creates disagreement between

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

neighbors & the kebele. Unlike this, beneficiaries of the Bole – Gergi government condominiums are making modification & undertaking construction in their inside spaces which are allocated vertically.

NO	BUILDING SAMPLE	HOUSIG UNIT	NO. OF STORIES	QUANTITY OF BLOCKS	BUILT UP AREA	PLOT AREA	FLOOR AREA	BAR	FAR
1	Gergi Model house	682	G+2		11,797.59	45,161.95	41910	0.26	0.93
			G+3						
			G+4						
2	Adwa park	374	G+4		3411.11	9825.6	15,611.80	0.34	1.6
3	Gergi v	906	G+1		12,588.40	54,236.87	59,512.28	0.23	1.1
			G+4						
4	Gerji II		G+2		6,104.96	15,603.59	24,081.28	0.39	1.54
			G+3						
5	Grgi III		G+1		12,503.53	47,882.51	65,678.44	0.26	1.37
			G+3						
			G+4						
							Average	0.29	1.31

Table 51. Built up area and floor area ratio of government condominiums

Source:-Field Data, 2007 and GIS map

3.9.4.1. Problems caused by residents in Government condominiums

It is obvious that we usually modify our houses by different techniques to make it suitable for our self. It is a common trend to see that private owners of houses extend their territories illegally by constructing new fences, which usually creates disagreement between neighbors & the kebele. Unlike this, beneficiaries of the Bole – Gergi government condominiums are making modification & undertaking construction in their inside spaces which are allocated vertically.

Majority of the modifications are encouraging but some were observed to create problems in the building structures and neighboring residents. This happened because the places were invented without public participation and the available controlling tools and mechanisms are weak enough to control the beneficiaries. However, there is an obligation to make a modification and to undertake additional construction only with the approval of the housing agency & professionals. Some of the problems when doing this modification are:

1. Unnecessary floor and roof modifications.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

2. Improper installation of kitchen sink.
3. Closing the verandah passageway completely with hollow concrete block wall.
4. Constructing metal grills on the verandah support.
5. Introducing a verandah grill.
6. Making a metal grill on the window.
7. TV dishes on the verandah, staircases, and open spaces.
8. Solid wastes thrown on the green areas.
9. Washing of clothes on the pedestrian Walkway.
10. Hangings of washed cloths on the veranda.
11. Throwing of solid waste from higher floors to the lower floors.
12. Making of holes on the inside partition walls causing cracks of the walls.
13. Drilling the floor, plastering it & putting tiles.
14. Grinding coffee on the upper floors.

NO	Name of the sites	NO. Of blocks	No. of Housing units	commercial shops	parking provided	parking space needed	diff. b/n	NO. TOTAL UNITS	
1	Gergi Model house	28	696.00	54.00	68				
2	Adwa park	10	344	30	24.00				
3	Gergi v	21	862.00	44.00	111.00				
4	Gerji II	16	320.00	0.00	34				
5	Grgi III	30	1,188.00	64.00	80.00				
6	Sunshine Apartement	33	546	18	142				
	TOTAL								

Table 52. Table showing parking space provided and needed. in Sunshine & government condominiums

Source:-Field Data, 2007 and GIS map

3.10. Governmental rental apartments in the Bole sub-city

Since the mass housings in the case study area called Gerji were found to have less quality in terms of urban design dimensions and necessary housing components, this thesis explored other housing development in the sub-city. Since the main task of the thesis is to check the case study area in the touchstone of urban design dimensions and recommend a benchmark for other developments in the city, all the existing housing types were found to lack so many requirements except addressing the need of efficiency by the government.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Therefore, selecting sample housing types introduced with a mass housing scheme was an obligation as a second task so that so many samples were selected. Among all the 104 government condominiums and government rental apartments, the later ones were found to have better qualities and necessary components such as parking spaces, landscaping, and good quality of architectural details.

The Maps below are some of the government rental apartments introduced during the socialist period by the previous regime.

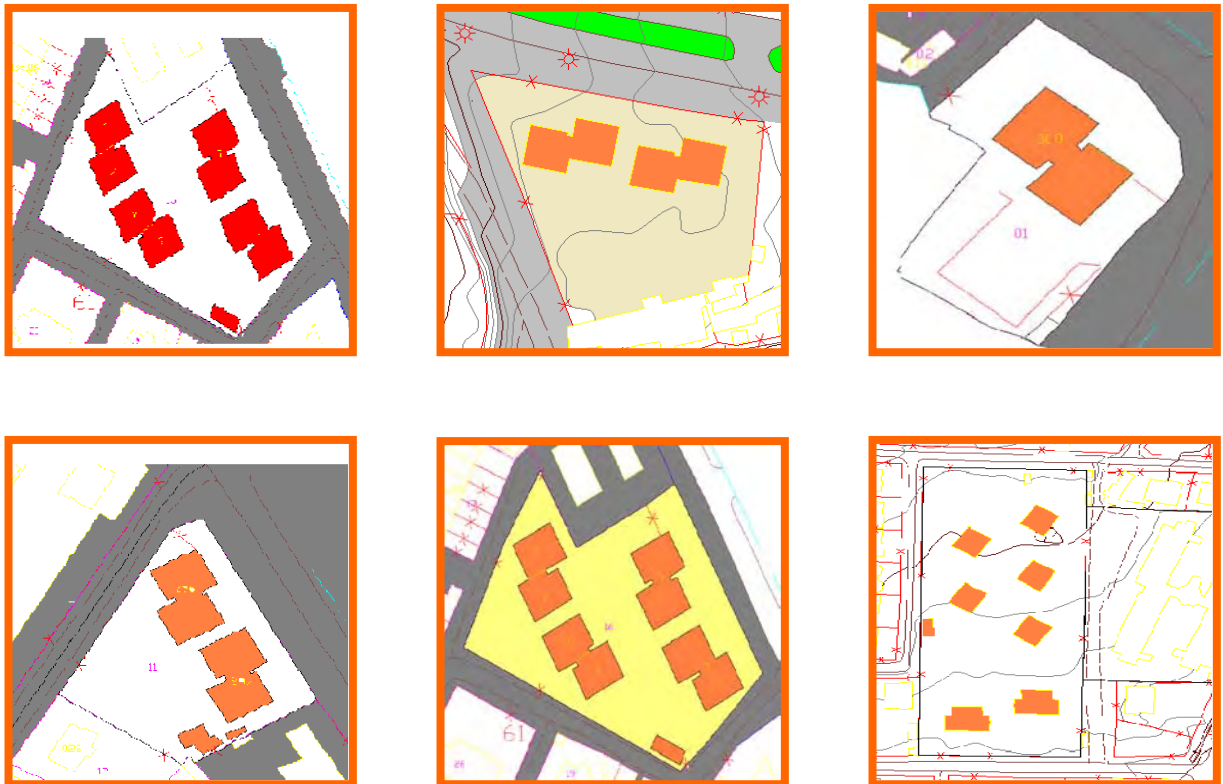


Fig.136. Map showing site plans of government rental apartments in the Bole sub-city.

Source:-GIS map

As can be seen from the plans above and the photos below, most of them have similar character in the arrangement of their blocks and some other urban design related issues like open spaces. Some of the qualities that should be adopted by different stakeholders in the housing sector are described below.

1. They are architecturally detailed when compared to the recently introduced government condominiums.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa



Fig.137. Photo showing Architectural quality of government rental apartments.

Source:-Field Data, 2007

2. Most of them have attractive textures and common detailing with hammered or plastered concrete beams and columns with cylindrical down pipes. Common detailing is attempted in all the apartments except for government rental apartments behind “Sai pastry” which has the same character as government condominiums.



Fig.138. Photo showing material and textures of government rental apartments.

Source:-Field Data, 2007

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

3. They have open spaces adequate enough to accommodate parking, landscaping and play lots.



Fig.139. Photo showing open space in the compounds of government rental apartments.

Source:-Field Data, 2007

4. They are fenced with metal grills and stonemasonry, unlike the government condominiums. The main gates are similar and made with a concept of simplicity from metal grills. Standard fencings with human scale were seen allowing permeability inside the compound, security and privacy for the dwellers. Security guard houses are also at convenient places.



Fig.140. Photo showing main gates & fences of government rental apartments.

Source:-Field Data, 2007

5. They have good landscaping with trees giving shades both in the compound parking and on-street parking. Most of the apartments are provided parking spaces equivalent to the number of housing units except for the one below Mega building. Every building has an off-street parking except for the apartments bellow Karamare and behind Sai pastry.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa



Fig.141. Photo showing trees giving shades to cars that are parked

Source:-Field Data, 2007

6. Fences are decorated with climbing flowers and trees being attractive and environmental friendly.



Fig.142. Photo showing decorated climbing flowers and trees

Source:-Field Data, 2007

7. Trees have good relation ship with the super structures and were seen to bring visual satisfaction for the dwellers.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa



Fig.143. Photo showing buildings and trees in scale creating visual interest

Source:-Field Data, 2007

8. Their staircases are structurally sable and are inside the building unlike the government condominiums.



Fig.144. Photo showing the absence of external staircase

Source:-Field Data, 2007

9. Most of the compounds are asphalted except for the green areas. The outside roads are also asphalted unlike the earth surfaced and gravel finished local roads in Gerji.



Fig.145. Photo showing asphalted roads

Source:-Field Data, 2007

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

10. Average BAR value of all the apartments is less than the average BAR value of the government & sunshine real estate's condominiums, i.e. 0.18.
11. Safety is considered for children by introducing speed reduction details on the asphalted surface of the compound parking.



Fig.146. Photo showing speed reduction element inside the compound

Source:-Field Data, 2007

12. The blocks have sitting gardens in front of some apartments and commercial units in their ground floors such as supermarkets, cafes, boutiques, offices, etc. There is also street furniture around them.



Fig.147. Photo showing cafes, supermarkets, street furniture & sitting gardens

Source:-Field Data, 2007

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

13. They have good drainage system with slope to let water flow in the drainage halls.

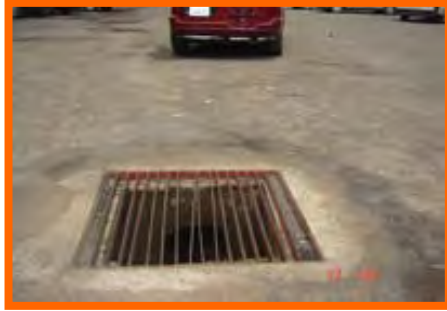


Fig.148. Photo showing drainage halls

Source:-Field Data, 2007

14. They don't put dish antennas in the green areas.



Fig.149. Photo showing a proper place for dish antenna

Source:-Field Data, 2007

15. The compounds have one or two garbage containers.



Fig.150. Photo showing garbage containers

Source:-Field Data, 2007

16. Traditional structures like “Karamara” restaurant are located adjacent to one of the apartments giving it an identity to be attractive and remembered.



Fig.151. Photo showing landmarks near one of the apartment

Source:-Field Data, 2007

Chapter Four

4. Summary of Findings with Discussion and Conclusion

Findings

The study has been undertaken in the city of Addis Ababa in specific with Gerji to test the architecture of housing on the touchstone of urban design dimensions in the case study area with an intended objective to collected data and formulate suggested decision options. Significant data was collected from different private and government institutions and maps, as well as field observations. This kind of detail analysis based on the six dimensions of urban design that helped the study to list down the following findings has not been done before in a thesis level and can be considered as opening the first door for decision makers, developers and professionals in the city administration to adapt and solve their problems while developing an area. The findings indicate that:

- A. The housing development of Gerji has not been accompanied by issues of urban design principles. Hence, there lacks a balance between achieving quality and ensuring efficiency. The development of Gerji fulfilled the interest of the government only i.e. to increase density by ignoring the comfort, convenience, play and pleasure of the dwellers.
- B. The simultaneous application of the six overlapping dimensions of urban design that could be adapted as a process of problem solving while creating a quality urban environment, don't fully exist in Gerji.
- C. Previously, decision makers and planners didn't consider the future trend of economic development in the case study area. Therefore, the residential use adjacent to the street sides is being changed to commercial activities. Even though the physical configuration is characterized by its legibility due to the planned regular clusters and housing units, the parcelation method selected with a grid street system consumed so many areas of land, implicating that the previous planning trend failed to choose a proper land management system.
- D. Even though the spaces were planned for the low income group, most of the vacant spaces left are being taken over by the uncontrolled infill development. Houses were seen transferred to high income group by selling or renting. Additional facilities and service such as parking spaces, play grounds, community centers, schools, health centers, etc.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

were not provided in parallel with the development. Therefore the necessary components of housing do not exist adequately.

- E. The existing controlling mechanism with the standards and regulations couldn't seriously control the new morphologies to keep their standard and to have a certain relationship with the surrounding. It couldn't also stop the formation of informal settlements and the wrong implementations of stakeholders in the case study area. Therefore they were found looser and unsatisfactory in controlling the development and weaker in providing quality.
- F. The necessary components of housing do not exist in their proper location adequately and to the standard in order to bring social, economical, psychological and functional satisfaction to the dwellers. The distribution and availability of standard social services is unbalanced with the existing population size and with its future growth, since the population number has been doubled due to the infill development.
- G. Even though, Gerji has a heterogeneous sub groups in its social composition and there are attempts of social mix by the government and private condominiums, the social analysis of the case study area indicated that there exists lack of social and psychological considerations in terms of comfort, equity, privacy, safety and security.
- H. While 90% on the dwellers are provided electricity, water line, telephone line, private toilets and accessible roads, there is the ignorance of providing standardized and visually attractive physical infrastructure, efficiently and effectively.
- I. The neighborhood is dominated by a residential use. However, there is an unbalanced land use adjustment and some land uses are affecting the safety of the dwellers and the character of the neighborhood as well. A narrower principal arterial street bisects the neighborhood into two and this condition forecasts the formation of two neighborhoods that can be managed separately.

Discussion based on the findings

Over the past forty years urban design has been a required field of activity. It should be seen as an integrative joined up activity, at the heart of which is a concern for making places for people. It is a shared rather than a particular responsibility since the problems posed and challenges presented are often too complex to be handled by a single person or profession and also because the responsibility for the over all quality of the urban environment often falls between the established built environment professions.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

As urban design is not abstracted from the day to day life of urban areas, all those involved in the creation and functioning of such areas, have a role to play in ensuring their success. Hence, a multitude of parties should be concerned with the creation of urban environments and places- including the federal government and the city administration, local communities, the business community, developers and investors, professionals, occupiers & users, passers- by and future generations. All of these groups have an interest and a role to play in urban design⁸⁴

Therefore, as described in the literature review previously, the six overlapping dimensions of urban design- Morphological, Perceptual, Social, Visual, Functional and Temporal should be used as devices to be considered simultaneously since they are the everyday subject matter of urban design in the process of problem solving and for being generic measures to make urban design holistic.

Even though, the revised 2002 master plan has many elements of urban basing issues, most of the uses in the plan require detail policies, codes and regulations. The present physical development controls, rules and regulations of Addis Ababa, as discussed in the literature review, were not also effective in creating a quality urban environment & guide the implementation of the structure plan's goals and objectives. The need for a broad (comprehensive) policy that guides the overall physical development to create a quality urban environment that could achieve the goals and objectives of "Quality Image, a Clean and Safe Environment", has a paramount importance.

The development of Gerji fulfilled the interest of the government only i.e. to increase efficiency by ignoring the comfort, convenience, play and pleasure of the dwellers. However, unlike the trend of Gerji, density makes possible the existence of ample open spaces since the built up area covered by buildings is smaller. There has been a considerable demographic change in the last decades and hence the life cycle belongs dominantly to infilling, out of the five stages of life cycle categorized by Knox (Vizi sub urbanization, infilling, down grading, thinning out & renewal).

The purpose of defining density is to ensure that the inhabitants have proper space about their dwellings for light, air and recreation. Thirty dwellings planned as two-storey house on an acre of land would have very little open space but if placed in a ten storey flat

⁸⁴ Matthew Carmona, Tim Heath, Taner Oc and Steven Tiesdell, Public places- urban spaces, p.19.

block, there would be ample-The higher the building the less the area of land covered.⁸⁵ People living in a well-defined area, with their own social services within easy walking distance, will tend to be more aware of belonging to one place; to have more loyalty to it; and to be more neighborly than those living in a vast wilderness of nothing but roads and houses.⁸⁶

Buildings which have no place in the neighborhood are those which serve the town as a whole, such as the town hall, museum, technical college, sport stadium, large stores, and specialized shops. Industry itself has no place inside the neighborhood, but there is nothing to stop those that are light and clean being placed on the edges and much to be gained by so placing them: work is one of the strongest social ties.⁸⁷ As mentioned in the preface of the book entitled "Public spaces- Urban Spaces" written by Matthew, Carmona, Tim Heath, Taner Oc and Steven Tiesdell, urban design is only holistic when the six overlapping dimensions of urban design- Morphological, Perceptual, Social, Visual, Functional and Temporal-dimensions (the areas of action) are considered simultaneously. Therefore any development should be evaluated against this in order to create a successful urban place for the people living the case study area. Therefore, solutions will be forwarded below for some problems found after testing the neighborhood on the touchstone of urban design dimensions.

The findings from the analysis of the case study area will be discussed below based on the theory described in the literature review about the six overlapping dimensions of urban design- Morphological, Perceptual, Social, Visual, Functional and Temporal.

There is an aristocratic design typology development, which neglected the participation of dwellers that could help to identify their needs. While providing land lease - free to Sunshine Plc., the city administration obliged the company to alter the original design by minimizing open spaces left for parking, play lots, and green areas to increase the number of housing units. This proves that it is an invented place as described in the literature review. The former low cost houses were made to have an average plot area of 105m² where as the current condominiums were made to settle many households in a block of an average built up area of 250 m² without leaving adequate open spaces, like parking. For instance, Sunshine

⁸⁵ Frederick Gibberd, Town Design, Neighborhood density and area, p.230-231

⁸⁶ Frederick Gibberd, Town Design, The housing group as a neighborhood, p.237.

⁸⁷ Frederick Gibberd, Town Design- elements of the neighborhood, 229-230.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

real estate has only 142 parking spaces for the existing 546 housing units and Gerji iii condominium blocks have about 80 parking spaces for about 1188 housing units.

The blocks in sunshine real estate were found to be densely clustered resulting in a high built up area (BAR) ratio of 0.46 as computed from the GIS data and AutoCAD plans. The average BAR value of the low-cost houses is a little higher than that of Sunshine real estate's by having a higher average BAR value of 0.49. Government condominiums were found to have an average BAR value of 0.29 where as Government rental apartments at the bole road were found to have an average BAR value of 0.19. This proves that Gerji is a place where various denser developments have been going on through out its life time.

The area is a large neighborhood, which is crossed by principal arterial and uneven distribution of services. The regularly arranged & attached blocks with the grid systems of road networks with densely clustered housing units of different types characterize the configuration of the neighborhood. However, the existing land uses, especially the small scale plastic industries (3.24%), an electric power station (0.39%) and the land fill sites (2.63%) are exposing the neighborhood to pollution and lack of safety. There is also lack of compatibility, visual harmony as well as function in and between the existing and new developments. The monotonous urban outlook, due to similar low cost houses, local and collector road widths created a boring neighborhood and are difficult to be identified.

Lack of regular maintenance in the government rental houses decreased the quality of the houses and hence the image of the neighborhood too. The climatic map prepared during the analysis showed that all blocks are not arranged facing the proper sun light direction. The production or modification of morphology by various unskilled individuals and the uneven development of street side plots along the main arterial street, the lack of proper surfacing of the local roads, the absence of pleasant and functional hard and soft landscaping, and the cluttering effect created by electric/telephone poles also diminished the image of the neighborhood. The dominating flat topography made local roads to hold water during rainy season and dust particles during dry seasons. The black cotton soil type of the case study area also required detail design, care during construction, and higher cost of construction.

It is the belief of the author that the residential use of the condominiums adjacent to the street sides would be changed into a commercial use through a mechanism of selling or renting, since beneficiaries will not accept to live losing their comfort, convenience, play, and pleasure. The introduction of new developments such as educational institutions, the

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

construction of condominiums, mixed use buildings, etc. allowed small business activities to flourish in the neighborhood. Even though this trend of mixed use formation gives day and night life activities to the local roads, decreased fear of victimization at night, and enable them to get services in a shorter distance, the way they are created decreased the image of Gerji.

Even though the spaces were planned previously in a low cost scheme for the low income group by subsidizing the cost of land, most of the vacant spaces left have been taken over by the uncontrolled infill development going on in the case study area. Most of the low cost houses and housing units of condominiums are also transferred to high income group through selling and/or renting. Therefore, the available open spaces are not adequate enough to provide social services such as parking, sport and cultural activities for the increasing number of population. The existence of many plots without proper car parking reduced the quality of the settlement as a good living area.

The distribution and availability of standard social services is unbalanced with the existing population size and with its future growth due to the infill development. There were no health centers that can serve households with an average monthly income of 500-1000 birr. There were no entertainment areas that can serve the majority. The number of educational institutes was not found adequate enough for children and for parents to visit teachers and their children regularly. There were no fire brigade, post office, and adequate number of police stations. There were also under utilization of open spaces in some districts. An informal or unplanned market area has been seen developed on the local road except in the south eastern side where a little attempt is seen. There was found no cemetery for Muslims and Protestants proving the presence of social inequity. Proper soft and hard landscaping were not also provided in the street scene to ensure social interaction, visual satisfaction, comfort, and communication.

Local roads did not have surfaces that are properly finished, so that the comfort of pedestrians and vehicular movement has been found affected. There exist dangerous traffic layouts in the principal arterial street. The government condominiums lacked fencings and hence attained a lesser degree of privacy & security, when compared to the government rental apartments found at the Bole road. The culture of sharing staircases, corridors, etc. decreased the privacy of dwellers. The existing grid street pattern has been found to allow strangers to get into the neighborhood easily, since there is maximum physical and visual

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

permeability. There was no street light in the local roads except that comes from individual houses, and in the district where higher government officials reside. This condition indicates that there exists social inequity. Gerji lacked proper bus and taxi waiting stations. The location of the case study area near to the Bole international airport also brought acoustic problems for the inhabitants since their walls and roofs are not made from sound proof materials.

The analysis could tell that some neighborhood districts are segregated from the whole neighborhood & hence lack interaction with the rest of the case study area, such as districts where dwellers resettled from Kashinchis area and residential areas at the south western side. The unbalanced and piecemeal commercial development along the major street which were created by changing the existing morphology were found to give a negative image for Gerji. However, the distributions of different services along the major arterial street were found convenient for the dwellers since they could get basic goods and services in a shorter distance from their residential areas.

The poor quality of surfacing created a disgusting effect, both visually and functionally, by affecting the health and comfort of pedestrians. The provision of septic tanks rather than using a central sewerage system, made it expensive and difficult to manage, in terms of cost and time. They also consumed so many areas of land decreasing the possibility of soft landscaping and affecting transpiration. The absences of proper maintenance decreased the visual interest and comfort of the dwellers. There were no dirty bins and public toilets. There also existed an uneven allocation of infrastructure, especially streetlights. The electric/telephone poles together with the available substandard signage were creating a cluttering effect. The lack of proper drainage system allowed liquid wastes to spread over the deteriorated local road system. The lack of proper hard and soft landscaping in the pedestrian walk way and in open spaces decreased the visual satisfaction and comfort of the dwellers. The case study area lacks properly developed landmarks, except the abandoned “cylindrical and rectangular water towers” and curved roof structures of the former “Russian camp” which could be modified as landmarks.

In the contrary, the housing development of government rental apartments adjacent to the Bole main road, were found better than Gerji. Unlike the case study area, they almost fulfilled at least the basic requirements expected from the six overlapping dimensions of urban design. Even though urban design was younger and not yet introduced during the

socialist period, the government rental apartments along the major Bole Street fulfilled most of the requirements of urban design dimensions. They were found to have good soft and hard landscaping, adequate parking spaces, secured and structurally stable fences, proportional open spaces to the built up area, good architectural quality, and asphalted road. Most of the buildings were also located adjacent to the Bole road being consistent, convenient, comfortable, efficient, and pleasant when compared to the government and Sunshine real-estate condominiums.

4.3. Conclusion

Urban design has been defined previously as “the coordination of essential functions in a pleasing form that improves the quality of life in an urban area”. As good Architecture raises physical, mental & spiritual level of its occupants, urban design on a larger scale improves the quality of life for the people. Therefore, to address this issue, “The Architecture of Housing” has been studied being a basic unit qualified to contribute its share in guiding the development rationally and to create comfort, convenience, efficiency, play & pleasure at a time in an urban place.

Urban design in the global context and in the context of Ethiopia has been described in chapter two followed by a thorough analysis of a selected neighborhood on the touchstone of urban design dimensions comparing it with other areas in the specific sub-city. The six overlapping dimensions of urban design- Morphological, Perceptual, Social, Visual, Functional and Temporal- have been discussed in detail since they were the generic measures for the analysis done in chapter three.

After discussing the existing situation of case study area, the third chapter has examined Gerji first on the touchstone of social dimension. More than any other dimensions of urban design, the social dimension raised issues concerning values, and difficult choices with regard to the effects of design decisions on individuals and groups in society. Furthermore, the role of design is delivering particular social goals, which is inevitably limited and urban designers will need to work with a wide range of other public & private stake holders to effect significant sound benefits. In general the social dimension showed the way to provide an accessible, safer, secured, equitable public realm for all, even though economic & social trends of the case study area made this increasingly difficult to deliver.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Secondly, the third chapter has examined Gerji on the touchstone of the morphological dimension focusing on two key aspects of urban form and urban layout. In general terms, the analysis has shown and discussed the contemporary preferences for urban blocks pattern and grided, permeable street layout. It has also been discussed about a key issue in contemporary urban space design, how to accommodate the car.

It has also been emphasized the necessity for urban designers to consider the whole context in which they approach the visual aspect of additions to the urban environment. Urban designers must be careful to avoid equating considerations of the visual dimension of urban design with considerations of architectural design. Buildings, streets & spaces hard & soft landscaping and street furniture should be considered together, to create drama & visual interest & to enhance the sense of place, even though they are almost absent in Gerji.

This chapter has also discussed about perceptual dimension, focusing on environmental perception and on the construction of place. The value of this dimension is the stress on people and how they perceive, value, draw meaning from, and add meaning, to the urban environment.

Functional dimension of urban design has also been analyzed in the context of Gerji reinforcing the notion of it as a design process. The criteria's of good design-firmness, commodity, delight and economy must be satisfied simultaneously. In any design process, there is a danger of narrowly prioritizing a particular dimension- aesthetics, functional, technical or economic- and of isolating it from its context and from its contribution to the great whole. There had not been offered creative ingenuity and value through the resolution of the differences combining functionality with visual and social objectives.

Finally temporal dimension has been used as a generic measure since the overarching need is for urban designers to understand the implications and impact of time on places. Urban designers need an awareness of potential change and of opportunities and constraints that may arise of how change can be managed, how places change overtime, how to anticipate the impacts of actions, how & why development will occur and even how materials will weather.

Most of the problems found in the case study area were found to be created for the reason of not considering the six overlapping dimensions of urban design simultaneously and the lack of coordination between stakeholders. The previous planning practices that didn't consider future trends of social and economical growth also contributed for lacking adequate

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

social services and social spaces. The government has been found addressing efficiency only, but ignoring issues of comfort, convenience, play and pleasure. Developers also contributed to the lack of quality since they were mostly running after profit.

As a result an aristocratic design dominated and the case study area became an invented place that ignored the needs of residents. The ignorance of public hearing and participation before implementation contributed negatively to the quality & functionality of the case study area. Even though the existing development trend gives higher value for the provision of adequate housing efficiently, the existing neighborhood can not be classified as a successful urban space for lacking a balance between efficiency & quality in terms of urban design.

Therefore, the study further explored a similar development in the Bole sub-city and concluded that decision makers, developers, professionals and other stakeholders in the housing sector shall not refer Gerji as a benchmark to develop new areas and to correct the already done mistakes. They should rather learn about creating successful places from the previous mass housing developments of the government rental apartments that are found adjacent to the main Bole road.

Finally, the thesis will end up recommending solutions and formulate some urban design guidelines, selecting “Image” and “Design” from the six dimensions of urban design in order to address the goals and objectives of the revised 2002 master plan and to show the way for others to make further studies on the subject matter & formulate additional guidelines, apart from the recommended ones.

Chapter Five

5. Recommendations

5.1. Recommended solutions for the identified problems

There should be a balance between achieving quality and ensuring efficiency in such a way that:

1. The government should first analyze the physiological and psychological needs of the people first and coordinate with professionals (urban designers) to come up with a cumulative successful development plan.
2. The government should also avoid aristocratic design typology development by letting the residents, the business community and professionals (planning and design) to participate in the typology and neighborhood design preparation and adapt successful developments like the Government Rental Apartments found at Bole road.
3. There should also be an established Density Regulation Standard in terms of urban design to use open spaces for social services in balance with the built up structure.
4. The necessary components of housing should be allocated in their proper location adequately and to the standard within 100 meters or five minutes walk-from each household, especially health centers, entertainment areas, schools, libraries, laundries, police stations, social spaces, traditional markets, min-markets and possibly a cinema.
5. Unnecessary uses such as small scale industries, landfill sites, high electric cable stations, embassies, etc. should be replaced by other essential uses of a neighborhood.
6. Decreasing the danger of similarity by the introduction of some complexity (Visual)
7. Develop proper mechanism for housing unit signage and block numbering (Visual)
8. Balancing the distribution and availability of standard social services considering the existing population size and with its future growth (Social)
9. Ensuring Safety, security, equity and privacy while providing infrastructures (Social, Functional)
10. Assessment of the type and size of market area developments and proper allocation of land for a healthy development of market activities.(Social, Functional)
11. Propose plantation mechanism of trees suitable for the case study area, in the streets and open spaces.(Visual)
12. Propose an efficient design to integrated sewerage and drainage systems.(Functional)

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

13. Propose better surfacing standards and implementing mechanisms such as community-based development or incentives (Visual, Functional)
14. Search alternative methods for an efficient land and infrastructure uses by referring international standards, such as introducing Cul-de-sacs, using lighting standards, etc.(Morphological, Functional)
15. Introducing middle kerbed stone to separate pedestrians from vehicular movement and propose proper car parking spaces at a convenient place (Social, Functional)
16. Identify proper stop points and devise a mechanism to develop taxi and bus stop stations (Visual, Functional)
17. Propose elements which could represent the area as a land mark such as the introduction of monuments, public arts, plantation etc. (Perceptual)
18. Rental houses should be allowed to maintain and compensate their rental fees to increase sense of belongingness (Perceptual)
19. Preserving and decorating the abandoned structures in order to create a historic meaning to the area(Perceptual)

Decision makers and planners should consider the existing and future trend of economic development in the case study area so as to plan for today and tomorrow. They should also revise the existing regulations and controlling mechanisms and restructure the professional organization in the sub-city with ethical regulations and obligations. Apart from this:

1. They should develop guidelines for Strip development and consider a balance of functions in terms of their economic viability.
2. They should set maximum height limitation for individual urban blocks with in the study area referring standards and the local context.
3. They should also project the current and future community social service demand and propose the supplying mechanism.
4. They should formulate a strong and proper guideline with an enacted law to penalize or punish those who do not respect rules and regulations in terms of money, participation in community developments, etc.
5. They should devise ways and mechanisms to the effective use the respective spaces to their maximum advantage to the community introducing activities or attractive

elements around the underutilized spaces in order to create social interaction and give value for the places.

6. They should also maintain and sustain to the neighborhoods image through the careful application of aesthetics and environmental guide lines in different development areas inviting artists, engineers, designers, etc. to meet the goals and objectives of the revised master plan.

5.2. Proposed urban design guidelines

Urban Design extends into all elements of planning, such as, land use, transportation, housing, economic development, utilities, and the environment. Addressing urban design issues is especially critical to Gerji to be integrated in the mixed land use policy of the city. The mixed-use policy endeavors to establish and integrate a mix and/or variety of land uses within the City. This policy will help avoid problems observed completely when the case study area was seen from the point of view of urban design dimensions & increase the image & quality of the urban architecture as well as provide comfort, convenience, efficiency, play, & pleasure throughout the community.

In doing so, however, uses, which are not traditionally considered compatible, may be located next to one another. Those uses with lower land use intensities must be protected from negative impacts generated by adjacent uses with higher land use intensities. Therefore, the integration of differing land uses shall occur with careful thought given to the potential impact each use may create. Some issues mentioned in the literature review, such as architectural scale, density, and other development related issues should be considered to ensure the land use mix cumulatively supports and enhances the overall character at the neighborhood as well as at the city level.

As discussed earlier, people have more choices as to where they would like to live, work and shop than in the past. Today, a community must attract residents, businesses and/or industries for its economic well-being. A decision to locate in a particular community is often based on the community's perceived image. Such an image is generally based on the community's visual appearance and convenience. In order to be an attractive location, the case study area – Gerji, must improve and promote its morphological, social, temporal, perceptual, visual and functional qualities.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

In turn, then, Gerji must also establish a better relationship between people and places. This means that all aspects of the neighborhood design must be connected; for instance, a building's architecture may be beautiful and reflect the heritage of an area, but it also should be functional and complement the character of the surrounding neighborhood. To be a good neighborhood, Gerji should have a balanced mix of activities, such as shopping, schooling, recreation, social interaction, & all types of housing.

This thesis endeavors to foster a positive and distinct image for the case study area and as well to the future developments of the City of Addis. A distinct image, however, cannot be created overnight; rather it is developed over time. This Urban Design guideline will recognize those traits that are important to both the community in the case study area as a whole while enhancing and promoting the unique character and/or themes prevalent in the many districts and neighborhoods found within the City. Over time, Gerji will be able to boast a distinguishable character, which will set it apart from other communities.

5.2.1. Limitation of Neighborhood size

According to the analysis done, the total area of Gerji is about 463 hectares with a total housing number of 8126, including the new government & real-estate condominium housing units. Its perimeter is about 12kms. Considering an average number of 5 people per households, the case study area is expected to reach a total population number of 54,916 when the government condominiums & real-estate houses are completely transferred to the beneficiaries.

The gross density of Gerji is 118.5 peoples/hectare & 19.72 housing units /hectares with average BAR value of 0.41 and average FAR value of 1.62. The net density was calculated to be 142.34 peoples/hectare & 23.67 housing units /hectares.

Most of the new condominium developments, i.e. about 4 projects are found in kebele 11. & only about 2 projects are found in kebele 10. The existence of a bisecting principal arterial street required the division of the neighborhood into two. It would be effective to manage one kebele, since detail problems can be solved on time, unlike managing two kebeles at a time. It would be difficult to manage a larger neighborhood in terms of time, priority, & budget.

The large size of the case study area, the number of housing units, & the existence of a bisecting principal Arterial Street will automatically bring the need for the division of the case study area into two distinctive neighborhoods. Therefore, the following

recommendation task will focus on outlining urban design guidelines that would improve the quality of settlements & living standards of the residents treating both sites as a distinctive self contained neighborhood.

5.2.2. Goals, Policies, and Objectives

The Goals, Objectives and Policies of this Urban Design guideline shall support the Urban Design Goal of the City's revised master Plan: This goal shall be furthered by including physical design in this Element. This Urban Design guideline's Goals and Policies are organized into two categories: Image and Design.

Urban Design Goals and Policies are not rigid rules designed to be enforced in all situations, but are designed to provide the case study area with guidance in a majority of circumstances. As Gerji continues to grow, the needs of its residents will also grow. Creating policies designed to engage the environment in the case study area's growth process demands that such policies grow and change over time.

IMAGE

There are several qualities a community may or may not possess which can leave a lasting impression on a first time visitor. These qualities include, but are not necessarily limited to, cleanliness, an orderly appearance, diversity, aesthetics, and the community's overall setting. This section of the Urban Design Element is meant to support a positive image of the case study area as a whole; not only for the visitor or newcomer, but long-time resident as well.

Goal 1

Foster a unique and attractive character for Gerji to support an image, which is distinct from the surrounding communities.

Objective 1

Establish policies, which will support an orderly and efficient community.

Policies

1. Major entrances (gateways) to Gerji should be emphasized to relay a sense of arrival to those traveling to and through the case study area. Emphasis should be placed on a theme for each gateway area. Elements of the streetscape in gateways and corridors should include, but not be limited to:

- (1) Architecture should respect the gateway's designated theme, existing character, and/or highlight the most significant a character where applicable.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

- (2) Monument signs introducing Gerji surrounded by landscaping.
 - (3) Textured paving at major intersections asserting a "sense of arrival and place".
 - (4) An emphasis on the use of landscaping materials according to the area's neighborhood/district theme especially when used in medians.
 - (5) Non-glaring, uniform lighting.
2. Street signs and other directional signs on the existing principal & sub arterials should be large and easy to read allowing the traveler to distinguish them easily.
 3. Identifiable bus stops should be adopted throughout Gerji.
 4. Visual clutter may be mitigated through the management of the number, size, height, and appearance of signs.
 - a) Investigate specific signage requirements for multi-tenant blocks, government rentals & housing cooperatives to encourage architectural harmony and unity within each center.
 - b) Density limits should be sought for off-premise signs along major corridors and gateways since development rate of the case study area are increasing from time to time.
 5. Encourage the use of underground utilities to avoid visual clutter.
 6. Adwa Park should be developed with urban design principles and become a true public space, allowing the public to use it in the case study area in a democratic manner and multi-use activity/recreational fields (functional open space) should be encouraged to develop in conveniently located areas.
 7. Encourage a balance of land uses as a means of providing convenience and functionality to those who may live and/or work in the case study area. of the community.

Objective 2

Establish high maintenance standards for public and private properties as the case study area's appearance relates directly to its image.

1. An improvement of Gerj's visual quality should be attempted by reducing wind-blown trash, dust, and harmful substances.
 - a) A schedule should be developed to clean up those vacant properties, which are owned by the Bole sub-City. Non-sub-city owned public properties in the need of being cleaned-up should be brought to the attention of the appropriate sub-city City officials for immediate action.
 - b) Enhance existing programs and investigates other opportunities to deal with the clean up and/or repair to properties affected by chemicals from the existing industries.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

- c) Appropriate City Codes should be amended to significantly reduce the permitted time between initial site preparation (clearance and/or grading) and commencement of construction in order to avoid problems with wind-blown dust and building material waste.
 - d) Encourage the surfacing of existing, unpaved gravel roadways as a means of preventing dust-related problems.
2. Encourage the improvement and maintenance of existing mixed use buildings as well as the existing residential homes.
- a) Workshops and design studios that would address new construction, renovation, and any other exterior modification should be offered in order to create compatible and unique commercial projects. Additional programs, such as the possibility of beautification awards for individuals like 'Gash Abera Molla', institutions, like the Unity University College & other commercial businesses, that take the initiation themselves, as a way to promote community pride, should also be investigated.
 - b) Assistance for residences may be accomplished via refunding (from rental fees, especially for those living in the government rental houses), awards, loans, grants, and/or a tool loan program.
 - c) The Bole sub-city should establish streamlined procedures for eliminating unsightly properties, which pose safety concerns. It should also facilitate the way to transfer governmentally owned houses to individual households, & legalize the informal houses, so as to encourage the dwellers develop a sense of owner ship & maintain their property.
- This would probably increase the image of the case study area.

Objective 3

Encourage the development of a character/theme for the neighborhood and support the already defined areas.

1. Encouraged the case study area throughout to establish themes for its kebeles. Themes and styles should be called out in each respective neighborhood plan, in accordance with the Land Use Element.
2. New development constructed in the case study area should respect and preserve the applicable character found therein.

Objective 4

Create a pleasant and attractive atmosphere in and around the case study area.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

1. Standards to create aesthetic streetscape designs should be developed. This should include, but not be limited to: street hardware and furniture, signage, lighting, fencing and walls, larger parkways, pedestrian circulation, minimum landscape and long term maintenance standards.

a) Encourage the use of matching street furniture, traffic signals, streetlights and directional signs to provide a coordinated approach to design thus helping to avoid visual clutter.

b) A neighborhood level lighting ordinance should be developed which may require:

i. Minimization of any increase of local nighttime atmospheric light from public and private sources

ii. Light standards, which are chosen to be integral with overall project design in size, form, and color in terms of the characteristics and use of the street with the character of Gerji.

c) In addition to landscape buffering requirements, parking lots should be visually screened/buffered from the right-of-way to soften their over-all impact. The existing communal parking should also be properly managed to the required level of comfort, accessibility & security. This may be accomplished through the use of required landscaping and/or various landscaping elements, such as low walls.

d) Promote unified street tree planting along street frontages on the arterial to provide shade and visual relief, , especially placing street trees along arterials starting from the imperial hotel through out and along major collectors as a means of providing shade and enhancing Gerj's streetscape. Such trees should be of a drought tolerant seasonal variety, which brings visual drama, and of a variety that does not create damage to sidewalks and curbing of the case study area.

e) Projects that are surrounded with walls should be required to provide for an attractive streetscape.

i. Walls should vary in plane and texture.

ii. Landscaping techniques, such as trees and colorful climbing plants, should be employed along the periphery of the walled area for visual relief.

iii. Encourage public art in new development and as an addition to existing developments.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

- f) Encourage the decoration of the existing water towers, such as those found in between the Myungsung Christian Medical Center & G+0 government rental houses and other similar utility structures based on historical and cultural aspects.
2. Encourage shared communal parking areas to lessen visual clutter and promote greater traffic circulation efficiency. This can solve the congestion & accident caused by the on street parking along the two way principal Arterial Street of the case study area. Some mechanisms can also be used to solve the existing problem caused by on-street parking, such as charging parking fees to discourage those parking their car for longer time on the main arterial street.
3. Emphasize low maintenance landscaping and tree plantings for median development, along sidewalks and other types of rights-of-way.
4. Trees should be planted within all parking areas for visual relief as well as to provide shade relief in large-scale communal parking areas.
5. Encourage existing businesses within the neighborhood to comply with Gerji's landscaping requirement to beautify individual parcels of land and to promote attractive streetscapes.
6. Site designs that respect adjacent land uses as well as designated gateways and corridors using mitigation techniques should be employed.
7. The Bole sub-city should establish minimum building construction standards for the case study area as a means of promoting an aesthetically pleasing environment which supports the design characteristics established for adjacent neighborhoods and which will assist in maintaining an area's appeal.

DESIGN

Design includes those aesthetic and environmental issues, which the case study area would like to address. Emphasis is placed on compatibility, visual harmony as well as function in and between existing and new development, especially at the neighborhood level.

Goal

Maintain sensitivity to the image of Gerji through the careful application of aesthetic and environmental guidelines of its respective neighborhoods.

Objective 5

Enhance natural environment, physical environment, and character of communities in Gerji through quality design.

Policies:

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

1. Residential and mixed-use development should preserve a consistent expressive local residential image & images expressing commercial character in the ground floor of multi stories, respectively, rooted in a variety of architectural styles and design elements and strengthened by creative contemporary expression.
2. Encourage the use of landscape materials best suited to the black cotton soil type that largely dominates the area of Gerji. Developments located in the case study area should be encouraged to use landscape materials compatible to the type of soil existed in the case study area & foundation design for worst soil condition, such as attempted by the MH engineering Plc. in providing a solution of suspended ground floor slab for government condominium sites with expansive soil type. Any developer should be encouraged to use plant materials best suited for the natural & environmental character of the case study area.
 - a) Produce & provide compatible trees for the worst soil type & favorable climate of Gerji through the cleaning & beautification department of the Bole sub – city.
 - b) The Bole sub-city should investigate building permit applications, focusing on checking the structural plans whether they have seriously considered & bring about the right solutions for foundation design.
3. New development or redevelopment should be required to utilize local architectural styles and design elements in the existing area, entrances and designated places which are compatible with existing structures.
 - a) The topography and slope of a site should be maintained in its natural state.
 - b) Encourage a balance between open space and development, unlike the real estate development site owned by Sunshine construction Plc where available open spaces reserved for parking, greeneries & landscaping were replaced by G+4 blocks since they were forced to increase density & solve housing needs.
 - c) Encourage variation in setbacks and structure spacing as a means of avoiding monotony and unity.
4. Encourage the development of neighborhood plans by investigating the basic urban design elements & missing services to provide them in a convenient, comfortable, efficient, playful, & pleasant manner.
 - a) Basic urban design elements to be addressed by neighborhood plans include: Aesthetics, Open spaces, Climate, Street pattern/street design, Parking, Landscaping, Infrastructures, Time dimension & Control & Maintenance.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

- b) Neighborhood Plans should address, but are not limited to such issues as, the provision of a community center, primary & secondary schools, kindergartens, a police station, a fire brigade, post office, bank, church, mosque, health centers, supermarkets/ mini markets, play lots, play grounds, public toilets, telephone booths, administrative offices, shops, social gathering spaces, etc.
5. Support the dominating residential developments that contribute to a positive image in Gerji area by the creation, enhancement, and/or preservation of an identifiable Neighborhood image.
- a) Encourage neighborhoods to develop an identifiable theme.
 - b) Design elements should be added to each residential development that increases variety to each neighborhood in kebele 10 & kebele 11 as well as create a sense of neighborhood. Some of elements recommended in the specific case study area are mentioned below.
 - i. Since most of the developments are not in a condition to be recognized by a new comer, landscaped development signs or focus points at the entry of each development should be adopted.
 - ii. Modifying the existing poor quality, local gravel road by introducing a textured paving at the entry to or at crossroads throughout the neighborhood.
 - iii. There should be a unified architecture (especially where a theme has been adopted) that provides styles, massing, roofs, facades, setbacks, and materials.
 - iv. There should be a unified landscaping along right-of-ways.
 - v. There should be a non-glaring, unified/decorative lighting throughout the neighborhood to attain social security & equity. Areas with proper lighting should not be provided only in the direction that leads to the G+1 rental houses, owned by members of the parliament & the detached private villas, owned by higher government officials.

Objective 6

Fill compatibility, function and practicality in and between new and existing development by establishing development guidelines to ensure quality site design.

Policies:

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

1. Infill development, both new developments, like the government & sunshine real estate condominiums and redevelopments, should be required to respect the architectural styles, setbacks, color, scale, character and site design relationships of the existing neighborhood.
2. Support those residential developments, which possess an identifiable neighborhood image while still provide a variety of housing styles in order to avoid a monotonous, appearance.
 - a) Developers should provide a variation of residential facades to provide visual interest.
 - b) Encourage a variety in setbacks and structure spacing as a means of avoiding monotony and uniformity.
3. Encourage mobile shops like the metal shops aligned on the street, to be architecturally consistent with adjacent residential uses.
4. Encourage developers to respect the architectural styles found in adjacent areas.
5. Support a policy of mixed land uses. Land uses that are not traditionally considered compatible may be located next to one another depending upon design features and compatibility with the adjacent area as a result of a mixed land use policy. Those uses with lower intensities must be protected from any negative impacts from adjacent uses with higher intensities in order to protect a desirable quality of life within the neighborhood.
 - a) Land uses that differ from adjacent land uses should be required to follow the distance and landscaping requirement. There should be a fixed non-build able area between uses that must be landscaped accordingly.
 - b) Mitigation techniques should be employed to avoid any possible problems between differing land uses located adjacent to or near one another.
 - i. New development should be compatible with the architectural style in the surrounding area
 - ii. New development should respect building height, scale, and setbacks found in the surrounding area.
 - ii. Any high intensity use locating adjacent to a lower intensity use should be oriented and designed in a sensitive manner. Development which is/are located adjacent to public streets should also be oriented and designed in a sensitive manner.

===== **END** =====

Appendix 1a

Advisor:- Prof. Gurdeep singh

Prepared by:- Eyob Enkossa

June 4,2007

Addis Ababa University

Department of Architecture and urban Planning

Questioners distributed for 81 sample households for a "Thesis paper" entitled "The Architecture of housing" which will be used to analyze the socio-economic and physical characteristics of the case study area.

1. Choose your gender status.
a) Male b) female c) no respond
2. Chose your marriage status
a) Married b) widow c) single d) no respond
3. Choose your ownership status.
a) owner b) renter
4. How much birr do you pay monthly for the house you rented?
a) <100 b) 100-500 c) 500-1000 d) 1000-1500
5. How many rooms do you have?
a. one room b) two rooms c) 3 rooms
d) > 3rooms e) no respond
6. How many family members do you have?
a. One b) two c) three d) four
e) Five f) > five g) no respond
7. Choose the range where your age falls ?
a. 25-40 b) 40-50 c) 50-60 d) 60-70
e) 70-80 f) no respond
8. Choose your job status?
a) self - employed b) government employed
c) privately employed d) retired e) foreign assistance
f) No respond
9. Choose the range where your monthly income falls.
a) <100 birr b) (100-500) birr c) (500-1000) birr
d) (1000-2000) birr e) >2000 birr
10. Choose the mode of transport yours.
a) private car b) Taxi c) Bus d) service e) walk
11. For how many years you stayed in the neighborhood?
a) 1-5 years b) 5-10 years c) 10-15 years
d) 15-20 years e) 20-40 years
12. Are you willing to participate in community development?
a) willing b) not wiling c) no respond
13. If you are willing to participate in community development which of the following means you chose?
a) Labor b) money c) both d) no respond
14. Do you have "Idir"?
a) yes b) no no respond

Appendix 1b

15. What is your need to be in priority?

- | | | |
|---|--|---|
| ☐ entertainment | ☐ hospital | ☐ proper sewerage system |
| ☐ supermarket | ☐ proper market place | ☐ K.G. |
| ☐ Road & electricity | ☐ Bank | |
| ☐ Asphalt Road | ☐ Police station | ☐ fire brigade |
| ☐ Parking | ☐ all are available | ☐ all are not available |
| | | ☐ school |

16. Are community centers available in your neighbor hood?

- a) available b) not available c) no respond

17. What is the status of your security?

- a) secured b) unsecured c) no respond

18. Are open markets available in your neighborhood?

- a) available b) not available c) no respond

19. Are enough playing lots available in your neighbor hood?

- a) available b) not available c) no respond

20. What is the level of your social interaction?

- a) maximum b) minimum

21. Chose the mode of energy you use

- | | | | |
|--------------------------------------|---|-------------------------------|-------------------------------------|
| ☐ Electricity | ☐ coal | ☐ wood | ☐ Gas |
| ☐ Coal & gas | ☐ Electric & gas | ☐ all | ☐ no respond |

22. Are you willing to be relocated?

- a) willing b) not willing c) no respond

23. If you are willing, which area you choose to be relocated?

- a) In the nearly area b) any where
c) Places with infrastructure d) no responded

24. Are social spaces available in you neighbor hood?

- a) available b) not available c) no respond

25. Are the available social services near or far from the location of your house?

- a) near b) far

26. What are the available physical infrastructures

- a) Telephone, water & electric line
b) Telephone line
c) Electric & telephone line
d) No respond

27. What kind of toilet do you use?

- a) private toilet b) common toilet c)no respond

28. What is the quality of your house?

- a) Good b) fair c) bad

29. What is the quality of your neighborhood?

- a. Good b) fair c) bad

30. What is the kind of road finish in front of your house?

- a) asphalt b) gravel c) earth
d) sand e) stone f) no respond

31. Is your house exposed to fire?

- a) exposed to fire b) not exposed to fire c) no respond

Appendix 1c

32. What material used to construct your house?
a) HCB b) mud& wood c) mud& cement d) Brick
e) concrete f) sheet metal & stone g) no respond
33. What is the type of you flood finish?
a) cement b) Pvc c) earth d) wood
e) all f) no respond
34. Choose the area of your plot size.
a) $75m^2$ b) $105m^2$ c) $175m^2$
d) $250m^2$ e. $500m^2$ f) $>500m^2$ g) no respond
35. How many times you maintained your house?
a) one time b) two times c) three times
d) more than three times e) no respond
36. Do you have shop/s subtracting your plot?
a) Yes b) no
37. What is the strong side of your house?
a) its cost b) its location c) its area
d) its construction material e) its coast & location
f) no respond g) all
38. Is landscaping available?
a) available b) some landscaping available
c) no landscaping d) good landscaping
39. What is your major problem?
a) narrow space b) sewerage problem
c) infrastructural problem d) distance from work place
e) higher rental cost f) no respond
40. Do you have a car access road into your house?
a) yes b) no access c) no respond
41. As parking space available in your plot or in the near by area?
a) yes b) no c) no respond
42. what type of house do you have in terms of floors?
a) G+0 b G+ 1 c) G+2 d) G+3 e) units in a condominium block.

Appendix 2a

A.A.U
(household: ገርገ: የተዘጋጀ)

መጠይቅ

1. ያለዎት ቤት የግል ነው ወይንስ የኪራይ ? የግል ከሆነ ገዝተውት ነው ሠርተውት? የኪራይ
2. የሚኖሩበት ቤት ሁኔታ ምን ዓይነት ነው
ሀ. ጥሩ ☒ ደህና ሐ. ጥሩ ያልሆነ
3. የሚኖሩበት መንደር ከሌሎች ቦታዎች አንፃር ጥሩ ነው ብለው ያምናሉ?
☒ አዎ ለ. አይደለም
4. የሚኖሩበት ቤት ዋና ችግሩ ምንድን ነው?
☒ የቦታ ጥበት ለ. የፍጥሽ ማስወገጃ ችግር ሐ. የመሠረተ ልማት ችግር
(መብራት፣ ውሃ፣ ስልክ) መ. ርቀት ሠ. ሌላ _____
5. መሠረተ ልማት ተዘርግቶለታል ?
መብራት ☒ ውሃ ☒ ስልክ ☒
6. ያለዎት ቤት ሽንት ቤት አለው ወይንስ የጋራ ነው የሚጠቀሙት?
☒ የግል ሽንት ቤት ለ. የጋራ ሽንት ቤት
7. የወር ገቢዎ ስንት ነው?
ሀ. < 100 ብር ለ. ከ100 ብር - 500 ብር ሐ. ከ500 —1000
መ. ከ1000-2000 ☒ ከ2000 ብር በላይ
8. የሚጠቀሙት የትራንስፖርት አይነት ምንድን ነው?
ሀ. የግል መኪና ☒ ታክሲ ሐ. የከተማ አውቶብስ መ. ሠርቢስ ሠ. እግር
9. በአካባቢዎ የማህበራዊ ግልጋሎት በቅርብ ርቀት ይገኛሉ?
/ለምሳሌ ሆስፒታል፣ ት/ቤት፣ መዝናኛ፣ ገበያ፣ ሱት፣ ሱፐርማርኬት፣ ፖሊስ ጣቢያ ወዘተ/
☒ አዎን ይገኛሉ ለ. አይገኝም
10. በአካባቢዎ መኖር እያለበት የሌለ አገልግሎት ምንድን ነው? /በጣም አስፈላጊ/
ፓሊስ ጣቢያ
11. አካባቢዎ የደህንነት ችግር አለው? /ለወንጀል የተጋለጠ ነው/
ሀ. አዎን አለው ☒ የለውም
12. የቤትዎ አሠራር ለእነሱ የተጋለጠ ነው ብለው ያምናሉ ? /እነሱ ቤትዎ/
ሀ. አዎን ☒ አይደለም
13. በአካባቢ ልማት የመጥተፍ ፍላጎት አለዎት?
☒ አለኝ ለ. የለኝም
14. ካሉት በምን መልኩ ?
ሀ. በጉልበት ለ. በገንዘብ ☒ በሁለቱም
15. ዕድር አለዎት ?
ሀ. አለኝ ☒ የለኝም
16. ከቤትዎ ጋር የተያያዘ የንግድ ቦታ አለዎት? /የራስዎ ወይም የሚከራይ/
☒ አለኝ ለ. የለኝም
17. በሚኖሩበት ቤት ለምን ያህል ጊዜ ቆይተዋል
ለ. ሦስት አመት

Appendix 2b

18. ያለዎት ባለስንት ክፍል ቤት ነው?
 ሀ. አንድ ክፍል ለ. ሁለት ክፍል ሐ. ሶስት ክፍል መ. ከ3 ክፍል በላይ
19. ያለዎት ቤት ባለስንት ፎት ነው?
 (ሀ) G+0 ለ. G+1 ሐ. G+2 መ. G+3 ሀ. G+4
20. የቤቱ ባለቤት /አባወራ/ ዕድሜ ስንት ነው?
30 ዓመት
21. ቤትዎ የተሠራበት ጥሬ ዕቃ ምንድን ነው?
 (ሀ) ብሉኬት ለ. ጭቃና እንጨት ሐ. ጭቃና ሴሚንቶ መ. ሽክላ ሀ. ኮንክሪት
22. የሚኖሩበት ቤት ወለል ምን ዓይነት ነው?
 ሀ. የሴሚንቶ ወለል (ለ) የፕላስቲክ ወለል ሐ. አፈር
 መ. የእንጨት ፓርኬ
23. የቤትዎ ጥሩ ጎን ምንድን ነው? (ጥና የሚሉት)
 ሀ. ዋጋው (ለ) ያለበት ቦታ ሐ. ስፋቱ መ. የተሠራበት ጥሬ ዕቃ
24. ተከራይ ከሆኑ ምን ያህል ብር ይከፍላሉ? (ለመንግሥት ወይም ለግለሰብ እከራይ)
 ሀ. ለመንግሥት ----- ብር
 ለ. ለግለሰብ 1500 ----- ብር
25. ተቀጣሪ ነዎት? (አባወራ ወይም የቤቱ ባለቤት)
 ሀ. አይደለሁም ለ. የመንግሥት ተቀጣሪ ነኝ (ሐ) የግል ተቀጣሪ ነኝ
 መ. ጡረተኛ ነኝ ሀ. ከውጭ እየተላከልኝ ነው
26. የሚጠቀሙት የማብዛያ መንገድ ምን ዓይነት ነው?
 ሀ. የኢሌክትሪክ ምድጃ ለ. ከሰል ሐ. እንጨት መ. ጋዝ (ሀ) ሁሉንም
 ረ. ሌላ ካለ _____
27. ያለዎት ቦታ ስፋት ምን ያህል ነው? (በካሬ ሜትር)
 ሀ. 75 (ለ) 105 ሐ. 175 መ. 250 ሀ. 500 ረ. ከ500 ካ.ሜ. በላይ
28. ከዚህ በፊት ቤትዎን በራስዎ ጠግነውት ያውቃሉ? ከጠጉ ለምን ያህል ጊዜ
አልጠገነኩም ጌራት የተጠገነ ነው
29. በቤትዎ ፊት ለፊት የሚያልፈው መንገድ ምን ዓይነት ነው?
 (ሀ) አስፋልት ለ. ጋረጋንቱ ሐ. አፈር መ. አሸዋ ሀ. ሌላ
30. በአካባቢዎ ለበዓላት ወይም ለለትሶ የሚሆን በቂ መሠብሰቢያ ቦታ አለ?
 (ሀ) አለ ለ. የለም

Appendix 2c

31. የቤትዎ ግቢ መኪና ያቆማል?

☒ ሀ. አዎን ለ. አያቆምም

32. ቤትዎ ለራሳቱ መውጫ የተመቻቸ መንገድ አለው?

☒ ሀ. አዎን አለው ለ. የለውም

33. በአካባቢዎ እርስዎ ወይም ልጆችዎ ሊዘናኑበት የሚችሉበት መዝናኛ ስፍራ አለ?

☒ ሀ. አለ ለ. የለም

34. የትምህርት ደረጃዎ ስንት ነው?

ሀ. ማንበብና መጻፍ ለ. 1ኛ ደረጃ ሐ. 2ኛ ደረጃ ☒ መ. ዲፕሎማ ሠ. ዲግሪ
ረ. ከዲግሪ በላይ

35. ያለዎት የቤተሰብ ብዛት ስንት ነው?

እፃፀለት

36. የቤቱ ባለቤት ወንድ ነው ሴት?

ወንድ ☐ ሴት ☒

37. መንግሥት ከቦታው ቢያስነግድትና ወደ ሌላ ቢወስዱት ፈቃደኛ ነዎት?

ሀ. አዎን ☒ ለ. አይደለሁም

38. ፈቃደኛ ከሆኑ የት ቢሆን ይመርጣሉ?

☒ ሀ. በአካባቢዬ ለ. የትም ቢሆን ግድ የለኝም

39. ያገዙ ነዎት? ፈት ነዎት? ያላገዙ ነዎት?

40. በአካባቢዎ ገበያ አለ?

☒ ሀ. አዎን አለ ለ. የለም

41. ልጆችዎ በቂ የመጫወቻ ስፍራ አላቸው?

☒ ሀ. አላቸው ለ. የላቸውም

42. ከጎረቤትዎ ወይም ከአካባቢዎ ነዋሪዎች ጋር የተረበ ግንኙነት አለዎት?

☒ ሀ. አለኝ ለ. የለኝም

43. በአካባቢዎ ያለው ስፍራ በዘፍችና በአበቦች ያጌጠ ነው?

ሀ. ምንም ደህና ነገር የለም ☒ ለ. በመጠኑ አለ ሐ. የለም
መ. በጥሩ ዕኩታ አለ

Appendix 3a

History and Other Back Ground Information

1. Sunshine Construction was established in 1984. The Company is mainly engaged in the construction of Roads, Buildings and other similar civil works. By expanding its divisions, Sunshine Construction has started Real- Estate development in 2005 with a capital of 42,000,000.00(forty two million) birr.
2. 30% of the project value should be blocked in the bank. The bank was expected to write a conformation letter to the municipality by stating the mentioned amount.
3. The Real- Estate development has been divided into two phases. In the 1st phase we have sold all the houses and apartments based on our schedule. In the 2nd phase we have sold 25% of the houses within 3 months.

	In front of CMC		Gerji/in front of Russian Camp				Behind CMC	
	G+1 & G+2 houses		G+1 & G+2 houses		Apartment		Apartment	
	Planned	Sold out	Planned	Sold out	Planned	Sold out	Planned	Sold out
1 st Phase	118	118	15	15	195	195	116	116
2 nd Phase	92	25						

4. We have an arrangement with the engineering department to construct the houses based on the agreement with the municipality.
5. Our sites are located in front of CMC (124,368 m²), behind CMC (138,500 m²) and in front of Russian Camp (28,760 m²).
6. The sites for G+1 & G+2 houses are lease hold, whereas sites for condominium apartments are lease free.
7. The Company has made a feasibility study prior to establishment in relation to the market, its contribution to the developments of the country and its applicability.

Architectural Design and Construction Design Approach **General**

1. In our sites, there are three types of houses; 500 type, 250 type that each house have got its own compounds and condominium.

Appendix 3b

- Concerning condominium we mix one bed room type, two bedroom type and 3 bed room type of unit houses on the same floor.
7. Some of the houses are facing towards CMC main road (south), some are facing towards the mountain(North), some are east and west facing.

Esthetics of the site

3. The layout allocation of the site is made based on the agreement between the municipality and the real-estate developer.

All the G+1 and G+2 houses have service quarters and larger community green areas which are used for preparing cultural ceremonies.

Flexibility of Design

1. Actually, it is difficult to allow clients to make their own design, because our designs are approved by the municipality. But, we are flexible to make minor design modifications that don't affect the structural parts.
2. After construction it is difficult to make modifications but prior to construction we allow minor modifications.
3. We encourage customers to request their modifications based on our schedule, so it doesn't have any influence in our construction.
4. Not yet.

Construction

1. We planned to construct furnished apartment with hotel behind Sunshine Head Office.
2. We have made a soil test and actual survey per layout in consistent with the consultants.
3. It takes 2 years.
4. We have not yet applied.
5. We buy materials in bulk, but when there is an exaggerated price increment, we have compensation plan for variations.
6. There are no particular defects.

Appendix 4a

በአዲስ አበባ ከተማ አስተዳደር
የቤቶች ኢጅዣቢ

የቤቶች ግንባታ ንግግር የሥራ ሪፖርት
/1996 - 1998/

ዕቅድ የመጀመሪያ ረቂቅ

ጥቅምት 30, 1997
አዲስ አበባ

Appendix 4b

ለከተማውም ሆነ ለሀገሪቱ የኮንስትራክሽን ስክተር ዕድገትን በማሳደግ የበኩላቸውን አስተዋጽኦ እንዲያደርጉ አመቺ ሁኔታ መፍጠር ማስቻሉን

መ. የቤት ልማት መጠን ሰፊ በሆነ መልኩ እንዲስፋፋ በማድረግ የከተማዋ ነዋሪ የቁጠባ ባህሉን እንዲያሳድግና እንዲያዳብር በማድረግ በተጨማሪ ለቤት ልማት የሚውል ወጪ በተሰጠን ደረጃ የሚሸፍንበትን መንገድ ማመቻቸት መቻሉን

ሠ. የቤት ልማትን ማሳደግ እና ማፋጠን ከላይ ከተጠቀሱት ጥቅሞች እና አላማዎች በተጨማሪ የመጠለያ ችግርን በመቅረፍ በኩልም የራሱ ጉልህ ድርሻ ያለው ነው።

በመሆኑም መጠን ሰፊ የሆነ የቤት ግንባታ ፕሮግራም በመዘርጋት ወደ ተግባር መግባት የሚያስችሉ እንቅስቃሴዎች ተጀምረው አስፈላጊው ዝግጅት እየተያረገ ይገኛል።

1.3 የቤት ግንባታ ፕሮግራም ዋና ዋና እሳቤዎች

ቀደም ሲል እንደተገለጸው አስተዳደሩ ለቤት ግንባታ ከፍተኛ ትኩረት መስጠት በዚህ ሳቢያ የሚፈጠሩ እድሎችን በመጠቀም ፈጣን እድገት ለማስመዝገብና በርካታ የከተማዋን ችግሮች ለመቅረፍ እንቅስቃሴ ለማድረግ አቅዷል። ይህንንም አጠቃላይ ዕቅድ በዘርዘር እቅዶች በማስደገፍ ወደ ተግባር መግባቱ የግድ ይሆናል። በመሆኑም በዘርዘር እቅዱ ውስጥ ትኩረት ሊሰጣቸው ወይም እንደ መነሻ የሚያገለግሉ ዋና ዋና እሳቤዎች

ፕሮግራሙን በተገቢው ለመተግበር ያስችላሉ ተብለው ከተወሰዱት ዋና ዋና መሠረቶች እና ስልቶች (Key Principles and Strategies of the Program) መካከል-

- በነባር የከተማው አካባቢዎች (Inner City) ላይ ትኩረት በማድረግ ተገቢ የሆነውን የሕዝብ ጥግግት (Densification) ማረጋገጥ፤
- በዚህ የከተማዋ ክልል ተገቢ የቦታ አጠቃቀም ከማረጋገጥ አኳያ በ G-2 እና በG-3 አፓርታማዎች ላይ ትኩረት በመስጠት ለከተማዋ ወደ ላይ (Vertical Growth) ትድሚያ መስጠት

Appendix 4c

- ፕሮግራሙን በአዝጋሚ ሁኔታ ከመተግበር ይልቅ ከጥገና ስፋት አካዶ እና ፕሮግራሙ ከሚፈጥረው ጠቀሚታ አንፃር በአድራጊ ጊዜ በከተማ አቀፍ ደረጃ እንዲያደግ /Large Scale/ እንዲሆን ማስቻል።
- ዘመናዊ ቴክኖሎጂን በማስፋፋት ግንባታን በአድራጊ ጊዜ በማከናወን ተገቢ የጥራት ደረጃን በመጠበቅ ከጥራት አቅምና ፍላጎት ጋር የተገናዘበ ዲዛይን በማዘጋጀት በአጠቃላይ የጥራትን የመከፈል አቅም የማይፈታትን /Affordable Low Cost House/ የቁጠባ ቤት የሚገነባበትን መንገድ ማመቻቸት፤
- ተጠቃሚዎችንና ሌሎች ድጋፍ ሰጪ አካላትን በተገቢው የሚያሳትፍ ፕሮግራምና ፅሁፍ በማዘጋጀት ተግባራዊ ማድረግ። ለዚህም የሚመለከታቸው /Stake Holders/ በሙሉ በቅድሚያ ተለይተው የድርሻቸውን የሚወጡበትን የጋራ ፅሁፍ ማዘጋጀትና መተግበር የሚሉት ይገኛቸዋል።

ከላይ ለማሳየት እንደተሞከረው የቤት ልማት ፈርጆ ብዙ ፋይዳ ያለው መሆኑን መገንዘብ የሚያደርገት አይሆንም። ሆኖም በዚህ ዙሪያ ለማድረግ የሚታሰበው እንቅስቃሴ የታሰበውን ግብና ውጤት ያስገኝ ዘንድ ትኩረት ተሰጥቶት እና በተገቢው ተቀናጅቶ የማዘጋጀት የልማት ፅሁፍ ዝግጅትን የሚጋብዝ ነው። በመሆኑም በቤት ልማት ዙሪያ ሊሰለፉ የሚገባቸው አካላት በሙሉ ሊኖራቸው የሚገባውን ድርሻ ጋላፊነትና ተሳትፎን ተግባር እና ተጠያቂነት በግልጽ ሊያሳዩ የሚችል የጋራ የስራ ፅሁፍ በቅድሚያ ማዘጋጀት አስፈላጊ ሆኖ ተገኝቷል።

1.4 ጥላማ (Objective)

የቤት ልማትን እንደ አንድ የቢዝነስ እንቅስቃሴ በመውሰድ አንድ የጋራ የሆነ ፅሁፍ ማዘጋጀት ጠቃሚነቱ አያጠያይቅም። በዚህም የሚመለከታቸው አካላት በጋራ ፅሁፍ አዘጋጅተው ወደ ተግባር መግባቱ በቅንጅት መጥፋት ሊፈጠሩ የሚችሉ ችግሮችን በተቻለ መጠን ለመቀነስ ከሚኖረው ድጋፍ በተጨማሪ እያንዳንዱ የፅሁፍ ፈሳሚ አካል ኮስት ፕላን እንደሚጠበቅ ከሚረዳው አውቆ በበቂ ቅድመ ዝግጅት እንዲገኙ የሚፈቅድ ነው።

በመሆኑም የዚህ የፅሁፍ ዝግጅት ዋና አላማ ከሚመለከታቸው አካላት ተሳትፎ ወደ ተግባር የሚወርድ ፅሁፍ ማዘጋጀትና በዚህም ተዋናዮች በሙሉ ከእያንዳንዳቸው ምን እንደሚጠበቅ አውቀውና ተገንዝበው በበቂ ዝግጅት እንዲገቡበትና ራሳቸውን ልዩ አላማ እና ግብ ባለው ተግባር በማዋል ፅድገትን ማፋጠን ማስቻል ይሆናል።

Appendix 4d

b) Proposed Neighborhood Center as per ORAAMP

Scenario 2

	Neighbourhood hierarchy	Population	Functions	Total area	Remark
i.	Sefer/Ceu/ Sub-Kebele	1500-2000	- Kiosks - Small gutit / open market - Public offices /Edir - Dev. association offices		According to detail study
ii.	Kebele	15,000-20,000	- Kebeles Adm. - Shops-daily consumption - Super markets - Open market - Semi processing of milk etc, wood workshops etc. - Bars, hotels, grocery - Clubs - Post office, telephone service - Development & consultation office		>>
iii.	Woreda/ Kefetegna	180,000-250,000	- Woreda Adm. office - Gov. office - Covered modern markets and shops - Stadiums, sport competition center - Sport training centers - Utility offices (tele, water, power) - Financial offices; Banks, Insurance ... etc - Large scale retail shops (pushed out of merkato) - Small scale non-pollutant manufacturing and processing firms / factories		>>

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

Appendix 5a

DRAGNY/UMBT/2001/2001 ✓
C

CITY GOVERNMENT OF ADDIS ABABA
WORKS AND URBAN DEVELOPMENT BUREAU

OFFICE FOR THE REVISION OF THE ADDIS ABABA
MASTER PLAN
(ORAAMP)



CENTRALITY

September 2001.

Tamrat Eshetu
Aduana Degeta

Appendix 5b

ሐ. ነባር ግንባታው የአዲስ አበባ አካባቢ ጥበቃ ባለስልጣን የሚያወጣውን የአካባቢ ተጽዕኖ ግምገማው መስፈርት የማያሟላ ከሆነ ተጽዕኖውን ለመቀነስ መደረግ ያለበት ግንባታ በቀረበው ጥናት የተካተተ መሆኑን ማረጋገጥ አለበት፡፡

3.3.7.3 ለማምረቻና ማከማቻ በተመደበ ቦታ ላይ የሚቀርብ የማምረቻና ማከማቻ ዲዛይን ከዋናው አገልግሎት ወለል ስፋት ከ35% ያልበለጠ ለቢሮ፣ ለመስጠሰቢያ አዳራሽ፣ ለክሊኒክና መሥራታ ተጓዳኝ ድጋፍ ሰጪ አገልግሎቶች ተካትተው ሊቀርቡ ይችላሉ፡፡

3.3.8 የመኪና ማቆሚያ ስታንዳርድ

3.3.8.1 በአልፎ ላይ ከይዞታ ውጪ የመኪና ማቆሚያ እንዲኖረው የተመለከተ ወይም ለነጠላ የግል መኖሪያ ቤት ካልሆነ በስተቀር አባሪ በተደረገው የዲዛይን ስታንዳርድ ለንጠረዥ መሠረት የመኪና ማቆሚያ በይዞታ ውስጥ መዘጋጀት አለበት፡፡

3.3.8.2 ለየግንባታው አገልግሎት ዓይነት የሚጠየቀው የመኪና ማቆሚያ ብዛት አባሪ በተደረገው ሠንጠረዥ ላይ እንደተመለከተው ሆኖ ለሕዝብ አገልግሎት የሚውል ህንፃ በ40 የመኪና ማቆሚያ ቦታ እንድ 450X350 ሳ.ሜ. ስፋት ያለው ለአካል ጉደተኞች የተለየ የመኪና መቆሚያ መኖር አለበት፡፡

3.3.8.3 ዋና መንገድ ላይ ላሉ ይዞታዎች ወደ ዋና መንገድ የሚወጡ የመኪና መግቢያና መውጫ ከሁለት አቅጣጫ በላይ መሆን የለበትም፡፡

3.3.8.4 በዋና መንገድ ላይ ላለ ግንባታ ዋና መንገዱን ለመኪና ማቆሚያ መተላለፊያነት (circulation) መጠቀም አይቻልም፡፡

3.3.8.5 በመዳረሻ መንገዶች ላይ የሚፈጠረውን የትራፊክ ጫና መቀነስ እንዲቻል ለከፍተኛ ማምረቻና ማከማቻ እና ሌሎች ማውረጃና መጫኛ ለሚኖራቸው ተቋማት ጭነት ለማራገፍ ወይም ለመጫን የሚገባ መኪና በይዞታው ውስጥ ዞሮ የሚወጣበት መተላለፊያ መኖር አለበት፡፡

3.3.8.6 የቤት ውስጥ የመኪና ማቆሚያ የክፍል ቁመት በአንቀጽ 3.3.3.5 ይመልከቱ፡፡

3.3.8.7 ቀድሞ ለተፈቀደና በግንባታ ላይ ያለ ተቋም የሚያቀርበው የማሻሻያ ጥያቄ ሊያሟላ ከሚጠየቀው የግንባታ ፈቃድ እና የተሸካሚ መዋቅር ብቃት መስፈርቶች ሌላ ሊገነባ ሲታሰበው ተጨማሪ የወለል ስፋት የሚመጥን የመኪና ማቆሚያ ቦታ ማሳየት አለበት፡፡

3.3.8.8 በወለል ስፋት መነሻ የመኪና ማቆሚያ ብዛት ስሌት 3.3.13.2 ይመ፡፡

3.3.8.9 ለኮንዶሚኒየምና የመኖሪያ ሪል እስቴት ግንባታዎች የመኪና ማቆሚያ ብዛት ከዚህ በታች እንደተጠቀሰው መሆን አለበት፡፡

Housing Typology	Floor Area	Car Park /House Hold
High Income	Greater floor space than 57.5 m ² ie. 50m ² (3 bed rooms + 1living room+ wc + kitchen) +15% circulation= 57.5	1/1
Middle Income	46 - 57.5 m ² floor space ie. 40m ² (2 bed rooms + 1living room + wc + kitchen) +15% internal circulation= 46	1/10
Upper-low Income and Low Income	20 - 46 m ² floor space (Minimum habitable area = 20 m ²)	1/10

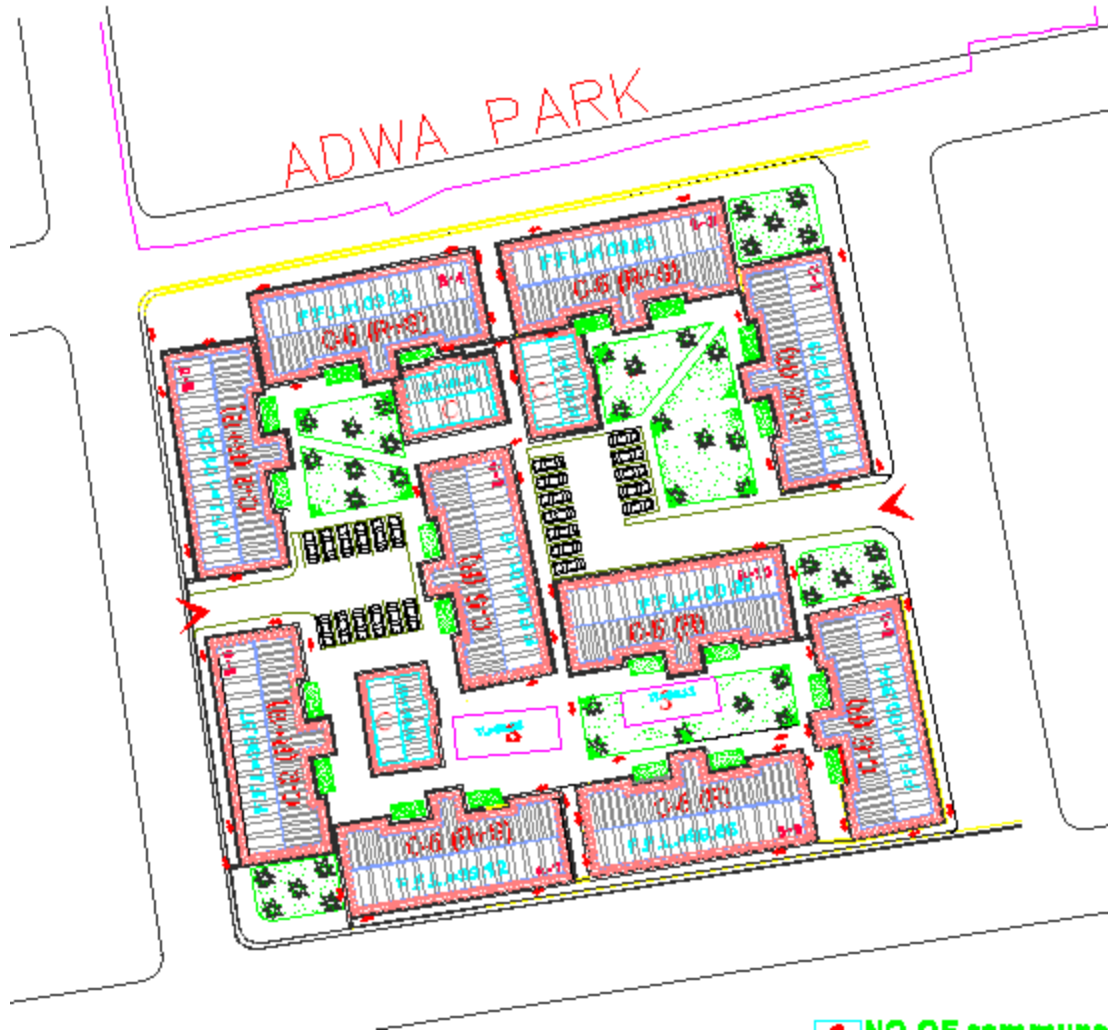
3.3.9 የሳኒተሪ ስታንዳርድ

3.3.9.1 የህዝብ መጻዳጃ ግንባታ ከወሰን 2.5 ሜ. ርቆ መንገባት አለበት፡፡

3.3.9.2 ለማንኛውም ህንፃ ቢያንስ በማጠቃለያ ለንጠረዥ /3.3.13/ የተመለከተው የቆራሽ የመጻዳጃ ቤት ብዛት (የወንድና የሴት መጻዳጃ ቤት ስብጥር እንደተጠበቀው) መኖር አለበት፡፡



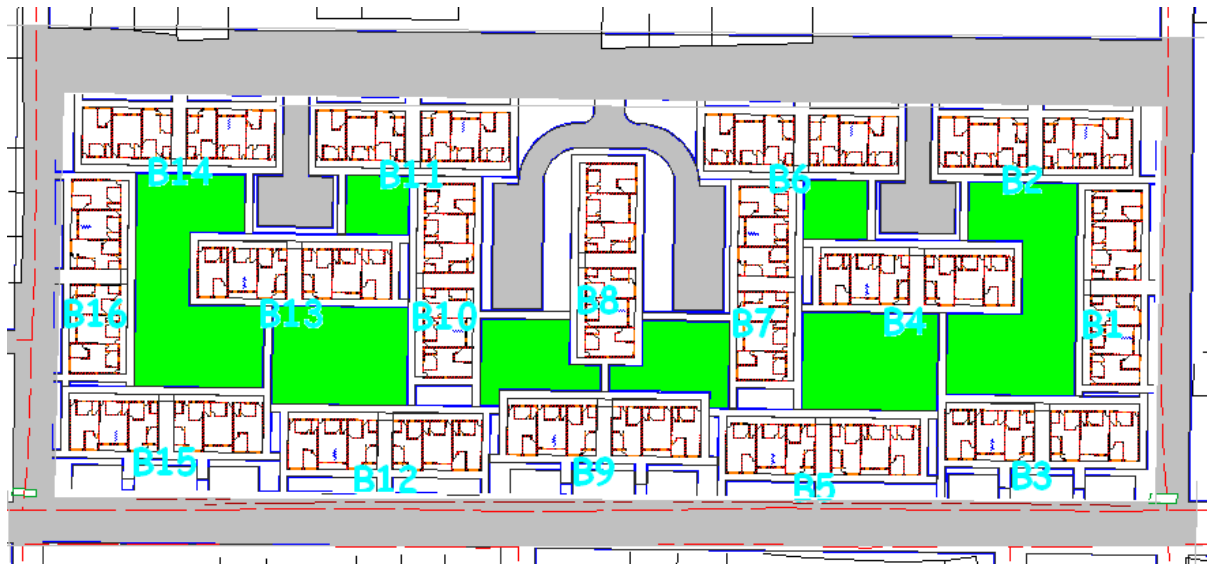
Appendix 6a



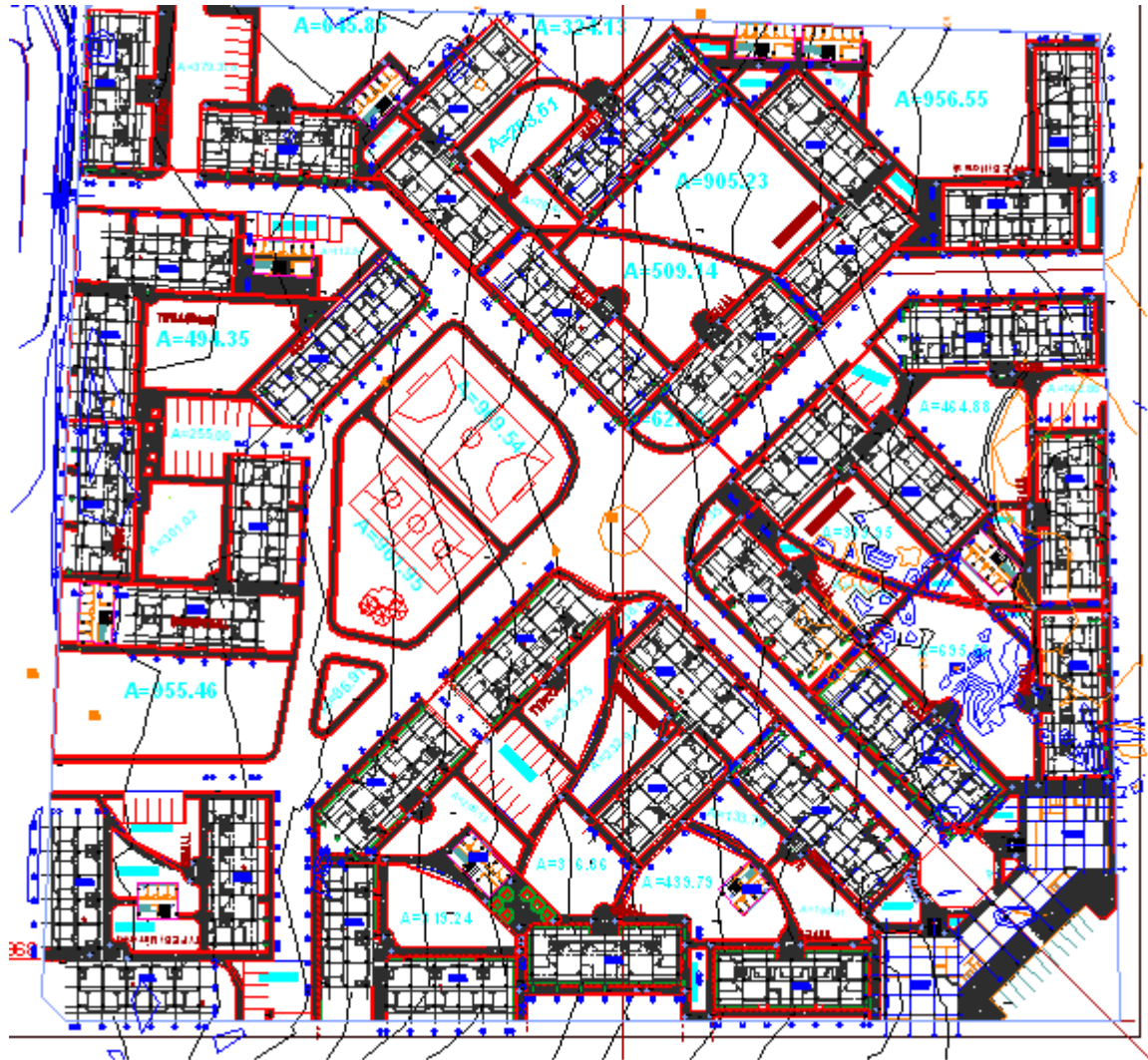
Appendix 6b



Appendix 6c



Appendix 6d



Appendix 6e

Glossary and definitions of urban design terms

Accessibility: A measure of what is achieved in practice i.e. a product of the interaction between the individual and the cadastral pattern.

Affective perception: Dimension of perception that involves of our feelings

Amorphous square: space unlimited.

Appearance: It is about having regard for historic context and local distinctiveness.

Appreciation of rhythm: produced by the grouping of elements to create emphasis, interval, accent &/or direction.

Architecture of Housing: The contextual meaning of Architecture in this paper is to express the design and make up of housing settlement with its necessary components in a given urban segment, considering the basic urban design principles and elements.

Built up or covered area: It is the area covered by a building immediately above the plinth level i.e. ground floor.

Cleansing: It is about the management of keeping clean areas where trees, plants, flowers are planted.

Closed square: A self-contained space

Clutter: It is an effect of visual confusion or obstruction created by street furniture.

Coarse urban grains: Those with fewer larger blocks

Cognitive perception: Dimension of perception that thinks about organizing and keeping information

Collector Streets shall be designed to meet the requirements of both movement and property access, providing a connection between arterials and local streets. Direct access from single unit residential driveways to this type of street shall be strongly discouraged.

Condominiums: A condominium, or condo for short, is a form of housing tenure. It is the legal term used in the USA and in most provinces of Canada for a type of joint ownership of real property in which portions of the property are commonly owned and other portions are individually owned. In Australia and the Canadian province of British Columbia, the legal term for this is known as Strata title.

Often, it consists of units in a multi – unit dwelling (i.e., an apartment or a development) where the unit is individually owned and common areas like all the unit owners in the

building jointly own recreational facilities. It is possible, however, for condominium to consist of single-family dwelling: so called “detached condominiums” where home owners do not maintain the exteriors of the dwellings, yards, etc. or “site condominiums” where the owner has more control over the exterior appearance.

Cooperative Ownership: Cooperative ownership, which on the surface seems similar to condominium ownership, is in fact quite different. In cooperative ownership, title to the multiunit building usually is vested in a corporation. The purchaser of an apartment or a unit actually buys stock of the corporation; in addition to a stock certificate, a cooperative member receives a lease to the apartment, in which he or she is named lessee.

CPTED: The crime prevention through environment design

Cul-de sacs: Types of streets that were introduced by Unwin & Parker at **New Earswick** since 1898, sought to retain the aesthetics of curvilinear layouts while militating the problems created by traffic.

Details: This is about visual richness (the interest & complexity that holds the eye) and elegance (a function of the proportions that the eye finds pleasing and harmonious

Districts: Medium to large parts of a city which observers mentally enter as or with identifying physical characteristics of thematic continuities in terms of texture, space, form details, symbol, uses, inhabitants, maintenance, topography, etc.

Dominant Square: space directed.

Edges: Linear elements forming boundaries between areas / linear breaks in continuity

Evaluative perception: Dimension of perception focusing on incorporated values & preferences and the determination of good & bad

Exclusion: It is a Controlling mechanism can be practiced through physical design strategies, such as obscuring spaces with intervening objects or level changes, slippery spaces that can not be reached, crusty spaces that can not be accessed, gates & check points, picky spaces that can not be comfortable & jittery spaces that can not be utilized and unobserved due to active monitoring (Flusty, 1997, pp. 48-9).

Expression: This is the expression of the function of a building which enables us to recognize a building for what it is made.

Facadism: It is a functional and structural dishonesty and created when the relationship between a plan and its section is weak.

Fine urban grains: Those with many small sized street blocks

Floor area: It is usable covered area of a building at any floor level.

Floor Area Ratio (FAR): It is the coefficient obtained by dividing the total covered area in all the floors to the area of the plot and multiplied by 100.

$$\text{FAR} = \frac{\text{Total covered area of all floors} \times 100}{\text{Plot area}}$$

Plot area

Floorscape: It consists of Hard pavements or Soft landscaped areas. Floors cape can be designed to enhance the aesthetic character of a space by introducing scale, hierarchical elements, enforcing existing character or aesthetically organizing or unifying it.

Formal spaces: Spaces that have a strong sense of enclosure, orderly floors cape & arrangement of street furniture, surrounding buildings that enhance formality & a symmetrical layout

Grouped square: space units combined.

Hard (active) control: Ensuring control by using private security offices, surveillance, cameras, regulations, programming, shading or leasing.

Home Occupations: They are those businesses, which are conducted in a residence and are conducted in a manner, which comply with City requirements.

Housing: It is a combination of physical shelter and related services and infrastructures, including the inputs (land, finance etc.) required to produce and maintain it. It has a central importance to everyone's quality of life and health.

Incentives: Incentives are those actions, which the City administration can legally provide to a private person or organization towards obtaining a result that will meet public goals. Incentives as used within the text of the Comprehensive Plan may include such things as legal modifications or waivers in zoning requirements, development standards and similar regulations.

Infill: It is the concept of utilizing for building or similar development purposes, those lots and small parcels of land within the developed areas of the City. In all instances, infill addresses those lots, which already have sufficient City services immediately available to them.

Informal spaces: Spaces that do not have a strong sense of enclosure, orderly floors cape & arrangement of street furniture, surrounding buildings that enhance informality & an asymmetrical layout

Integration: This involves the harmonization of a building with its surroundings, and the qualities needed for this.

Integrity: This results from a strict adherence for principles of design not in the sense of rules, but in the sense of principles of construction that express the functions they and their individual parts fulfill.

Interpretative perception: Dimension of perception by which meaning and association derived from the environment relying on memory

Invented places: Places that spring from the creative minds of different stakeholders

Land marks: Point references- external to the observer, such as towers, spires, hills, sculptures, signs, trees, etc

Landscaping: The provision of hard (pavements, street furniture) and soft elements (greeneries) in an urban place to provide shade, to add quality, visual interest and color. It also involves ecology, hydrology and geology.

Local Streets shall be designed to facilitate direct access to individual properties. These streets shall be designed to encourage neighborhood identity. Through traffic shall be strongly discouraged.

Massing: The three dimensional disposition of the building volume.

Material: It is something that provides a building with color and texture.

Minor arterials shall be designed to have a medium traffic carrying capacity, with emphasis on providing movement rather than direct property access. Direct access should be limited to medium scale developments, generally three acres or larger.

Mixed-use development: It is about encouraging combining several different lands uses within the same area. For example, a development might include a hotel and a number of retail businesses or houses within the same building or the same contiguous development.

Negative space: Spaces which is shapeless, inconceivable- continuous, and lacking in perceivable edges or form. It is difficult to conceive of the spaces.

Neighborhood: Neighborhood is "a distinct territorial group, distinct by virtue of the specific physical characteristics of the area and the specific social characteristics of its inhabitants".¹

"A neighborhood might be defined as a type of community composed of spatially proximate individuals".²

"The neighborhood is a territorial space which has both spatial attributes (area, location) and social ones (character, reputation, associations)".³

It is an area of the community with characteristics that distinguish it from other areas. It generally has definition by physical boundaries, such as arroyos or other drainage channels and major roads. Often times a neighborhood can be centered around a school, a park or encompass a single subdivision.

Net Density: Density is calculated on the number of people living in a housing area per area of land (called net density to distinguish it from the number of people per acre over the whole of the neighborhood, which is termed the gross density). The area taken includes all the small open spaces and garden areas about which the buildings may be grouped and the residential roads but excludes school sites, the neighborhood center, and playing fields for the area as a whole efficiency.

Nodes: Point references- the strategic spot in a city into which an observer can enter, and which the intensive foci are to and from which someone is traveling.

Nuclear Square: space formed around a center.

Order: It is manifested through symmetry, balance, repetition, the grid, the bay, the structural frame etc.

Paths: Channels along which observers are more regularly with special uses, spatial qualities, facade characteristics, proximity to special features & visual prominence

Pattern: involves some similarity and presupposes the simultaneous existence of complexity & patterns.

¹ Ruth Glass cited in Mann (2000:151).

² Montgomery (2003:31).

³ Daniel (1992:200)

Pavements: Side walks introduced during the 18th and 19th centuries to separate pedestrian from vehicular movement, to separate pedestrian from roads designed to improve health through more efficient disposal of sewage & run off (Taylor, 2002, p.28)

Perception: Involves the gathering, organizing and making sense of information about the environment.

Physical access; It is about movement

Physical permeability: The ability to move through an environment

Placeless ness: Signify absence or loss of meaning

Positive space: Space which is relatively enclosed can be measured and have definite boundaries. It is discontinuous, closed, static but serial in composition. This shape is important as that of the buildings surrounding them.

Proportion: The relation between the different parts of a building & between any one parts and the whole.

Real Estate: In broad definition, it is land and everything made permanently a part thereof, and the nature and extent of one's interest therein. In law, the word real, as it relates to property, means land as distinguished from personal property; and estate is defined as the interest one has in property. Real estate may be acquired, owned, and conveyed (or transferred) by individuals; business corporations.

Recognition of balance: a form of order related to harmony among the parts of visual scene.

Reinvented place: Places that start from a basin in reality but generally involve a significant degree of change, distortion and loss of authenticity.

Residential building: It is a building used for dwelling purpose

Rhythm: The arrangement & size of the constituent parts of a building's facade, which is normally repeated.

Road: A road is distinct from a street and it's primarily function being a thorough fare for vehicular traffic.

Scale: The perception of that object relative to others around it (Generic scale) and to our perception (Human scale).

Sensitivity to harmonic relationships: concerns the relationships between different parts & how they fit together to form a coherent whole, like using the Golden mean ratio)

Sitting: The way a building occupies its site and its relationships with other spaces.

Socio cultural public realm: The activities & events occurring in an urban place.

Soft (passive) control: Ensuring control by using symbolic restrictions to discourage undesirable activities passively & on not providing certain facilities.

Squares: They are static spaces with less sense of movement.

Streets: They are dynamic spaces with a sense of movement and linear three dimensional spaces enclosed on opposite sides by buildings.

Street Classifications: Major arterials shall be designed to have a large traffic carrying capacity, providing movement rather than direct access. Direct property access shall be limited to major traffic generators, generally large-scale developments of ten acres or more, or smaller high intensity uses.

Street furniture: Physical elements provided in an urban place including hard landscape elements other than floorscape such as telegraph poles, lighting standards, telephone boxes, bollards, boundary walls, railings, fountains, bus shelters, statues, monuments, public arts, etc.

Strip Commercial: In areas where commercial development fronts on a street, normally one-half to one block deep, this area many times is referred to as a strip commercial development.

Symbolic access: signals, welcoming or prohibiting entry

Territoriality: control of space

Unity: It comes from repetition of an architectural style, or less formally, from common underlying design patterns, motifs or unifying elements, such as building silhouette, consistent plot widths, fenestration patterns, proportions, massing, the treatment of entrances, materials, details etc.

Urban architecture: It is architecture that responses & contributes positively to its context and to the definition of the public realm.

Urban design: It is the art of making places for people ,it includes the way places work and matters such as community safety as well as how they look, it concerns the connection between people and places, movement and urban form, nature and the built fabric and the process for ensuring successful village, towns and cities.

It is the art of building cities and it is the method by which man creates a built environment that fulfils his aspirations and represents his values. It can be described as a people's use of or accumulated technical knowledge to control and adopt the environment in sustainable ways for social, economy political and spiritual requirements.

Urban design plan: It consists of schemes for the integration of social economic and spatial aspects in urban development. It is usually prepared for a distinct urban block. However, urban areas should be planned in an integrated way so that the whole and the parts form a unified architecture of the city.

Urban Residential Use: They are residential units, which occur at a density of greater than two dwelling units per acre.

Visual access: It is about visibility

Visual permeability: The ability to see the routes.

Bibliography

1. Allan Jacoba and Donald Apple Yard (1987)
Toward an Urban Design Manifesto. PP 115
American planning Association Journal, Volume 53, No.1,
2. AACG, ORAAMP (2002)
Structure plan, Hosing Component
Improving and Development Strategy:
Guidelines, Regulations, Norms and Standards
Addis Ababa, Ethiopia.
3. Addis Ababa City Government (2002)
Addis 21: Planning the Future of Our City
Addis Ababa Revised Master Plan Proposals, Draft Summary
Addis Ababa.
4. Chaff Houghton et al (1999)
Urban design methods and Techniques,
Architectural press
3. Christopher Alexander (1987)
A new theory of Urban Design. PP3.
OUP,
4. Camillo Sitte, (1889)
The Art of Building Cities. PP1.
Reinhold Publishing, Camillo Corporation, 1945 Edition
5. City Government of Addis Ababa Works and Urban Development Bureau,
Office for the Revision of the Addis Ababa Master Plan (ORAAMP)
Centrality September, 2001
6. De Chiara, J. et al (1975)
Urban Planning Design Criteria
Van Nostrand Reinhold company
7. Department of the Environment, (1997),
Planning policy and Guidance: General policy and principles (PPG1), PP 14
Stationery office,
8. Francis Tabards (1998) Mind the gap;
A personal knew of the value of Urban Design in the late twentieth centaury.
Planner 74 No. 12, PP12
Mid month supplement,

9. Frederick Gibberd
Town Design
The Architectural Press, London
10. Greed, C. (1996)
Introducing Town Planning
Addition Wesley Longman limited , London.
11. Harold MacLean ledots
Planning the Modern City
Vol 1 John Wiley & Sons, New York
12. Jane Jacobs (1961)
Death and Life of Great American Cities. PP 14
Random House,
13. Jacobs, J. (1962)
The Death and Life of Great American Cities
Jonathan Cape, Thirty Bedford Square, London.
14. John Long (1994)
Urban Design the American Experience. PP 70
Van No strand Rein hold,
15. Jonathan Barnett (1982).
An Introduction to Urban Design PP12.
Harper & Row,
16. Jane Jacobs (1961)
Death and Life of Great American Cities. PP 14
Random House,
17. Keller, S. (1994)
The Urban Neighborhood: A Sociological Perspective
A Random House Study in Sociology.
18. Liewelyn- Davies / English partner ships (2000)
" Urban Design Compendium" PP-12
Place check:- a users Guide
19. LAN Bentley & Georgia Bettina (1990)
Urban design 2: Key words and phrases. PP65-67
Architects" Journal, VOL. 192, No 7, 24 OCT.

20. Lan Bentley (1985)
Responsive Environments. PP9.
Butter worth,
21. Lewis Mumford (1968)
The Urban Prospect. PP-153.
Seeker & Warburg,
22. Late Chatter Jeened
Urban and regional policy analysis in developing Countries.
Gower publishing, 1986
23. Lynch, K.(1960)
The Image of the City
The MIT press
24. Lynch, K. (1982)
A Theory of Good City Form
The MIT press.
25. Michael Wilford.
Off to the races, or going to the dogs? In David Gosling and Barry Maitland (1984) Urbanism. PP8.
AD Publication,
26. Marilyn S Schulz & Vivien L Kasen (1984).
Encyclopedia of Community planning and Environmental Management.
Facts on File, PP 412-413
27. Mathew Carmon, Tim heart, Janeiro, and Steven Ties dell,
PUBLIC – URBAN SPACES, Urban Design Dimensions
28. M. Carmona, Public Place
Urban Spaces,
Architectural press, 2002
22. Paul D. Spreiregen, AIA
Urban Design: The Architecture of Towns and Cities
Mc Graw- Hill Book Company
23. Rapport, A.(1977),
Human Aspects of Urban Form,
Towards a man –environment approach to urban form and design
Pergamon press, Oxford, New York, Toronto, Sydney, Paris, Frankfurt.

THE ARCHITECTURE OF HOUSING – The case of Gerji, Addis Ababa

24. Rob Cowan (2000)
The art making places PP14
25. Richard B Andrews
Urban Land economies and public,
The free press, 1971
26. TGE, Central Statistical Authority (1995)
The 1994 Population and Housing Census of Ethiopia
Results for Addis Ababa, Volume-1- statistical Report
Addis Ababa
27. Tourist Trading Enterprise (Dec. 2003).
Tourist Hand Book. PP 31
Modern Center for Burdines Services,
28. Urban Design Group (1992)
Urban Design Source Book PP34
29. Urban Design Group (2000)
Urban Design Source book 2000,PP53.
30. Wubshet Tegene Gebregizabher (1996)
Urban Regional Development. Planning and Implementation in Ethiopia.
NUPI,