

Vernacular Architecture of Argobba, Ethiopia:

The Case of Shonke Amba



By

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This thesis work is dedicated to my wife W/ro Etagegn Gebrehiwot, and my beloved children Yeabtsega, Seblewongel and Kidist Mehari who have always been sources of inspiration in my life.

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DECLARATION

I declare that this thesis, prepared for the partial fulfillments of the requirements for the degree of Masters of Science in Housing and Sustainable Development, entitled “**Vernacular Architecture of Argobba, Ethiopia: The Case of Shonke Amba**” is my original work prepared by me own effort with the close advice and guidance of my adviser. I also declare that this thesis has not been presented in any university and all sources that I have used or quoted have been indicated and acknowledged by menace of complete references.

Mehari Enyew Ambaye

Signature

Date

Confirmation

This thesis can be submitted for examination with my approval as an institution’s advisor.

Yonas Alemayehu Soressa

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Date

ABSTRACT

Vernacular architecture is dwelling and other buildings of people and structures made by empirical builders without the intervention of professional architects. In other words it can be defined as the architectural languages of the people. It is designed based on local needs, availability of construction materials, reflecting local traditions and the highest form of sustainable building using the most available material.

The main objective of this research was to document the spatial elements and heritages of the Argobba people found at the locality of Shonke Amba at settlement, compound and house level. The study basically aimed at documenting the formation of the settlement i.e., space used, methods of construction and existing house typologies.

The origin of the name 'Argobba' has two assumptions. First the elders of Shonke Amba say that, Argobba means *Areb gebba* (Arabs have entered). The second is *Har gubba* which means silk that is seen on mountain. Argobba are people found in south eastern Wello and north-eastern of Shewa the current Amhara regional estate in Ethiopia. They are Muslim, self-sufficient agriculturists, traditional cloth weavers and merchants. Their home land stretches between north Oromia to south Wello on the ranges of mountain or escarpments.

To achieve the objective, an integrated approach, which included anthropological, sociological, behavioral and architectural, research method, was used. The case study was conducted on 24 selected houses (local called *dereb bet*). The selection was conducted based on the type of dwellings and their compounds. A review from literature, questionnaire, interviews, maps, GPS and photographs were used to collect data.

The collected data were analyzed using tables, maps, GIS, perception maps. The analysis result shows that the settlement is divided into three sub settlements (*genda's*). The compound form is a polygon with an area size ranging from 21 – 236 m². The major elements of the compound are the house, *weret* (animal domain) and Kara (the front yard). The house is classified into four types. Two row (local name *self* or *jemb* is a space created between two rows of column) three rows, four rows, and five rows house type. The roads within the settlement are organic grid system with road names and hierarchy. The entire house at Shonke Amba is very close to the narrow access road. The reasons behind this are 1) to utilize the maximum space for settlement at the Amba. 2) to mislead the location during aggression and 3) to protect themselves from invaders.

The house and the Amba based settlement are the identities of Argobba people because the settlement has preserved the culture and religion of Argobba for the last 834 years. Currently this amazing heritage site has been demolished for the need for wooden columns, (local name *bala*) main wooden beam, (local name *feres*) and secondary wooden beam (local name *gadim*), to reconstruct the house around the farm area.

The study recommends that all bodies concerned should take immediate action to preserve the site for tourist attraction by creating awareness among the Argobba people about the heritage and the social benefit. In addition to these improving basic needs such as developing clean

water source, providing clean communal toilets, having accommodation space for tourists, improving the road infrastructure for easy access should be considered.

Moreover, the water proof flat roof and the load resistant wooden beam made of Olive tree or common name African wild Olive (local name *woira*) need further research which might contribute a lot for the future sustainable housing development.

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LOCAL TERMINOLOGIES

Ahara Kele	Sheep skin used as bed sheet
Akole	Milking bowel
Atai Kele	Goat skin used as bed sheet
Bolekeya	Smoke bath
Debo	A group work to help each other during construction of a house and farming.
Derb bet	Dwelling made of stone masonry wall
Dero	Wooden gutter
Dilka	Traditional and religious dance of women
Erken	Terrace constructed at the farm land
Eser	Bundle
Gaate	Women's space following to the Living dining space
Genfo	Porridge made of simple wheat or barley flour made spicy
Genda	Sub settlement
Abish	Ethiopian fenugreek healthy herb used for drink recipe
Gulicha	A stone on fire place to keep distance from fare and the pots
Haja medi	Living dining
Hinna	Women's makeup used to color their hand and foot made of herbs.
Jahina	Stone coping
Jebena	Traditional coffee pot
Kara	Front yard
Kelewa	A house used as meeting and sleeping space for unmarried young above 18 years old.
Khule	Women's makeup used to color the eyelash made of herbs
Korkoro bet	A house made of corrugated iron sheet roofing
Koshe	Wooden element used to hang the cloth
Medeb	A platform space made of stone and mud mortar, raised 40 centimeter from floor finish used as seating, pray and sleeping.
Madelo	Wooden element used to grind grains
Meleho	Wood used to smoke as smoke bath
Midaja	Fire space
Sar bet	A house made of thatched roof
Rick	Grain store
Sifet	Women's hand craft
Takat	Shelf made of wood and mud mortar
Tefir Alga	Bade made of animal skin and wood
Temaye Hala	Compound
Wefcho	Stone grinding
Weret	Animal domain
Zalo	Pot made of clay soil
Kchat ?	

ABBREVIATIONS (shortenings, contractions, initialisms, and acronyms)

ARS	Amhara Regional State
Ato	Mister
CSA	Central Statistical Agency
CJNSE	Canadian Journal of New Scholars in Education
EMA	Ethiopian Mapping Agency
EPLF	Eritrean Peoples Liberation Front
EPRDF	Ethiopian People’s Revolutionary Democratic Front
FDRE	Federal Democratic Republic of Ethiopia
GPS	Geographic Positioning system
PBUH	Peace be upon him
UN	United Nation
Waizero(W/ro)	Missus

GENERAL NOTES

- According to the Ethiopian naming systems, the first names are given in the citation of the text; while first names followed by father’s name are given in the references.
- All calendar is given based on Gregorian calendar (EC)
- All drawings are not scaled so use dimensions indicated.
- All pictures, maps, sketches, graphs and tables are taken/ done by the researcher.
- A local name *derb bet* has equivalent meaning to a house or a dwelling.

CHAPTER ONE

1.1 Introduction

Vernacular architecture, which exists in different parts of the world, is one category of architecture which is based on society’s needs, local construction materials and social tradition. It has developed through time and reflects the current environment. Vernacular buildings are decreasing due to rapid urbanization. According to 2014 United States census bureau, the total population of the world is 7.3 billion. (Wiki Demography). Since 1950, the urban population of the world has rapidly grown from 746 million to 3.9 billion. (P.1) UN (2014). Even though the level of urbanization is substantially variable, over half of the world’s population that is 54 percent live in urban areas and the remaining 46 percent lives in the rural area.

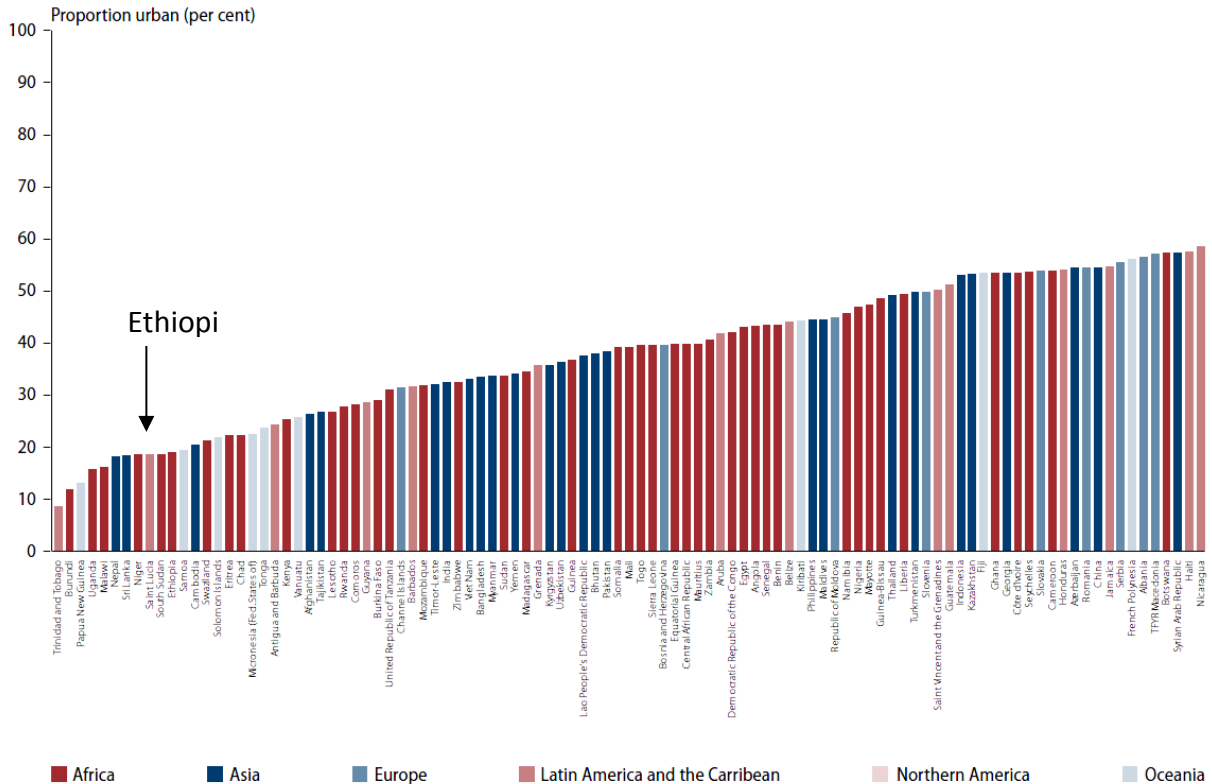


Fig. 1:1 Percentage of population residing in urban areas in 2014, in selected countries including Ethiopia. UN (2014)

According to CSA (2013), the total population of Ethiopia is 92.2 million. Out of these 80.12% live in rural areas. Rapid urbanization is also happening in Ethiopia as the percentage of rural area dwellers decreased from 83.9 percent in 2008 to 80.12 in 2016 (CAS 2013).

Accordingly, in Ethiopian rural areas, the percent of urban dwellers is similar to the UN (2014) world urbanization prospects. This shows that existing vernacular dwellings need great attention to document and study before they lose their rich social and cultural heritages to rapid urbanization.

Vernacular architecture is characterized by a tight correlation between the understanding of the norms by designers, builders or artisans and users. The contribution of this big resourceful skill and knowledge to the current housing development in Ethiopia is invisible. This is true since very few of Ethiopian vernacular architecture which is decreasing steadily

because of urbanization has been studied and documented. However, there, are few individuals and students who are interested in studying Ethiopian vernacular architecture and settlements such as Sidamo, Konso, Gurage Tigray and Burji etc... This can contribute a lot to this area of study.

The Argobba¹ people are one of the earliest semantic people who settled in the north-eastern Shewa plateau, South Wello, Afar and on the hills of south Harar. The Argobbas were part of two Muslim sultanates of Shewa during the late 9th and late 13th century (Oliver 1997). However, this rich vernacular architecture and settlement of Shonke Amba² has not been studied. Therefore, this research entitled 'Vernacular Architecture of Argobba, Ethiopia: the Case of Shonke Amba' aims to fill the gap there is in studies of vernacular architecture of the Argobba nationality before it is moved out by the influences of urbanization. Moreover, the research can be used as a main source of information of Argobba's Shonke Amba settlement which can contribute to housing development in the country.

1.2 Statement of the Problem

In Ethiopia, there are 96 different nations, nationalities and peoples. Out of this nation, nationalities and peoples, 80.12% live in rural areas (CSA, 2007, 2013). The settlement, the compound and the house they live in are not well documented and studied. So the country is losing a lot of rich traditional knowledge that can help to solve problems encountered during and after construction. Moreover, other methods which can contribute a great role to the housing development in the country are not well studied. "The built forms of housing, food, storage, shops, school, clinics, and churches, temples, or mosques, as well as the overall pattern of typical rural settlement are not equipped with detailed survey of the traditional typical rural settlement". Kono B.(2014) cited Oliver (2006b).

Similarly, the Argobba- Shonke Amba Settlement pattern, compound, house form and heritage are not documented and studied properly.

"There are many Argobba settlements among which the, villages of Shonke, Avakos, Yimlaw, Lugo, Goze, Rasa, Channo, Gussa, Keramba, Mataqlaya, Chobba and those around Harar are especially prominent. It is through these or other similar neighboring villages that it is possible to see how the Argobba built their house." Oliver (1997:2,018). Cited Ahmaed Zekaria

With regards to the ordinary houses of early days, sufficient information is lacking except for the ruins of early mosques and settlements in areas such as Asbari and Wasiso northern Shewa and the Shonke area in south Wello. All these areas could serve as religious sites of the Argobba Ulama and the political center of the Argobba Walasma. Oliver (1997). Therefore, this study focuses on documenting the spatial settlement pattern, compound, house form and traditional construction methods of Argobba-Shonke Amba which has existed since the 9th century and thereby contribute to the study of vernacular architecture of the country before it loses its current special I heritages to the rapid pressure of urbanization.

1.3 Research Questions

Based on the above statement of the problem, the following research questions were formulated.

¹ Argobba is one of Semitic ethnic group to inhabit Ethiopia.

² Shonke Amba is a settlement of Argobba people found 25 km east of Kemise town on the plateau.

1. What are the elements of the spatial heritages of Argobba-Shonke Amba?

- What are the spatial characters of the house, compound and settlement in Argobba-Shonke Amba?
- What types of materials and construction techniques were used?
- How do the people use the space at home, compound and settlement level?
- What are meanings of the spaces they use at home, compound and settlement level?
- What are the traditional heritages in the dwelling construction?
- Why did they settle on the mountain where accessibility and construction are relatively difficult?

2. How is the Argoba Shonke Amba heritages organized and used at settlement, compound and house level.

3. What are the formation and the transformation of the house in Argobba–Shonke Amba settlement?

- What are the main factors behind the formation and transformation of the existing house form?
- When? Chronology:
- What? Typology:

1.4 Objective of the study

General objective

The spatial elements at house, compound and settlement level and formation and transformation of the Argoba - Shonke is not documented and studied. Therefore, the general objective of this study is to find out and document the organization of the spatial heritages, transformation and use at house, compound and settlement level and the character of space they use at every level. Moreover the study investigates the meaning and the reason behind the space they use at house compound and settlement level.

The specific objectives of the study were to:

- Document the compound layout and settlement patterns, typology, form of house, construction technique and materials used to construct the dwellings at Argobba Shonke Amba.
- Find out the spatial elements of Argoba-Shonke Amba heritages.
- Find out the formation and transformation of Argoba-Shonke Amba settlement.
- Document the meaning of the space they use at home, compound and settlement level.
- Understand traditional methods of construction which can contribute to solve problems of the housing sectors.

1.5 Scope of the study

The thematic scope of this research is to document the Spatial elements of Argobba-Shonke Amba settlement patterns, compound layout, form of house, topology, heritage, construction technique, construction materials, the formation and transformation of the settlement and the meaning of the space they use at house, compound and settlement

level. The scope of this research was also geographically limited to Argobba-Shonke Amba. **1.6 Significance of the Study**

The findings of the study are expected to help document the Argobba Shonke Amba which has existed since the 9th century. They will also help to find out good experience, methodologies and techniques' from vernacular architecture which were developed through time and to use it as an input for the housing development in the country. The output of the research will also contribute as a starting document to conduct further study on Argobba vernacular architecture and spatial heritages. In addition it will provide information about the Ethiopian vernacular architecture before it is intentionally or unintentionally destroyed by urbanization, socioeconomic pressures, or other natural or manmade factors. Moreover, the study can greatly contribute to preserve this historic site as heritage for the people of Ethiopia, and introduce one additional tourist destination in the country.

1.7 Limitations of the Study

There is no limitation which affects the research out commenters during spatial and thematic data collection. However there were different challenges during the data collection which is narrated as the following. Argobba Shonke Amba is 355 km north of Addis Ababa and this made extra money for transportation and accommodation was necessary, which took more than five months forcing the researcher extend his study for one semester. Moreover the cost of the fieldwork was more than anticipated. In addition the difficulty of access to the study area, renting a car, and preparation of food at the study site during the field work was very difficult and time taking. The drought and unexpected rain fall caused as a result of El Niño significantly interrupted the fieldwork since the respondents spent most of their time at the farm area, which is located far away from their houses. The life of Argobba Shonke Amba settlement residents is limited to the plateau of the highland which has been there for more than 834 years without interaction with surrounding settlements. Because of this it was very difficult and time taking to convince people when conducting interviews, photographing their dwellings, and some activities within the house, compound and settlement. In addition to this, the key informants, artisans, elders and translators of Argobba to Amharic, assistances and guards for the car which is parked away from the settlement because of inaccessibility of the road to the settlement needed payment, therefore handling of such expenses were also additional burden.

1.8 Organization of the study

This thesis comprises five chapters. **Chapter one** is the introduction part which covers, introduction to the problem statement, research questions objective of the study, scope of the study, significance of the study, limitation of the study, and its organization.. **Chapter two** focuses on research methodology. **Chapter three** contains the review of related literature in relation to vernacular architecture. **Chapter four** explores contextual back ground and case studies. Contextual back ground examines the over view of Ethiopia, Amhara national regional state and Argobba of Shonke Amba. The location, topography, climate, formation and transformation of the settlement, cultural settings and housing typologies are among the issues mentioned in the discourse. The case study describes, space usage through time within the settlement, compound and house levels, formation and transformation of the settlement, housing typologies, construction process and techniques and life story. Moreover in this chapter the collected data is analyzed and specific findings are also presented. **Chapter five** presents the summary of findings and recommendations.

CHAPTER TWO

2. METHODOLOGY

2.1 Research Method

In the study, an integrated research approach which includes anthropological, sociological behavioral and archeological research methods were used. The case study was conducted in 24 selected dwellings because it is believed that it will enable the researcher to closely examine the data within a specific context in a small geographic area or very limited number of individuals.

In addition, the case study method was found to be useful to determine a) Type of question. b) To manage over behavioral events. c) The degree of focus as on contemporary as opposed to historical events. R. Jennitar (2002:17)

More over the case study design was well thought-out when a) the focus of the study is to answer 'How' and 'When' questions. b) One cannot manipulate the behavior of those involved in the study. c) One wants to cover contextual conditions because they believe they are relevant to the phenomenon and context." The Qualitative Report vol.13, 2008, cited Yin (2003:5454).

Furthermore, case study avoids the attempt to answer questions too broad or a topic that has too many objectives for the study. As it indicated in CJNSE, 1998/ Vol. 1 Issue 1 (2008) cited Yin (2003) and Stake (2003) "placing boundary on a case study can prevent this explosion from occurring. Suggestions on how to bind a case study includes, a) by time and space b) time and activity c) by definition and context." (P. 546) CJNSE, 1998/ Vol. 1 Issue 1 (2008) by cited Creswell, (2003), (stake), (Miles & Huber man, 1994)

2.2 Data Type

During the course of the research, both primary and secondary data such as life history of individuals, formation of the settlement and space they used was collected and were used in order to achieve the objective of the research. During the primary data collection questionnaire were tabulated and tested to make the data more concrete and valued. The secondary data was collected from literature written on Argobba tradition.

2.3 Source of Data

The source of the data were elders of the Argobba Shonke Amba residents, historians, cultural heritages of the study area, mosque, and dwellers of the selected compounds and related settlements of Argobba Shonke Amba. Secondary data was collected from books, newspapers, magazines, documentaries, videos articles research papers and expertise.

2.4 Documentation methods and selection of case study sampling

2.4.1 Documentation methods:

The main objective of this research was documenting Shonke Amba. The documentation included 183 dwellings, 3 mosques, road networks and open spaces using Arial photography 1957, 1986, topographic 1992 from EMA and Google earth 2016 as a base map. All base maps were geo referenced and overlaid using ArcGIS software. During field work all coordinates of buildings were collected with GPS instrument to record the X, Y, Z of the point to be recorded, including names of owners of the dwellings.

2.4.2 Criteria for Selection of case study sampling:

The Argobba of shonke Amba study area was toured four times. The first tour which took one day was more of reconnaissance to decide whether the choice of the study site was appropriate or not. The researcher found that the site was very appropriate in many ways to conduct the study. The remaining three consecutive trips to the site were made to stay on the study area for ten consecutive days. During this time two objectives were stated. The first one was to familiarize the researcher to Shonke Amba residents. To achieve this objective, the researcher planned to stay at the home of a well-known community elder-Hajji Mohamed Esmael and share food prepared by the family. On his part the researcher prepared coffee and tuna sandwich at breakfast time and ate with members of the family. In addition to this he provided a solar panel as a gift which they can use as light at night and to charge their mobile telephones. This created a suitable situation for the researcher to explain the objective of the study and to have several discussions with the residents of the Shonke Amba. Hajji Mohamed organized all informants within and outside of the community which was a key point during data collection. Due to this and fulfilled the second target which is understanding of Shonke Amba settlement. Therefore, the following general knowledge was grasped which was a key factor in setting the criteria for sampling of the case study.

1. Shonke Amba is formed through time. Because of this it is sub divided in to three sub settlements called *Mender* which is formed chronologically; these started with Haja Genda³ followed by Aresho Genda and at last Terefo Genda. As the name indicates Terefo (extra) means the remaining land of the Shonke Amba plateau land.
2. All the dwellings of Shonke Amba have rectangular flat roofs constructed out of masonry wall called *derb bet*⁴. However based on row (local name *Self or Jemb*⁵) size determinant factor the house type is sub divided in to three groups, these are
 - *Hulet self or jemb* (4x6 internal size)
 - *Sost self or jemb* (6x6 internal size and more of square in shape)
 - *Arat self or jemb* (6x8 internal size)
3. Dwelling may add or lose value depending on the compound space and proximity of the compound to the cliff side. Based on their space and proximity dwellings are sub divided into three.
 - Dwellings without a compound and direct access to the toilet and dry waste disposal within the compound
 - Dwellings with a compound but no direct access to the toilet and dry waste disposal within the compound
 - Dwellings with a compound and direct access to the toilet and dry waste disposal from the compound.

³ Ganda is a name given to a sub settlements at Shonke Amba.

⁴ Derb bet is a house at Shonke Amba constructed out of stone masonry wall and a flat roof .

⁵ Self or jemb is a space which is found between the two rows of column or axis

4. Shonke Amba is a settlement formed on the plateau of a highland this makes land suitable for settlement very limited. This limited land; forces the Shonke Amba dwellings to be transformed to two stories which were constructed on top of flat roof house with light structure out of wooden and thatched roofing materials.

5. During sampling selection, gender and age distribution were considered.

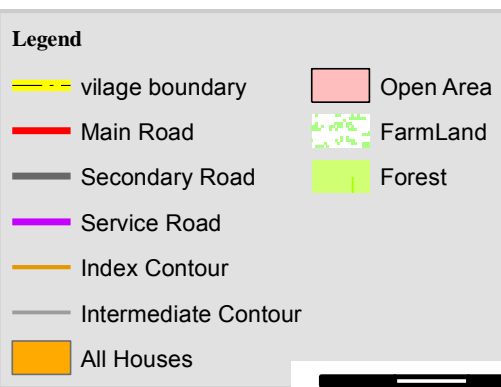
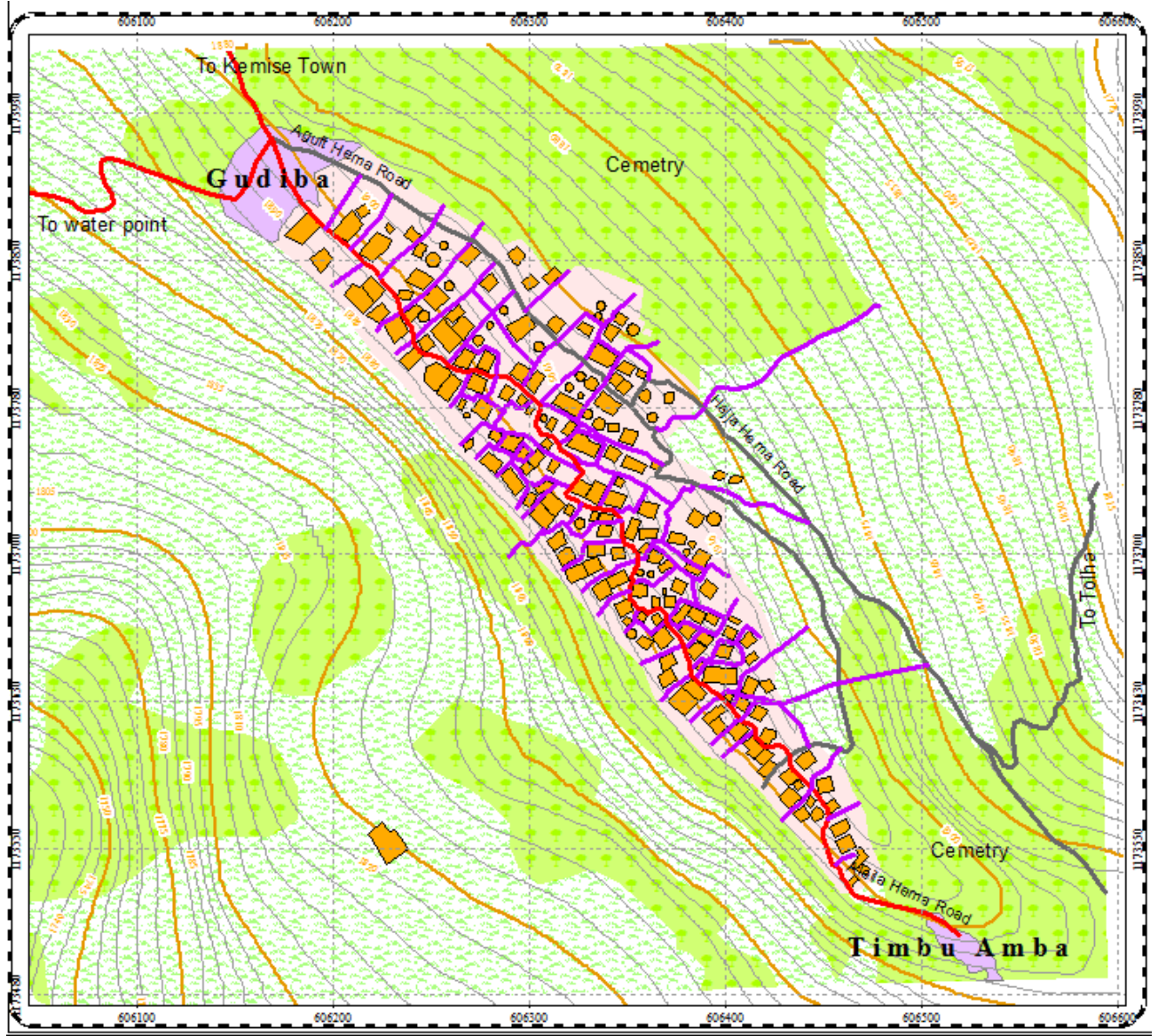
6. Socio economic consideration: In Shonke Amba constructing a dwelling needs a minimum of four years preparation starting from pre-construction preparation works to the completion of the construction. This process consumes time, labor and money forcing the type of houses that are constructed to be type four. There is also a temporary house⁶ which is constructed until the house (*derb bet*) is to be constructed.

Based on the above general knowledge grasped from the study area, criteria for selection of case study sampling are based on types of dwelling, compound and sub settlement or mender as it indicated table 2.1 below.

Table 2:1 the selection summary of the case study

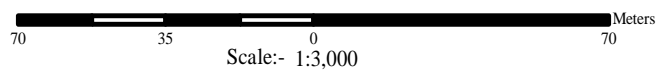
S.no	Name of Mender	Types of dwellings						Compound type	No of sample selected
		Total house	Hulet self	Sost self	Arat self	Amist self	(Others) temporary and demolished houses		
1	Hajja Genda	18	5	12	-	-	1	All type	2x3=6
2	Aresho Genda	79	7	57	6	1	8	All type	3x3=9
3	Terefo Genda	90	6	54	6	-	24	All type	3x3=9
Total	3	187	18	123	12	1	33	3- type	24

⁶ Temporary houses are *sar bet* and *korkoro bet* which is to be constructed until the *house* is constructed, since the construction of house will take a minimum of four years from the time of pre-construction preparation to the construction time. The temporary houses are demolished for the need of *wooden columns* and other wooden elements to reconstruct the *house* at the farm area outside of the settlement.



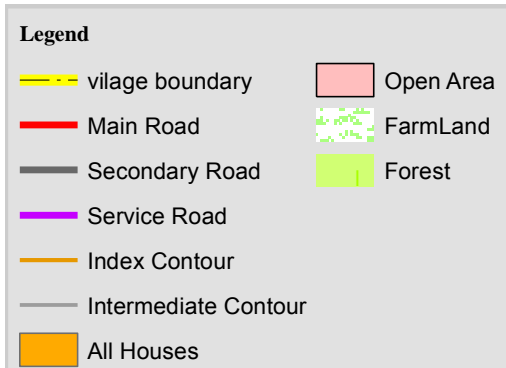
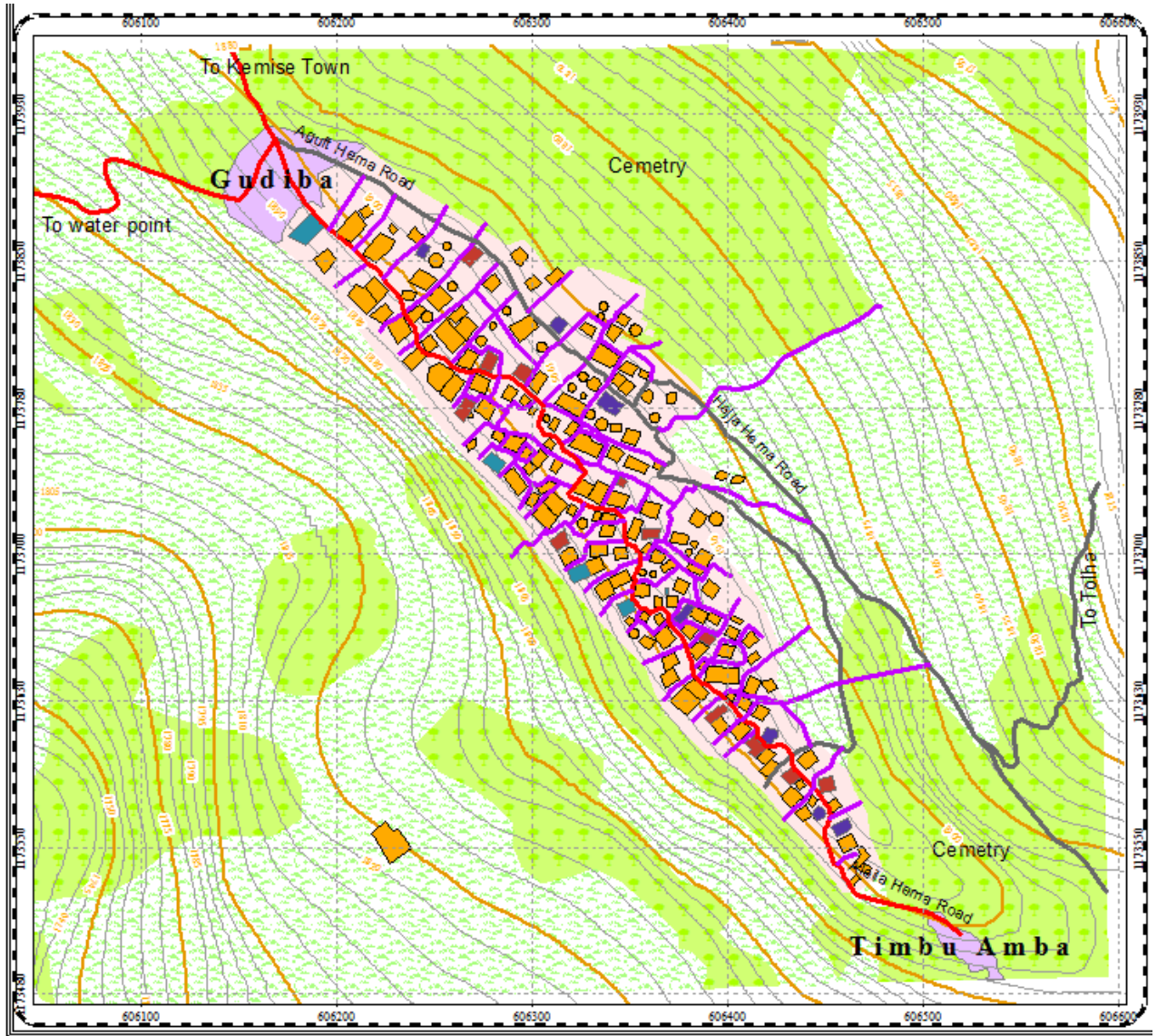
Coordinate System:UTM Zone 37, Northern Hemisphere
 Datum:ADINDAN
 central meridian:39
 Units:Meter

Data Source:- From Google Earth Aster Image 2016



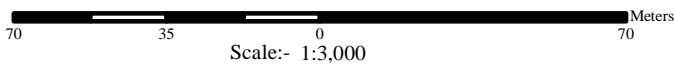
Contour Interval5 m
 Grid Interval200m

Fig. 2:1 Shonke Amba settlement dwelling map



Coordinate System:UTM Zone 37, Northern Hemisphere
 Datum:ADINDAN
 central meridian:39
 Units:Meter

Data Source:- From Google Earth Aster Image 2016



Contour Interval5 m
 Grid Interval200m

Fig. 2:2 Shonke Amba Distribution of case study sampling map

2.5 Data collection Technique

The data was conducted using a questionnaire, interview, voice recording and video camera, photographs, maps, sketches and GPS. The data collection techniques which were conducted on the main field work are explained below.

A) Questionnaire for formal interview:

A questionnaire forwarded to the informants was intended to collect both quantitative and qualitative data. The questionnaire was designed in unstructured and semi structured way. The unstructured interview questions were used to collect qualitative data and the semi structured interview questions were used to collect both qualitative and quantitative data. The questionnaire has three parts: a) Part one; general questions for dwellers, compound, settlement, and about construction materials') Part two; Life story questionnaire for activity, space and time usage with its meanings (time diary). c) Part three: questionnaire for Key informants who are artisans, local cultural experts and community leaders. This helps to understand how the settlement is formed and what kind of construction techniques are used.

B) Audio and video Recording:

As mentioned earlier the main objective of this study was to document the Argobba Shonke Amba settlement, compound and dwellings including cultural heritages. Due to the complexity of the settlement in addition to mapping of the settlement, audio and video recording are very important So they were used to document the study area in detail as much as possible.

C) Photographing

Argoba Shonke Amba vernacular is a tangible artifact settlement registered as a heritage site in the country. This settlement was established in the 7th century. It is not enough to explain in writing or using maps the Argoba's impressive vernacular architecture, settlement pattern on the ridges of mountains, space arrangement with in the dwellings, typology and methods of construction. Therefore photographs can play a great roll to document details, facades, spaces and activities within the settlement.

D) Mapping:

Map and drawings are worth a book, because they are self-explanatory and few lines can explain more than pages of descriptions. Therefore aerial photography and topographic map from Ethiopian Mapping Authority (EMA), and geo-referenced Google earth were used to map all the dwellings typology, road network, open spaces and topography of Shonke Amba.

E) Sketching:

Vernacular dwellings are immovable tangible artefacts which reflects history of any cultural heritage. During a field study sketches are crucial to document and produce dwellings, compounds and settlement layouts. Sketches are the most appropriate means to show sections, details, connections, assembling and interlocked parts of constructions which cannot be captured while recording materials such as video or photographing techniques are used to document vernacular architecture.

F) GPS:

GPS_(Global Positioning System) is a satellite based instrument to indicate any point in relation to global position system made up of 24 satellites placed into orbit by the U.S. wiki- (2015)_Therefore, using GPS, the X, Y and Z coordinates of each dwellings and compounds are documented, which help in the making the map of the study area.

2.6 Method of Data Analysis:

The collected data was presented using tables, charts aerial photo, Google earth, qualitative and quantitative interpretation of data. Mapping which was used to show multi-function of the layers of the settlement, domestic space used and claimed, and perception map in relation to space claim was supported by Arial photo, Google earth and topographic map of the study area. Moreover the spatial mapping of time diary⁷ records and qualitative data were analyzed in the form of tables, diagrams, descriptions and mapping.

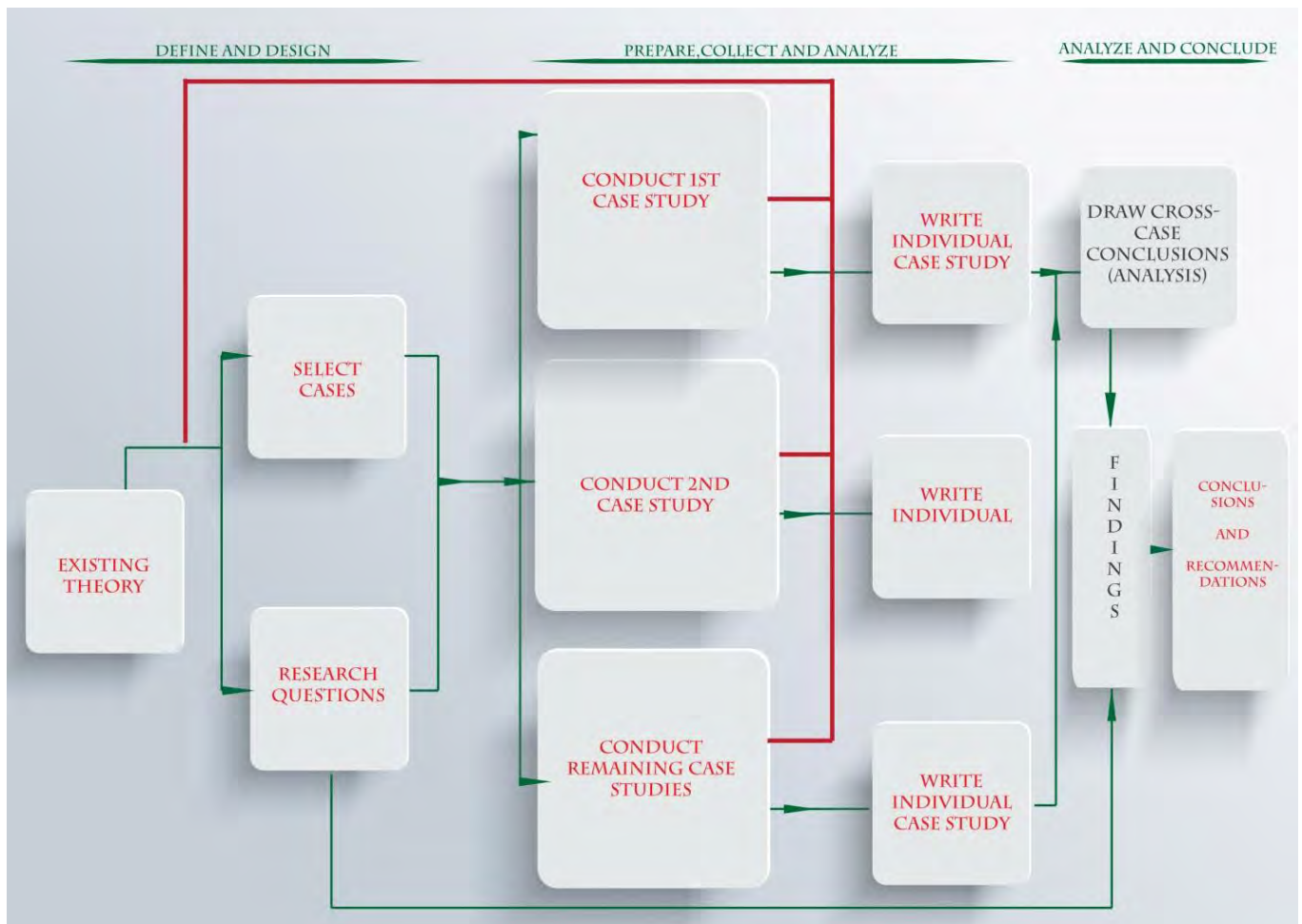


Fig. 2:3 Summary of the research design

⁷ Is a recorded activity, time and space use of to each individual which can then be examined with respect to age and gender to analyze time in relation to domestic space use needs, to identify the rooms that are frequently used.

The research design is based on the existing theory of vernacular architecture and criteria to select 24 case study samplings. Using the tabulated questionnaire data is collected and analyzed to draw conclusion, findings and recommendations.

CHAPTER THREE

3. REVIEW OF RELATED LITERATURE

3.1 Introduction:

This chapter discusses literature related to vernacular architecture. It also defines the term architecture, vernacular architecture and the difference between architecture and vernacular architecture to create a basic concept in meanings, terminology and definitions in which all can agree on. The chapter also elaborates concepts, ideas, and methods mentioned by different scholars regarding elements of vernacular architecture, form determinates factors and natural and human dimensions and arguments on vernacular architecture.

3.2 Definitions and discussions:

A) Architecture:

The term architecture is a Greek word which means both process and the product of planning, designing, construction of buildings and other physical structures. (Wiki 2015). Architecture is also the way buildings and structures look and function. Even great architects differ in their definition of architecture, but they all agree with one basic concept "Architecture is the art and science of designing buildings and other designed in open space". (Wiki 2015). The way the spaces are created, the shape, the volume and the beauty of the building or stricter makes architecture an art. The design of its structural part to resist wind load, earth quake, and all loads applied to it, the ventilation system and electrol systems make architecture a science.

If the above definition of architecture can bring a consensus between architects or other people who can define architecture, other simple questions can be raised. How about houses and structures which are constructed traditionally without design? Can we categorize them as architecture? What is the difference between academic architecture and vernacular? Answers to the above questions can be found in the following definitions.

B) Vernacular Architecture:

Distinguished contributors such as Paul Oliver, Amos Rapoport, Porter Tom Allsopp Bruce, Lwarence R.J., Ozkan .S and others have defined vernacular architecture differently According to Paul Oliver (1972:2) "vernacular architecture comprises the dwellings and other buildings of people related to their environmental contexts and available resources they are customarily owner-or community built utilizing traditional technology. All forms of vernacular architecture are built to meet specific needs, accommodating the values, economies and ways of life of the cultures that produce them".

Oliver also gives description about the context of vernacular architecture: "within the context of vernacular architecture embraces what is known and what is inherited about the dwelling, building or settlement. It includes the collective wisdom and experience of a society and the norms that have become accepted by the group as being appropriate to its built environment." (P. ii) Oliver (1997)

Amos Rapoport(1969), in his book "House and Culture" makes a comparison between "the building that belongs to the grand design tradition and those of the folk tradition". (p. 2) According to Rapoport, the monument–building of the grand design tradition–is built to impress either the populace with the power of the patron, or fellow designers and cognoscenti with cleverness of the designers and good test of the portion. The folk tradition, or other hand, is the direct and useful-conscious tradition into physical form of a culture, its

need and passions of a people. It is the world view, the 'ideal' environment of people expressed in buildings and settlements, with no designer, artist or architect with an axe to grind (although to what extent the designer is really a form giver is a moot point). The folk tradition is much more closely related to the culture and life of the majority than the grand design tradition which represents the culture of the elite. The folk tradition also represents the bulk of the built environment Rapoport (1969).

In (Arch-speak) a guide for architectural terms by Tom Porter and other contributors, the term vernacular architecture has been defined as referring to the language or dialect of one's native country, while its use in architecture is concerned with every day, ordinary buildings rather than their monumental counterparts. Vernacular describes a traditional language of buildings usually of unknown authorship, constructed from local materials to suit their native settings, indigenous climate and specific local needs. Being built from locally available materials, such as stone, clay, timber and thatch, vernacular buildings make little reference to maintain style or to any prevalent theories of architecture Proter T. (2004:203).

Allsopp Bruce, on his part defines vernacular architecture as a generalized way of design derived from folk architecture. It may be seen as the development of 'natural' architecture of region which is defined able in terms of climate, culture and material of its own nature, however vernacular architecture is limited to those which can properly be expressed 'in vernacular'. It can be used for spiritual, monumental and utility purposes but limits of property are set test and judgment. Scale is a crucial factor. Vernacular architecture is congenial to people and sympathetic to the environment. (Bruce A. 1977:8)

Lawrence defines vernacular architecture as "vernacular buildings are human constructed that are the result of interrelations amid ecological, economical, material, political and social factors".(Lawrence R.J. 2006:110).,

Furthermore, Ozkan in his book Traditionalism and Vernacular Architecture in the Twenty First Century, describes vernacular architecture as the highest form of sustainable building, as it not only uses the most accessible materials but also employs the widest available technology. (Ozkan 2006:108).

To sum up, the above definitions one can draw the following general definitions of vernacular architecture;

- It is dwelling and other buildings of people related to their environmental context and available resources.
- It embraces what is known and what is inherited about the dwelling or settlement.
- It is building that belongs to the grand design tradition and those of the folk tradition.
- It deals with environment of people expressed in buildings and settlement with no designer, artist or architect with an axe to grind.
- The language or dialect of one's native country.
- It describes a traditional language of buildings usually of unknown authorship, constructed from local materials to suit their native settings, indigenous climate and specific needs.
- It is a generalized way of design derived from folk architecture.
- It is a development of 'natural' architecture of region on which it is definable in terms of climate, culture and material.
- It can be used for spiritual, monumental and utility purposes.
- It is the highest form of sustainable building, uses the most accessible materials and employs the widest available technology.

C) The difference between architecture and vernacular architecture

The difference between vernacular and academic architecture was not as important in the past as it is today, because both of them focus on construction. In the past vernaculars were source of academic architecture. Landscape of towns, villages, vernacular buildings, and churches, whose styles were international in organization and harmonized with surrounding nature. Both construction materials and building techniques are similar, reflective and need a lot of attention their aesthetic values are also harmonized and complimentary. In the preserved villages of middle ages it is easy to see this character. But after the Renaissance this similarity became widened between architecture as a professional career and vernacular architecture in spite of a few instances of harmonious coexistence and mutual enrichments emanating from both sides (Alonso et al. 1996).

Vernacular architecture gave stopped being popular because of several reasons such as the introduction of new technology in construction materials, different philosophies of design and globalization.

“Today, the fragile balance that had been maintained for centuries has been destroyed by the spread of modern architecture. The dominance of functional rationalism, paradoxically, derives from the vernacular mode (as Adolf Loos and others have pointed out) as a result of an admixture of new industrial materials. The result is a second stage of academic architecture: modern academic architecture, which is no longer aesthetically confronted either by the earlier vernacular architecture or by nature. Standardization, purity of line, and universality of architectural models-all of these lead to contemporary attitudes that ignore or deny the vernacular/nature relationship without substituting new” (Alonso et al. 1996).

Architecture is designed by professional architects. It is not usually considered as vernacular because, unlike vernacular, it is a process of a conscious design of a building. On the other hand, vernacular architecture is one category of architecture based on society's need, local construction materials and which reflect local tradition developed through a time, reflecting the culture ,environment, technology (Method of construction), history and economic condition in which it exists. Wiki (2015). On other hand Oliver defines architecture “It contended that popular architecture designed by professional architects or commercial builders for popular use does not come within the comas of the vernacular” and goes on to say ; vernacular is the architecture of the people by the people but not for the people “(Oliver P. 2003).

From the above explanation, one can understand that vernacular architecture and architecture are two different things but vernacular architecture is a foundation for academic architecture and can be categorized under a big umbrella of architecture. But the main features which distinguish vernacular architecture from academic architecture are:

- i. The builders, whether artisans or those planning to live in the buildings, are non-professionals.
- ii. There is harmonious adaptation, using natural materials, to the geographical environment.
- iii. The actual building involves intuitive thinking, without blueprints, and is open to later modifications as is customary with the outbuildings on farms.
- iv. There is a balance between social / economic functionality and aesthetic features.
- v. Architectural patterns and styles are subject to that slow evolution of traditional styles that suit ethnic regions.

It is clear that there is a wide difference between Architecture (the Modern approach) and the vernacular which is based on traditional ways of thinking in the work from design to construction is based on the builders without any pre design works. Moreover, all

architecture is the embodiment of cultural norms that pre-exist in individual buildings. “Vernacular traditions are characterized by a tight correlation between the understanding of these norms by designers, builders and users”. Glassis H. (1990) Alonso, Arzoz and Ursua (1996) explain the difference between vernacular and academic architecture.

“It is obvious that the radical differences between the two modes affect all the features involved in the construction of a dwelling. This leads to very large dissimilarities in the aesthetic and anthropological features of the two kinds of dwellings. At the present moment, the gulf between the two modes is the widest it has ever been.” Alonso, Arzoz and Ursua (1996),

The transition of vernacular architecture to academic mode of architecture is based on the modernization of technology, economic changes and globalization.

Vernacular architecture is a category of architecture that is based on local construction materials reflecting local traditions. It tends to evolve over time to reflect the environmental, cultural, technological, economical and historical context in which it exists. Frank Lloyd Wright on wiki (2015) described vernacular architecture as “Folk building⁸ growth in response to actual needs, fitted in to environment by people who knew no better than to fit them with native feeling”. Therefore modern architects have studied vernacular architecture to draw inspiration from them and also to include some aspects to their design .Vernacular architecture is influenced by range of different aspects of human behaviour culture, belief and environment leading to different building forms for almost every different context.

3.3 Elements of vernacular architecture

Santorin is one of the Greece administrative regions. The vernacular architecture of Santorin is a splendid example of a built space skilfully adapted to a harsh natural setting. According to the Greece philosophers the very essence of nature are four key elements in various configurations and interactions. These are fire, earth, water and air. Stasinopoulos N.T. (2006) Aristotle related these four main elements to our senses in a very clear way

- Fire as warm - dry(summer)
- Earth as cool - dry(winter)
- Air warm – humid (autumn)
- Water cool-humid (spring)

These four elements were mentioned in the objective of demonstrating their utilization as a systematical tool to relate architecture and nature. Accordingly, the vernacular settlement of Santorin is an excellent example to demonstrate the natural interaction between the elements.

i. Earth as a building material: Earth is the main building material. In vernacular architecture the red and black lava stone is used as a brick. It is also used as a mortar between the joint, to plaster the brick surface and protect the joint from decaying. Santorin is a very dry, wind-swept volcanic land hostile to vegetation, especially trees. As a result, timber is very costly and seen as luxury. Indeed using timber as roof stricter vaults are used and the volcano ash offers a compensation for the lack of structural timber.

⁸ Folk building grow in response to actual needs of the environment (Frank Lloyd wright, Wiki 2015) ,A common building for common people (Lwamayanga, 2008)



Fig. 3:1 a mélange of roofs, walls, terraces and stairs at Santorin;
Source: Stasinopoulos N.T. (2006)

ii. Fire cooling: Solar radiation is quite intense in Santorini⁹. During a harsh sun summer when there are no clouds on the sky, the reflection of the spectrum makes the outdoor uncomfortable. For these reasons, solar protection in outdoor spaces was offered only by the shade of adjacent buildings or free-standing walls, the same ones that were used for wind protection.

iii. Water precipitation: Annual rainfall seldom exceeds 370mm in Santorini, and the volcanic earth hardly holds underground water reserves. As said, the meagre vegetation offers limited firewood supply and makes structural timber an exotic luxury. Before the era of bottled water, water tankers, or desalination, the precious liquid that is water came only from the sky; hence, rainwater collection was a decisive factor in the overall layout and form of each building even in churches and country houses.

iv. Air wind: Santorini is totally exposed to the frequent winds that sweep the Aegean Sea. Wind protection is of prime importance for outdoor living, as shown by many courtyards with raised walls or lowered floors where view has been sacrificed for the purpose of sheltering. Therefore the four elements mentioned above earth, fire, water and air wind elements into an honest, minimalist architectural idiom, thus offering a brilliant example of vernacular environmental sustainability. Stasinopoulos N.T. (2006)

For housing, an environment is where culture probably plays the largest role. This approach was also used, with different components and expirations for housing in developing countries and provide useful insights that this dismantling of 'Culture,' relating its expression to the built environment is useful in the studying of most aspects culture–environment relations (Rapoport 2007). cited, Rapoport, 2002, Rapoport, 1998. And Jabareen 2005. One important aspect of this approach is not only to dismantle 'culture' in to aspects and excretions that can be studied, but also to study how this aspects and expressions become visible in the tangible physical environment. However they may not necessarily become visible in the fixed, semi-fixed and non-fixed features realm. (Rapoport 2007). Furthermore Rapoport in his book House Form and Culture noted that "It is not sufficient to study just a building or physical entities; one needs to study the process of vernacular architecture" (Rapoport 1969). Based on the above, fixed, semi- fixed and non–fixed features of vernacular architecture should be studied together to form cultural background. Fixed features such as dwellings; semi–fixed features such as plants, or landscapes, objects, colours, art, statues, furnishing, etc. They do not have to be part of material culture, and non-fixed such as language, music, behaviour, manners, heredities,

⁹ Santorini is the most popular island in Greece and one of the Cyclades island in Aegena sea that was devastated by volcanic eruption in the 16th century B.C.E. forever shaping its ragged landscape and villages.

food, religion, rituals, cloth, the use of customs, dance, and other(Morell 2001b; Navarro2004) cited in Rapoport (2006). The above mentioned elements of vernacular architecture help to form an idea to understand organization of space, time, meaning and communication. See figure 3.1 dismantling of culture relating its excretions to the built environment.

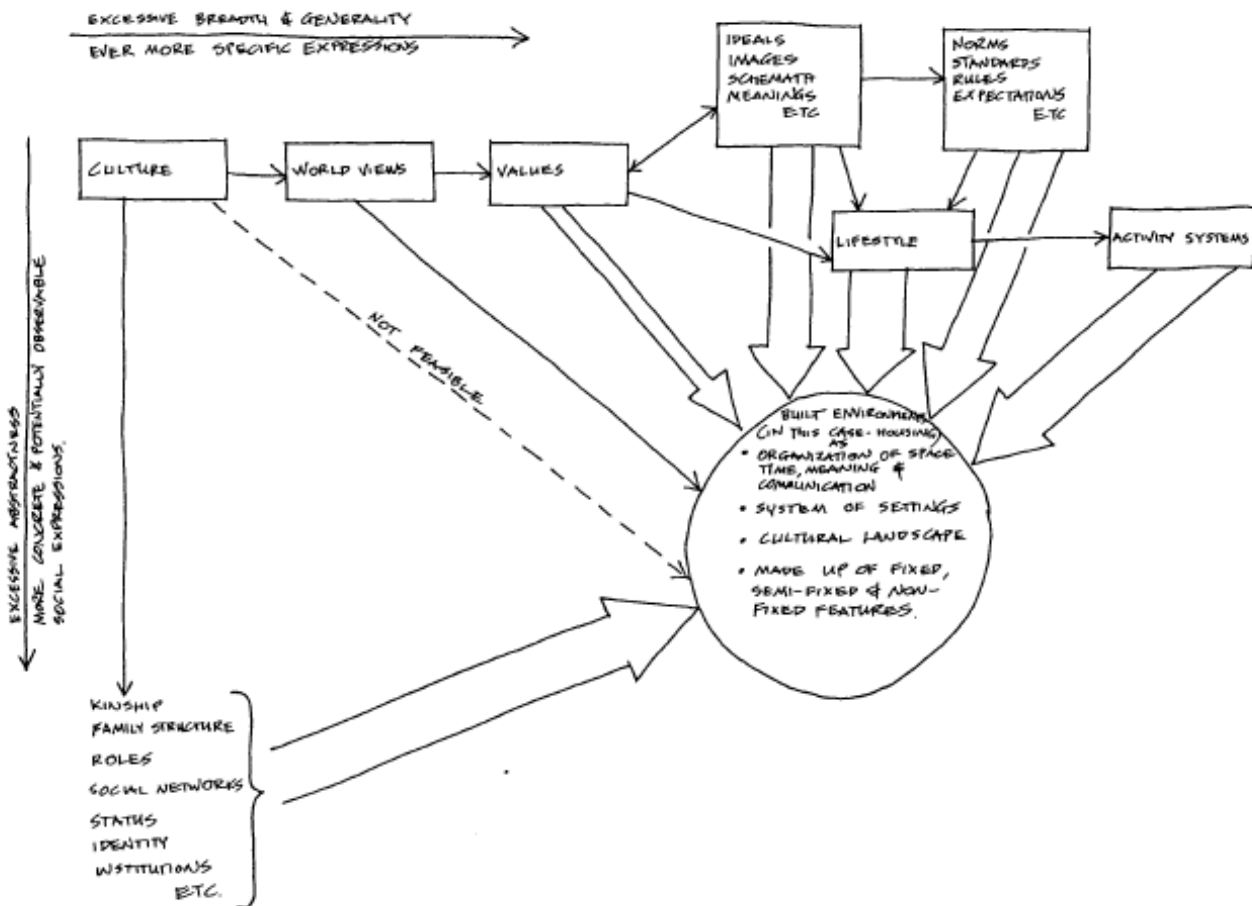


Fig. 3:2 combined diagram of two dismantling of 'culture' relating its expression to the built environment (e.g. housing) the width of arrows corresponds approximate to the hypothetical feasibility and ease of relating the various elements; source Rapoport (2006)

3.4 Approaches of housing studies in the vernacular response:

Asquith (2006) stated that those who study vernacular architecture come from many disciplines such as anthropology, sociology, behavioral study, human geography, and architecture. From this discipline a lesson which can bring approaches and methods together to develop methods and tools for housing research can be learned. Those that use tools or methods for analysis are firmly entrenched in their own discipline collaborate with others to create integrated approaches between discipline that will result in innovative theory and new methods that will assist housing research, these approaches are: anthropological, sociological, behavioural and architectural approaches. (Asquith (2006: 130)

a) Anthropological approach is in which the special and activity patterns in the home as universal to a culture should be examined b) Sociological approach, studies those issues that concern who we are, our roll in community, group, house hold. c) Behavioural

approach is concerned with perception, interaction, relationship and identity of individual's special behavior as determined by culture or social traits. d) Architectural approach to housing research looks at the influence of special type on space use and the house has often been overlooked as a built form.

“Research into housing needs, suitability and adaptability in particular with regard to space use, should not be the exclusive concern of developers or even designers or architects. Nor is it purely of value to anthropologists, sociologists and behavioural scientists. What the vernacular response to housing needs can and should do, because of its multi-disciplinary nature, is contributing to integrated approaches, based on shared knowledge rather than exclusivity.” (Asquith 2006: 132)”

3.5 Vernacular as process:

Study in contemporary fields of archaeology, history geography, culture and anthropology have increasingly stressed the dynamic and processual nature of tradition. Tradition can be seen as active process through which people interpret past knowledge and experiences to face the challenges and demands of the present. (Asquith and Vellinga (2006) and Oliver(1989) cited in Asquith and Vellinga (2006) “It is this active process of the transmission, interpretation negotiation and adaptation of vernacular knowledge, skill and experience that should form the focus of research and teaching ,as much as the actual buildings that form their objectification.” The reason vernacular research is a point of attention as Simon Bronner (2004) cited in Asquith and Vellinga (2006), is because tradition is changing and varied and should form central point of attention in vernacular research, he also defines tradition as a reference to the learning that generates cultural expression and the authority that precedent holds. Tradition in Bronner's view is about expectation and social acceptance rather than, as is often noted, constraint. It is ‘like a local saying that gains credit by long and frequent use’. As reference to precedent and social construction tradition invites commentary and interpretation and is often continuously regenerated from generation to generation. As such it allows for creativity, and for adaptations and innovations that may ultimately, when they have been socially accepted, be integrated and become part of the tradition. ‘Creativity and tradition’, writes Bronner, ‘are intertwined, and represent the complex processes of humans expressing themselves to others in ways that carry value and meaning’.

“A good ethnographic example of the way in which traditions are continuously re-negotiated through the process of transmission, as well as of how issues of authority and individual creativity play an important part in this dynamic process, is provided by Trevor Marchand. In his discussion of the apprenticeship system operated by vernacular masons in Djenne (Mali), Marchand shows how this age-old form of education simultaneously allows for the gestation and transmission of technical knowledge, as well as for the operation of a process of socialization that helps to forge the professional identity of aspiring masons. Working within an established system of authority, under the guidance of an established master mason, young apprentices are able to obtain the technical, ritual, economic and political skills needed to become a publicly recognized mason. At the same time, in taking part in the building process and observing the activities of the master mason they work with, they develop a sense of professional and social identity and, significantly, learn to negotiate the boundaries of the tradition.” (Marchand cited in Asquith and Vellinga 2006:8).

Many vernacular and modern traditions nowadays do merge, throughout the world, often in creative and unexpected ways. The building traditions that are the results of such amalgamations (for instance, the ‘counter culture’ traditions discussed by Bronner, or modernized ‘replicas’ of traditional buildings) are nonetheless largely ignored in the field of vernacular architecture studies because they are regarded as being not, or no longer, truly or ‘authentically’ vernacular. Yet to do so, Vellinga argues, is to deny the dynamic nature of

building traditions and the application of meaning, and effectively restricts the development of the field of vernacular architecture studies Asquith and Vellinga (2006).

3.6 The Relation of House and settlement:

Settlement can be formed within certain time frame. A single house cannot create a settlement, but it can be part of a settlement. Therefore the relation between a house and settlement cannot be perceived separately. Rapoport (1969) in his book *House Form and Culture*, explains that, since settlement which is viewed as part of a total inscribes social and special system which accommodates the house, way of life, settlement and even landscape, a house cannot be seen separated from the settlement.

“Man lives in the whole settlement of which the house is only apart, and the way in which he uses the settlement affects house form as for example, in areas where the meeting place is the house and the other where the meeting place is a part of the settlement, such as a street, or plaza. Geography as well as architecture has usually separated study of the house from the settlement, yet the need to look at the house as part of a large system.” Rapoport (1969:69).

The form of house is affected by the extent in which one can live in it and a series of activities that take place in it. Most developing countries use house as a place to sleeping, store things cook and keep animals, and the large part of activity takes place outside the house. Dispersed and concentrated settlements will affect house form because activities which need to take place in the house in the dispersed case could possibly, occur within the settlement in the concentrated case. Even in concentrated settlements, realization of settlements and dwelling and its effect on house form, needs to be made. Rapoport(1969)

There are two traditions of concentrated settlements; these are; a) Dwelling has essentially been regarded as the total setting for life, and settlement, whether village or city, as connective tissue almost “waste” space to be travelled and secondary in nature

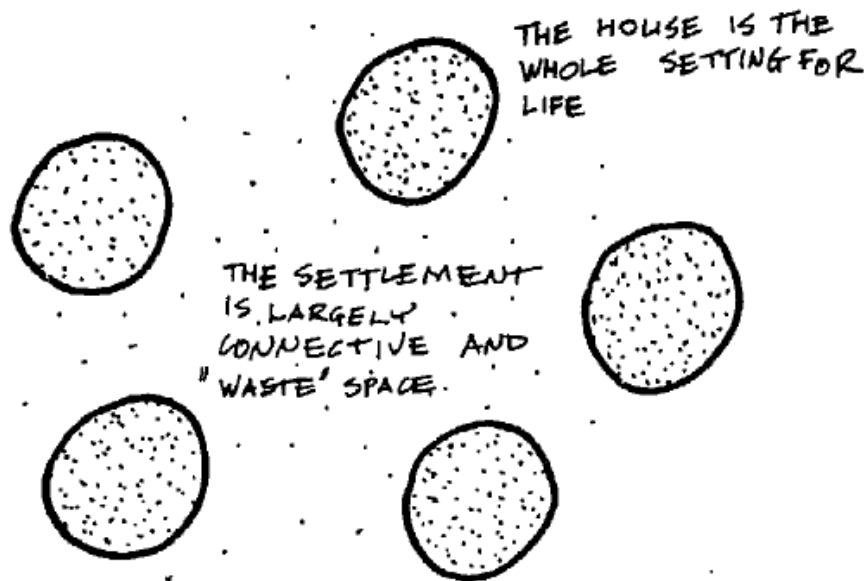


Fig.3:3 the house setting is for life and settlement is waste space
Source: Rapoport (1969:71)

b) The whole settlement has been considered as a setting for life and the dwellings merely as a more private, enclosed and sheltered part of the living part.

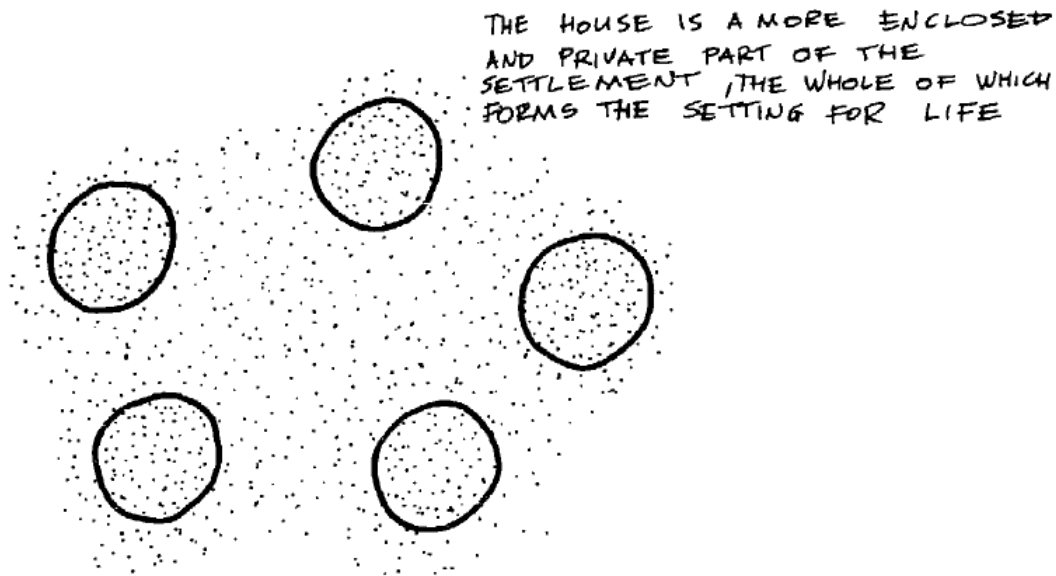


Fig. 3:4 the house is enclosed private & settlement is setting for life
Source: Rapoport (1969:71)

“The distinction between the types maybe due to partly unwritten or written laws which limits the behaviour patterns in the different domains, public or private-by prohibiting some and allowing other. This is an expression of world view, attitudes, and is one way in which culture is linked to the way people use space.”(Rapoport (1969:70).

In addition to the above Rapoport (1969) stated that, the form of settlement affects the way of life and house. The Zapotec of Oaxaca display three different settlement patterns; the compact town, the semi-compact town and semi vacant town, where the centre is used for ceremonies and most people live and work in ranchos and have two house-holds. Each of the settlements have different relations between a man and a woman. This variations are reflected in the house, their forms and space allocations The settlement pattern can also improve attitude to innovation as in the case of the Navajo and Zuni when veterans came back after world war II the Navajo, who had a dispersed living pattern were able to accept innovation because it affected only the single house hold and did not disrupt the community. Among the Zuni whose settlement pattern is compact any innovation would have affected the whole community.

“House, settlement and landscapes are product of the same cultural system and world view, and are therefore parts of a single system. In traditional Japan for example the separation of domains results in each house is being isolated and each house hold doing what it wishes: as long as common values are shared, variation in house form within an order produces good results.” (P.73) Raopprt(1969)

Therefore it is important to see the house not only in relation to basic separation that exists between settlement types and their variants along the total space-use scale, but also as part of the specific system to which it belongs. It also needs to be viewed in relation to the town, its monumental parts non domestic areas, social meeting places and the way these and the urban spaces are used. We need only think of the different ways in which the dwelling is used.

Amos Rapoport (1977) noted the relevance of ethnological concepts, regardless of the many disagreements, because it forced a re-examination of human behaviour generally and reopened the argument about the continuity of human and animal behaviour, the limit on human ways of acting, and thus constancy as opposed to the change and indefinite flexibility and modifiability of human behaviour. For animals, as for people, social and spatial organization and structure are closely related. The distance among individuals and groups emerge as a compromise between attraction and repulsion although ecological factors and in the case of people, various complicating factors of cultural and physical defences and modifications play a role. McBride(1964) and Kummer (1971)cited in Rapoport (1977).

At settlement level, there are a number of different conceptual schemes on ethological concepts as Rapoport (1972); in press (a and b). Cited in Rapoport (1977) five conceptual schemes discussed, these are:

- 1) Home range: It is usual limit of regular movement and activities which can be defined as a setting or locals and other linking parts. Each individual has a typical shape and extent of home range which differs for daily, weekly or monthly movement as special signature. Members of particular group will tend to have home range more likely than those of other groups.
- 2) Core area(s): These are those areas within the home range which are the most commonly inherited and used possibly daily and best known. These are limited number of spaces such as around dwellings, local shops employment or regular reactions; core areas also vary with culture, sex and age and change over time.
3. Territory: It is a particular area or areas which are owned and defined—whether physically or through rules and symbols. It is identify an area belonging to an individual or groups and in which people territories is through personalization, walls, fence, posts, change in texture, change in colour or landscape treatment symbols. To define the territory symbols and rules are the most important ways in humans although rights do exist for physical defences.
- 4) Jurisdictions: It is ownership or control of a territory for a limited time and with some agreed upon rules.
- 5) Personal distance or personal pace: This is the space among individuals in face to face interaction, the bubble of space surrounding individuals which has been studied.

3.7 Alternative Theories of Vernacular Architecture

Classification of house type and forms to list vernacular architecture dwellings has not been given much to the processes or determinants of the form creation. To study vernacular architecture, a deeper and more theoretical look is important. The theories to be examined are not meant to present an exhaustive list: The discussion will be confined to the principal type of explanation, including physical ones-involving climate and need for shelter, materials and technology and site social ones- relating to economics, defence and religion. Rapoport (1969). Konno Bodde on his thesis for graduate studies noted by citing Bronner, Lwamayanga and Morgan:

“Vernacular architecture is a complex heritage that is revealed as a form of product and process. Bronner (2006) pointed that vernacular architecture allows us to answer not only textual questions of way building look, the way do and way they are located where they are ,but also processual question of why they come to being and how they changed along the way. Lwamayanga (2008) also with the

issue by quoting Henry Morgan (1881) that the influence of social and physical factors on vernacular architecture.”(Rapoport 1969).

As Oliver (1997) noted; a few decades ago interest in vernacular architecture was limited because, the focus on vernacular architecture is the documentation and classification of traditional house forms and their decoration and the reconstruction of the historical spread of building type. Therefore the references of dwellings and the customs of their habitation could be found in all anthropological monographs but rarely as an object of research in their own right. Oliver (1997)

“Building form manifests the complex interaction of many factors and the selection of single factor and changes in the type of factors selected at different periods are in themselves social phenomena of great interest. Each of the theories examined will also be found to fail to account for some obvious and significant aspects of the problem”. Rapoport (1969:18)

Determinant and modifiers of vernacular architecture are called human and physical factors. The physical factors are defence, economy, religion, climate, material, construction, technology, and site. The social factors are basic needs, family, and position of women, need for privacy and social interaction.

3.8 Form determinant factors of vernacular architecture:

A house is one of the basic needs of humankind. Starting from the earliest time during which humankind lived in caves to the twenty first century, the form of house has been modified with different casual factors.“ In the early time ,it was stated that man built house to keep in consistent climate and to keep out predators hence this caused doweling to be determined by climate” Konno Bodde (2004:27) cited Vitruvius (90-20 BC) and Oliver (1997). Even if climate which is one parameter of the physical factor as form determinant, Rapoport (1969) shows that, climate determinant has been widely accepted in architecture as well as in cultural geography although in the latter it has recently found that rather less favour. For example, old and New Delhi certain Latin America cities, show them to be much more both the court form and Megaron form, or Latin America where the court house seems more closely related to cultural factors than to climate when compared to Indian and Spanish house types. More over the Eskimo summer house and winter dwellings (the tent and the igloo) have similar plans consisting of a central space with rooms arranged radially of it. There are also cases in which the way of life may lead to almost anti climate solution, with the dwelling from related to economic activity rather than climate. Rapoport (1969)

“The house form is not simply the result of physical forces or any single causal factor, but it is the consequence of a whole range of socio –cultural factors seen in their broadest term. Form is in tern modifies by the climatic condition (the physical environment which makes something impossible and encourages other) and by the method of construction, material available, and the technology (the tools for achieving the desired environment). I will call the socio–cultural factors primary, and the other secondary modifying.” (Rapoport 1969:47).

Based on the above Rapoport’s basic hypothesis, both Primary modifiers (socio cultural factors) and secondary modifiers (physical factors) are discussed as the follows.

3.8.1 Physical Factors:

People with different ideas and attitudes respond to the physical environment in different ways. This response to physical environment is also different from place to place due to the change in social relations and cultural relations. Rapoport (1969) core hypothesis of physical factors; defence, economy, religion, climate, construction material, technology, and site are not determinant factors rather they are form modifiers, as compared to socio-cultural factors. Therefore physical factors are discussed as follows.

A) Defence:

Defence has been cited more to account for tight urban patterns than to explain the form of dwelling. The compact town in Greek island has been attributed to the needs of defence. Defence certainly plays a role in deciding house form. The use of stockades, palisades and fences have defensive implications like they have the religious ones. Rapoport (1969)

“Defence is related to the nature of the perceived danger or threat to a culture. The natural force may lead to the choice of site and claiming of territory. On other hand the human predators lead to choice of secured position or building of structural defence. The element of choice of which methods of defence is to be used is of grate important”. (Konnon Bodde (2004:30) cited Oliver (1997).

Rapoport (1969) further explains the need for defence. For example Cameroons handle granaries very differently because granaries are more important than cattle. The Natakan form has defensive needs, due to family monogamy ; the women have grate authority and control over the main granaries. On the other hand communal dwelling is a very different solution to the mountaintop villages or the river a palisade and pile dwelling on Lake Maracaib of Brazilian has an obvious defensive component against people, insects, animals and snakes. To sum up many factors are neglected by accepting defence as the only determinant of form. Additionally the choice of method of defence to be used is of great importance.

B) Economy:

Economy has been widely used to explain settlement and building form, and its importance is indeed great. However it is possible to question its determinant role. Rapoport (1969) also argued that economic force was not determinant factor for house form.

“In Annam ,as soon as a peasant has money he build a house ,boatful but not contribute, and beyond his name; there are rich house there than rich families. Generally, since people with similar economy many have different moral system and world view and since the house is an expiration of the world view, economic life has no determinant effect on house form. Even lack of labour specialization, so typical of primitive, and to a lesser extent vernacular, buildings may be socially and culturally rather than the economic motivated and specialized labour may be dispersed”. (Rapoport 1969:34).

C) Religion:

The religion view has been best expressed by Deffontaines and Rangla. Ranglan extreme position is ‘the sacredness of the house’ to demonstrating that the house is much more than shelter. Deffontaines does refer briefly to the action of material forces and is therefore more balanced than religion. However, because he concentrates on the religious aspects alone and brings an overwhelming amount of material to support his view that religion is the determinant of form in landscape settlement pattern, cites, house, demography, cultivation and circulation, he presents rather a distorted view. Rapport (1969). Rapoport continued his discussion; many examples can be found of this sacred function of the house. In some culture a man exiled from his house was separated from his religion and for many people’s-in

ancient Rome, New Caledonia, Cambodia, Annam and China—the house was only a temple. Rapoport strongly argued that: “religion affects the form of plan, spatial arrangement and orientation of the house and may be the influence which leads to the existence of round and rectangular houses. The reason for a round never to exist in a is culture may well be due to the need of cosmic orientation since round house cannot easily be oriented”. Rapoport (1969: 41)

D) Climate:

Climate determination has been widely accepted in architecture as it has been in culture and geography but recently found that it is less favoured because: a) in a place where a climate is noncritical we find greater variety of house types. b) The Eskimo summer and winter dwellings (the tent and Igloo) have a similar plan consisting of central spaces c) There are cases in which the way of life may lead to almost anti climatic solutions. (Rapoport 1969). From the above three points one can understand that the climate factor is widely acceptable but not a dominant factor. For example in Japan by giving much attention to socio-cultural attitudes and superstitious beliefs a house is closed up at night by shutters, creating an uncomfortable room temperature.

E) Materials, construction and technology:

Change in material does not necessarily change the form of construction. Stones and wood have been used for thousands of years as the determinant characters of buildings. a) In Haiti one can see very sophisticated woven planes perfect for walls but used only for fishing trap b) Change of material does not necessarily change the form of a house. For example on Greek island of Santorini major innovation of materials has not affected the form of houses. “Therefore, material, construction and technology are best trend as modifying factors, rather than form determinant, because they decide nether what is not to be built nor its form- is decided on the ground.” Rapoport (1969:25). Vernacular dwellings from various cultures show that materials in themselves do not seem to determine form. For example dwellings made of one material reeds, mud, tent of sticks flet, and, thatch and wood seen below as Rapoport (1969) argued, material, construction and technology make certain decisions possible, but are never a form determinant factor



Fig. 3:5 Dwellings made of one material (reeds). Left: Uru dwelling, Lake Titicaca, Peru. Right: Marsh Arab dwelling, Iraq-Iran border
Source Rapoport (1969)



Fig. 3:6 Dwellings made of one material (mud). Left: Iran. Right: Pueblos, south western United State

Source Rapoport (1969)



Fig.3:7 Portable tents of sticks and felt. Left: Arab tent Right: Mongol yurt.
Source Rapoport (1969)



Fig. 3:8 two examples from the great range of house forms using thatch and wood as materials. Left: Masai dwelling (Africa).Right Yagua dwelling (Amazonia) dwellings.
Source Rapoport (1969)

F) Site:

In form determination the role of site is not yet discovered and no construction theory has proposed site as a form determinant. The Hogaku system of orientation in Japan determines the location of Japanese house without regard to topography, while, In India on the steep hill side, the door is oriented to the East facing up the slope. But, a very similar site often shows very different forms. “Even sites as forceful as mountains, deserts and jungles have produced great variation in house forms. As we have noted, site influences both the city and the house, but it does not determine form”. Rapoport (1969:29).

3.8.2 Socio cultural factors:

Rapoport (1969) cited Max Sorre who said that all cultural, spiritual, material and social aspects affect form. Therefore it can be said that houses and settlements are the physical expiration of genre de vie and this constitutes their symbolic nature. Genre de vie according to Max Sorre is the sum of culture, Ethos, world view and national character.

“Culture-the total equipment of idea and instrument and conventionalized activity of a people; Ethos-the organized conception of the ought; world view-the way people characteristically look out up on the world; natural character-the personality of people, the kind of human being which, generally occurs in the society”. (Rapoport 1969:48)

The genre de vie in Rapoport(1969) use is refined and broad. These important aspects of the genre de vie which affects built form are a) some basic need, b)family c) position of women d) privacy e) social interaction are discoursed as the following:

A) Basic needs:

Basic needs is also one of the determinant factors for house form. Eskimos are people who live in harsh cold weather. Because of the need to maintain room temperature inside the Igloo, the Eskimos tolerate bad smell. The smell of the toilet is also acceptable in the traditional Japanese house. In Africa and Australia the manner of sitting can affect the house forms. This is illustrated in Rapoport's (1969) book *House Form and Culture* as follows:

“The impact of the introduction of the chair, which would revolutionize living habits and have major social consequences: the need to take off shoes, imposed by the use of mats, would disappear, hence also the special covered space-porch or veranda-where they are taken off and left; the need for shoes which are easily taken off would be eliminated, and also the need for special floors.”Rapoport (2069:63)

B) Family:

Family has also a significant influence in determination of a house form. The type of family structure, the extended family group and family groupings are the basic determinants. For example, in Mali Timbuktu, each legitimate Muslim wife and children above seven have their own house, and rich men's houses become a vast conglomeration which is different from an Arab harem of the same size. In African traditional houses it should be pointed out of the other forces at the same time leading to different house forms among polygamy people in the case of Foulb, in Cameroon the man's position is expressed by his place which is in the center of the compound surrounded by his wives. Situation may become rather complex, with various sub areas having separate controlled entrance, different degree of privacy area for guests and so on which can produce rather labyrinthine quality. Rapoport (1969).

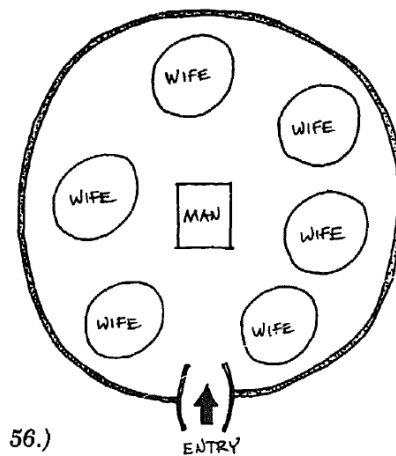


Fig. 3:9 Foulbe farm house Cameroon
Source: Rapoport (1969:57)

To the Masai, cattle are not only wealth but have mystical, religious and ceremonial importance transcending their economic value and forming the bases of Masai culture. Rapoport(1969)

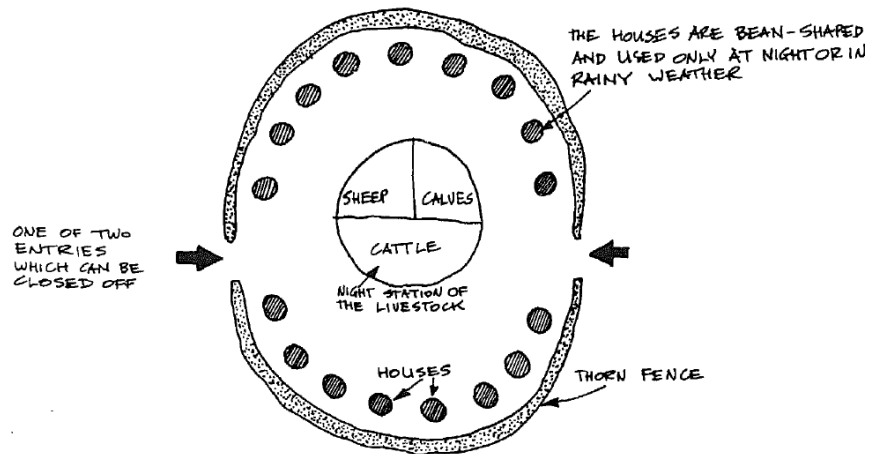


Fig. 3:10 Masai compound (approximate diameter 40mt)
Source: Rapoport (1969:57)

C) Position of Women:

Because of some social factors which are extremely needed for privacy of women windows and roofs of private court houses are designed to prevent anyone from coming in to of the house. 'The position of women may also affect the traditional Japanese house, where the kitchen is one of the few places considered a woman's domain and is physically different from the rest of the house.' Rapoport (1969)

"In Egypt men and women's are always separated, rich people having separated rooms and poor ones using different corners of their house; this procedures is also follow in the nomad tent. The dwellings of the Ulufs of Senegal are all turned in their earth enclosure. So that house cannot be sent into form the entry and wives are protected from views. Islamic cultures generally affect the form of house and settlement through demand of purdah the *haram*; and so on, but in each case the specific of the solution need to be considered". (Rapoport 1969:66)

D) Need for privacy:

There is different culture in which privacy is given attention. For example, the Sherpas of Nepal, do not seem to regard privacy essential at all because of their attitude towards sex. The Yagua of Amazon lives in a large open house and achieves 'privacy' through a social convention which allows some one becomes 'absent' and in effect visible by turning away from the centre of the house. Japan had a very different idea of modesty before westernization influenced it. During the summer, people would be naked in public and used common bath. During the same season one could look right through farm house. More over the Yoruba of West Africa who lived in mud-walled thatched house in extended family group of four or more to enclose a square compound reached through a single gateway. Therefore in every culture privacy is seen as a basic need, and it is really a complex and varied phenomena. Rapoport (1969) "Privacy should be examined in relation to age and gender but also part of the study in to spatial arrangement and confederation". Papoport (1969:132)

E) Social Interaction:

"The meeting of people is also a basic need since men has been defined as a social animal. What concerns us is where people meet whether in the house, the city the bath or street. This is not fact meeting itself, affects the form of the habitat." (Rapoport 1969:69)

The ease with which people can orient themselves to the city is important in helping them. Socialize. After one has found one's way about, the specific of how and where of the meeting is important. In Chinese village, people meet in the street wide apart from the main street; in North Africa it may be the well for women and the café for men; in Bantu village it is the space between the animal pens and the walls of living compound. In Chan Kom in Yucatan the meeting place is the steps of the little village story. This procedure is now changing, and the house is used more affecting both the house form and the city Rapoport (1969)

3.9 Summary of literature review

The literature review started with giving the conceptual definition of architecture, vernacular architecture and the difference between the two concepts to reach concusses on operational definitions. The literature review also went through elements of vernacular architecture, approaches of housing study in vernacular architecture, the process of vernacular architecture, way of life, culture world view, value and landscape.

The elements of vernacular architecture are classified as fixed, semi-fixed and non-fixed, which together create a total setting to study vernacular architecture. This total seating also includes social and special system, settlement, and the house which is fixed element of vernacular architecture, way of life, culture, world view, value and landscape.

The socio cultural factor which is primary form modifier, the genre de vie which affects built form: some basic need, family, position of women, privacy and social interaction are also raised. Moreover behaviour, individual connection within the family and defined territory are examined in the literature review.

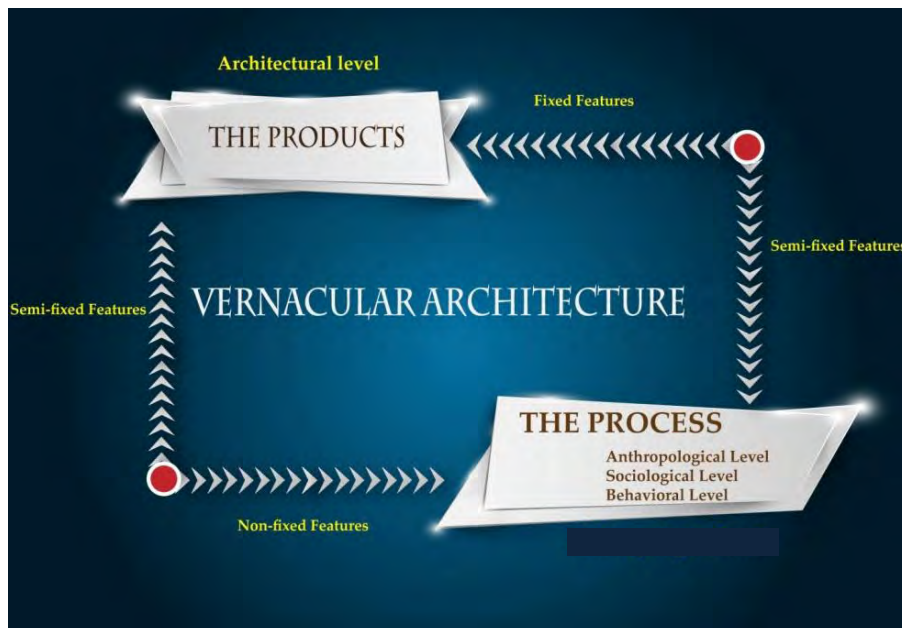


Fig.3:11 Summery of literature review

CHAPTER FOUR 4. THE CASE STUDY

4.1 Introduction

This chapter consists of contextual background and the case study. The contextual background starts with general information about Ethiopia, Amhara national regional government and Argobba shonke Amba which is located in Oromo Nationality Zone and Dawa Chefe Woreda Administration at Hijirota Kebele. The case study which takes the largest part is also sub divided in to three sub parts, background study of formation, claims of the Shonke Amba residents on the origin and formation of the settlement and details of life history, settlement, compound, and, cultural aspects, and selected homestead were presented intensively in the case study section.

4.2 Background to the case study

4.2.1 Profile of Ethiopia



Fig. 4:1 Location map of the study Area

The study was conducted in Ethiopia. The geographical location of the country is 3 degree and 14.8 latitude, 33 degree and 48 degree longitude in the eastern part of Africa lying between the equator and tropic of cancer. Addis Ababa is 8 00 N, 38 00 E. The land area of Ethiopia is 1.127 million km² and density is 76.4 km². The projected population of the country based on the 2007 census for the year 2016 is; 92,205,000. (CSA 2016) .

The regional and provisional administrative regions that comprise FDRE are Tigray, Afar, Amahara, Oromiya, Somali, Beni-Shangule, Southern nations, nationalities and Peoples and Gambela, Harar, Dire Dewa provisional Administration.



Fig. 4:2 Regional states of Ethiopia
Source: Wikimedia.org

Different authors describe landscape and settlement in Ethiopia in different ways. The book “Ethiopians and the House they Live in” written by Ethiopian Tourism Commission explains that Ethiopia is not only large in area, but its altitude ranges from a hundred meters below sea level to one of the hottest spots on the planet to over four and half thousand meters, summit of Africa’s fourth highest mountain. This altitude range is divided in to three zones *dega* (cold), *weina dega* (temperate) and *kolla* (hot) high land, midland and lowland respectively.

Dropping from 2,500-3500 meters *dega*, we find very different cultures. At 1,500-2,500 meters lie the ‘horticultural’ areas where the large base is often Cushitic as opposed to the northern Semitic (Gurage is the exception).

About twenty percent of the people who live in the grass savannah and desert are nomadic or semi nomadic. For people in Arsi, the Borena, the Afar, the Somali and the Nuer, cattle are the source of power, prestige and security. These are broad sweeping categories intended only to give a general picture of the extraordinary diversity of the land and its people. (Tourism commission 1981).

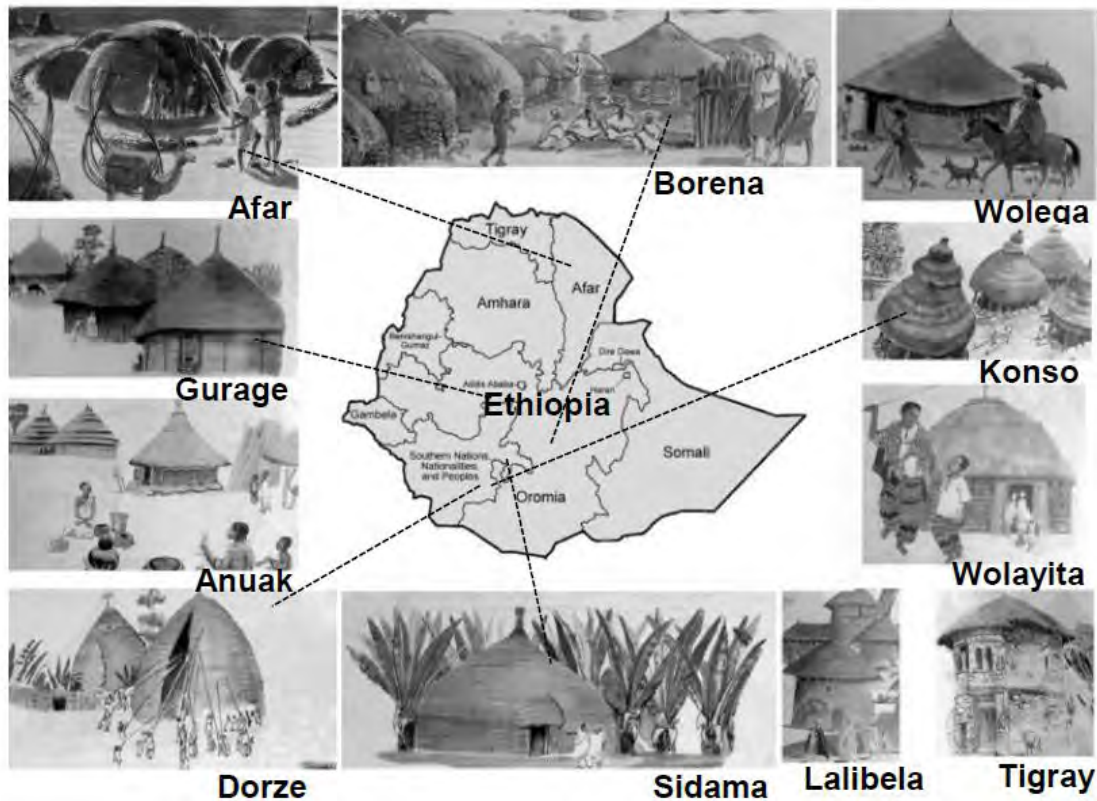


Fig. 4:3 Some traditional house of Ethiopia
Source: Ethiopian Tourism Commission

Secondly, Gebremedhin(1971) also described the settlement in Ethiopia as the following :

“Ethiopia has been called the citadel of Africa. It is a mountainous country, where numerous people, speak various languages. Its mountains offer three advantages in so far as a human settlement is concerned. First, the mountains provide protection to villages and large settlements; secondly although most of highlands in Ethiopia are situated within the tropics they enjoy a softness of climate. Secondly altitude provides a remarkable healthy environment. Above the middle levels in *weina dega*, the testes fly cannot survive and as a result cattle and drought animals are found in abundance, therefore the cow dung constitutes an important element for the construction of housing, and even cattle horns are used as hooks for hanging variety of utensils. The anopheles mosquito does not breed above 1,900metter; house malaria does not exist above this level. The same is true of yellow fever and cholera above 1,500meter. Gebremedhin (1971)”

Thirdly Oliver (1997), and Gebremedhin siting (Oliver 1997), also said that Ethiopia may be grouped into three major ethnic groups. These are (1) Semitic Cushitic group in which the Tigre chief house and the Tigre farmer house are sample of the house type. (2) Cushitic group, the Gurage, people are regarded as Semitised Cushitic, though their house type is not in substance different from the typical house of Shewa Oromo house, is a sample of the type built by the most important sub group of Cushitic group. (3) Nilotic group Chancha and Sidamo bamboo house are built by the people whose tribal affinity is closer to the Cushitic group than to the Nilotic group. Since there is a close similarity between those types of houses and house types built by Nilotic peoples, the Sidamo house Chancha house will be taken as a representative samples of the type of house built by the Nilotic group. (P.106) (Gebremedhin 1997:106).

According to Gebremedhin, except rectangular houses, the Ethiopian house type based on the supporting frame work, are sub divided into three fundamental types; 1) regular element 2) flexible element 'planted' on the ground at one end 3) flexible element 'planted' on ground at both end. Furthermore he explained, traditional house of Ethiopia based on construction

processes, and housing type can also be categorized 1) piling: the process in which using connection with elements such as blocks, but burnet bricks or stone. 2) Twining or tying: that is the process by which building elements are tied together by rope, plant twinges or other tying materials. 3) Weaving: in which bamboo and grass are two excellent examples of materials that can be woven to produce house. Gebremedhin (1971:109).

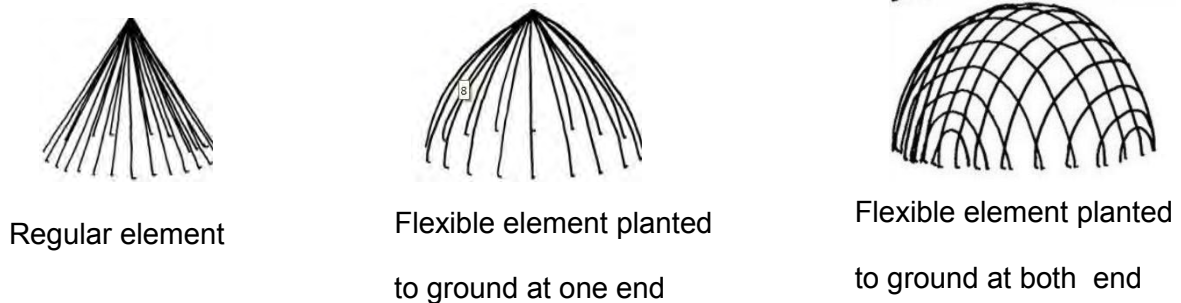


Fig. 4:4 Ethiopian vernacular house types
Source: Gebremedhin (1971)

4.2.2 The profile of Amhara Regional State (ARS)

Amhara Regionals State is found in North West and North central part of Ethiopia at Latitude 11 30'30" N and Longitude 38 30'00' E. Its regional city is Bahir Dar. It has 10 administrative zones and one special zone (Oromo Nationality Zone Dawa Chefe Woreda which is the study area) and 105 woredas.

The Amhara Regional State covers an estimated area of 170,752 square kilometres. According to the 1994 census the population is estimated to be 13,256,982. Ninety percent of these are rural residents while 10% are urban residents. Eighty one point five percent of the total population are Orthodox, 18.1 % Muslims and 0.1% are Protestant (CSA 1994).

The Topography of the Amhara Regional State is divided into two main parts mainly the highland and the lowland. The highland is characterized by chains of mountains and plateaus Ras Dashen (4620 meter) the highest peak of the country, Guna (4236 meter) and Abune-Yohanis with (4190 meter) are the biggest mountains. The lowland mainly covers the Western and Eastern part with an altitude of below 500-1500 above sea level. Climatic zone "Dega" is an area beyond 2,300 meters above sea level," *Woina Dega*" is 1,500-2,300 meters and "*Kola*" area is below 1,500 meters below sea level. The annual mean temperature of the region lies between 15-21 Degree Celsius the regional state receives the highest percentage (80%) of rain fall in the country FDRE Government (2015).

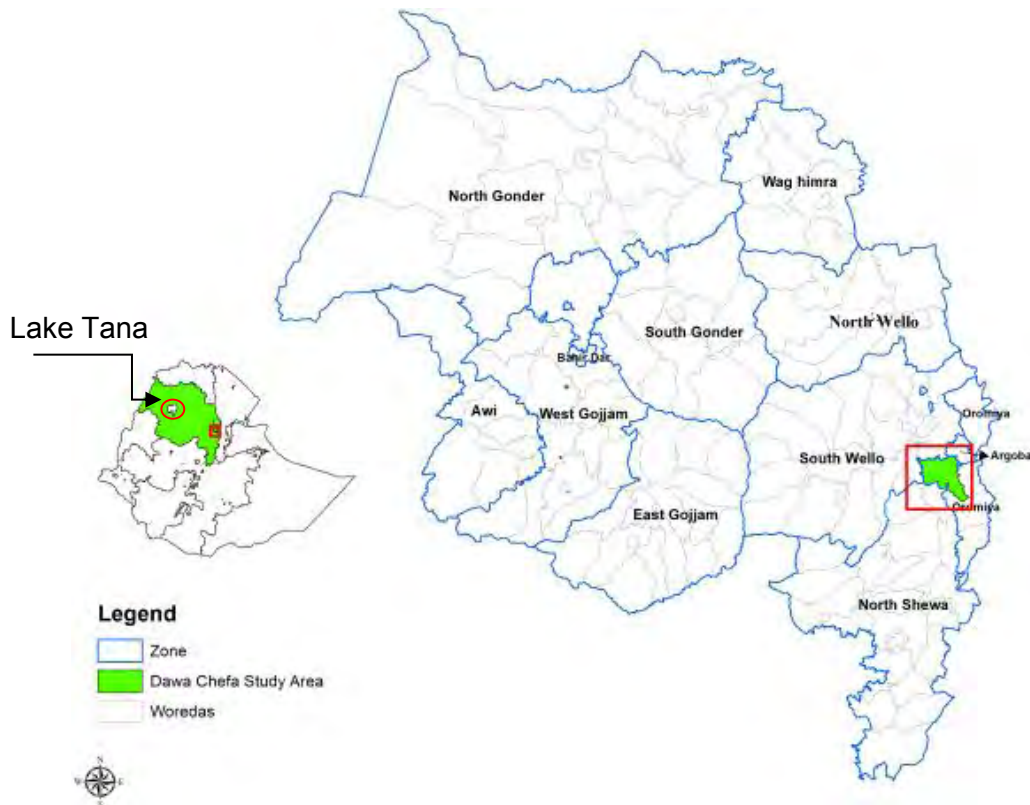


Fig. 4:5 Location of the study area

4.2.3 The Peoples of Argobba:

The population of Argobba as per CSA (2007) is 140,820, with 71, 977 females and 68,843 males. Of these total population, 80.43% live in the rural area and 19.57 % live in urban areas. The main languages spoken in Argobba are Argobba, Oromifa, Amharic, Arabic and Saho Afar. The religion distribution is 95.4% Islam, 4.6% Christian and 1.5 % Evangelical Joshua project (2015).

What does Argobba mean? The elders say that Argobba means Arab *geba* (Arabs have entered) relate its etymology to an event. Others give a slightly different etymology and say that it is derived from Har guba and explained that *Har* which is (Silk) in both Amahrc and *Oromifa* and *guba* which means mountain in *Oromifa* meaning Silk that is seen on mountain. They further explain that the first Arabs who came to the area settled on a hill and pitched a silk tent and so they were given this appellation. (Akililu Asfaw 2000).

Harrassowitz Verlag (2006) Wiesbden who studied the Argobba for a decade and published a book describing Argobba:

“The Argobba think of themselves and are sometimes labelled by the surrounding community as Arabs or decedents of Arabs, and other times people considered them an indigenous population who accepted Islam in the distant past. For various reasons, some of which are based on the over generalised use of a generic term or merely a result of folk etymology, the word Argobba has been equated with Arab *gabba* to mean the Arabs came and to designate Argobba–Arab Islamic connections. Still other Argobba individuals assert that the term Argobba is in fact a derivative of the compound word Har and Gubba, meaning silk and mountain top respectively, and signifying that the early inhabitant of the eastern escarpment of this region of Ethiopia were silk traders inhabiting mountain tops. This alternative folk etymology, I think is well established and rightly described the past and the present occupational status of settlement patterns of Argobba”. (Abebe Kifleyesus 2006:41).

Lapiso Gedelebo, in his interview with (Jeberty Journal of Argobba People's Democratic organization vol.1) said that: Some of the individual historians describe that Argobba means 'Arab geba' is a legend and not based on historical because the Argobba people are one of the ancient semantic Ethiopian nationalities. After Gragn Ahmed's war, the Argobba people settled in elevated highland of the country and this enabled them to protect themselves from any aggression and to preserve their culture and Islam religion for a long time (Ali et al. A2012).

On the other hand Hailu Tesfaye cited in Kesate Brhan's Amharic dictionary (1959) explains the meaning of Argobba as follows:

"...On other hand the term Argobba has a variety of significations when we examine written documents. In this, if we look under the entry Argobba on Kesatebirhan's Amharic dictionary we find that it means a Woreda in Yifat which is inhabited by Muslims. From this definition we understand two basic points one that Argobba is the name of people or territory, and, two that it is an area inhabited by followers of Islam who are called Argobba " (Hailu 2000 citing Kesatebirhan 1959:720).

In addition to the above arguments, Weekes R.V (1984) raised three explanations about the distribution of Argobba people. The first accords with their tradition of migration of the Beni Umayya from Arab. A very early Argobba presence ca. A.D 750 (1349-1350 AD), was established in Ethiopia, probably in the northern region. A second explanation connects the migration of the Argobba with fortunes of the sultanates, which developed in the northern area. The stronger criticism for this hypothesis evolved in its favour, particularly if one connected the Argobba to the Walasma dynasty. 1277 AD Wali Asma began the conquest of Muslim state of Shewa completing in 1285 and establishing Yifat as the dominant state of the region. The third hypothesis which explains the link between the northern and southern Argobba suggests relatively recent migration to Harrar. Two major events in Ethiopia's history affected the Adal Kingdom. In 1519 Imam Ahmed Ibrahim al Ghazi of Adal mounted a Jihad from Harrar, which swept through highlands of Ethiopia, where the Imam is still remembered with trepidation as Grong Muhammad. During this time, the expansion of Oromo from their home lands to southern Ethiopia northwards until they occupied most of the Rift valley region, thus surrounding the Northern Argobba villages and eastwards until they isolated the city of Harrar and occupied the surroundings of southern Argobba, the present Argobba villages.

Leslaw W. who contributed a lot to socio linguistic study on Ethiopian languages raised the fragmentation of Argobba people, "The Argoba people are Muslims and they inhabited the fragmented areas along the Rift Valley in settlement such as Yimlawo, Gusa, Shonke, Berket, Kercmba, Mrlojillo, Metehara and there is also the area where Argobba people around Harrar". Leslaw W. (1959)

In addition to Leslaw W., Hussein Mohamed, Linda Jorban, Ryan Boon and Sillian Netzley on their book 'Socio Linguistic Survey of Argobba' explain that:

"Argobba people are spread out, living in part of Amhara, Oromiya, and Afar regions of northern Ethiopia. They are generally distinguished by being either 'North' Argobba or 'South' Argobba. The southern Argobba people live around the road that goes from Addis Ababa to Harrar while the 'Northern' and around the two roads that traverse northern part from Addis Ababa on the entire side of the Rift Valley as far north as the Kemise town. Traditionally, the Argobba prefer the hilly areas between these two as this escarpment landscape provides natural protection and seclusion from neighbouring ethno linguistic group." Mohammed H., Jordan L., Boone R and Netzley L. (2004)

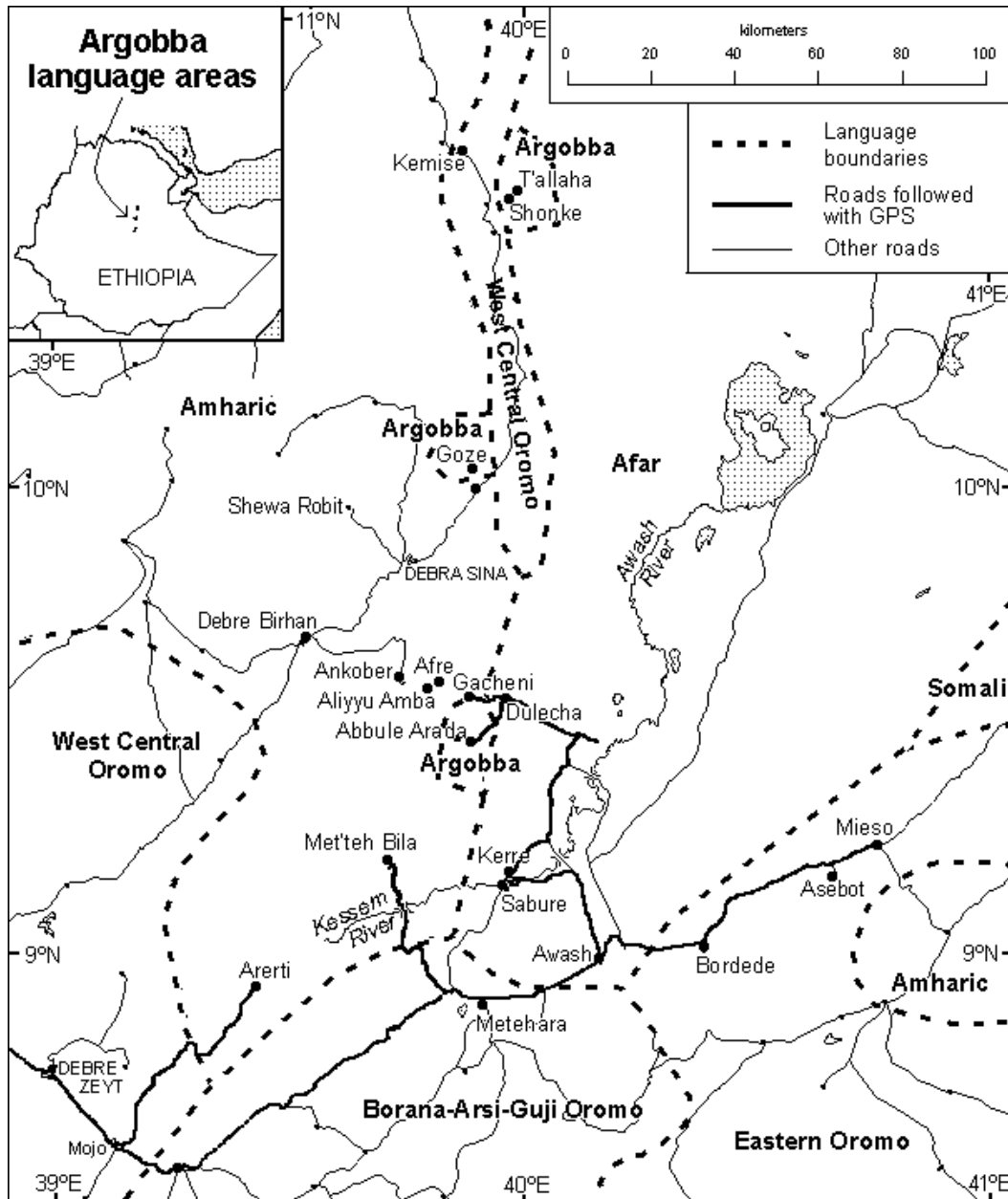


Fig.4:6 Geographic location of Argobba

Source: Mohammed et al. (2004)

Moreover, there is a study which supports Dr Lapiso Gedebebo’s argument that describes Argobba as “one of the ancient semantic Ethiopian nationality”. Zelalem Leyew and Ralph Sieberton noted in their study that:

“Argobba is very closely related to Amharic. The phonological similarity is about 95%. Their lexical similarity is about 75% (Leslaw W. even gives the figure of 84%, 1970 :13) and above all : the two languages are about 85% similar in their morphology which is believed to be more resistant to change than their phonology or lexicon. Syntactically, , the two languages were seen to be more or less identical too. This suggests that Argobba and Amharic are dialects of one another, and are not independent languages” Zelalem Leyew and Siebret R. (2001:26)

Ideally, to claim an Argobba identity, one must be able to cite a definite line of genealogy and ancestry. Question of Argobba cultural origins have thus puzzled scholars and laymen alike, and despite the uncertainties and obscurities a plethora of hypothesis have come from these discourses. Influential Argobba traditional scholars like Sheikh Muhammad Zakeyya, Sheikh Sultan Lomi, and Hajji Abbo Swalih lookup on the Argobba as descendants of Arab migrants. Interims of indigenous ethno genesis, Gedam Goze is often claimed as one of the original Argobba rural homeland ,and Faqi Ahmed Maraco as one of the well-known Argobba ancestors is believed to have been buried around there. Abebe Kifleyesus (2006:41)

It is true that Faqi Ahimed who was the founder of Tollha and Shonke, but the researcher has found that the Tolleha elders have also claimed that the burial place of Faqi Ahimed is at Tollha and the place is documented with the evidence of pictures and GPS location which will be discussed in the formation part of Shonke settlement.

4.2.4 Argobba- Shonke Amba geographical location:

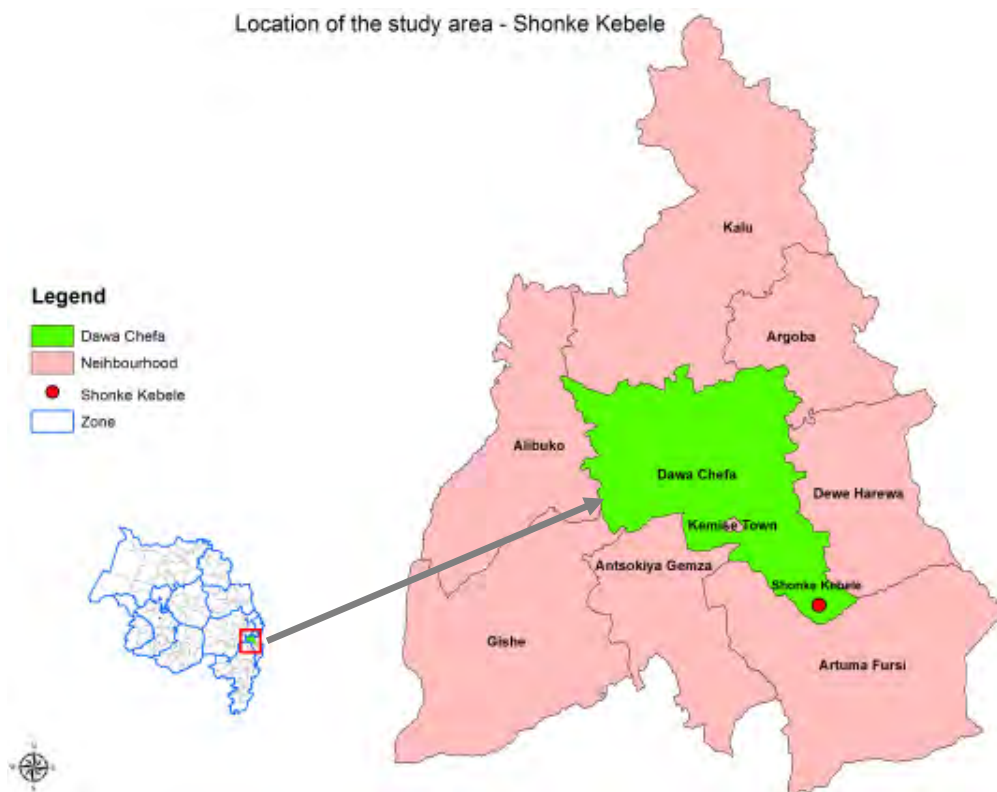


Fig.4:7 Location of the study area—Shonke Amba in Shonke Kebele

Argobba Shonke Amba is found in Amhara Regional state's South Wello Zone, Oromo Nationality Zone Dawa Chefe Woreda at Hijirota Kebele. Shonke settlement is located 330 km away from Addis Ababa in a town called Kemise and stretched 25 Km towards South Eastern part of Kemise, at 10 37' 07.86" N,39 58'22.34",with altitude of 1889-1926 meter above sea level. Argobba population in Dawa Cheffe Woreda is 110,065, of these 110 061 people (99.64 %) live in rural area and 4 people (0.36%)live in urban areas(CSA 2007) Argobba people who live in Shonke Amba, which are most likely the first settlers of Argobba are not well known, studied and documented properly. However, Shonke Amba is registered as one of the heritage site by the Authority for the Research and Conservation Cultural Heritages of Ethiopia, in 3rd of

April, 2013 in 6 pages¹⁰ with very limited information about the settlement. But different individuals, scholars and organizations have tried to introduce the general picture of Argobba Shonke Amba as the follows.

4.2.5 The case study

4.2.5.1 Formation Background study of the Shonke Amba Settlement:

To begin with Abebe Kifleyesus strongly argues that the settlement the Argobba of Ethiopia is symbolic expression of locality. He explains that Argobba's patterns of settlement continue to exist because they are given, in that since they are traditions, in which interests are vested by the Argobba who live in these patterns and believe that they benefit from their continued existence. Like other traditions, Argobba patterns of settlement in the escarpment slope are composites of many individual acts of traditions. The persistence of Argobba pattern of settlement is thus attributable to the convenience of Argobba people who have adapted themselves to it with some satisfactions or profit for themselves. For example the profitability of such pattern involves historically of military defensibility which in time conferred advantage of maintaining the pattern as it was in the past. Abebe Kifleyesus (2006:125)

“In this context, the existence of the Argobba Amba stresses their exclusive settlement pattern. The notion of *amba* or hill habitation exists among all relatives and fellow villagers and provides Argobba individual symbols of unity and also solidarity and removes, at least in theory, disputes and vengeance among fellow residents. In this sense *amba* residence symbolically establishes and assures real of fictive lineage between relatives and residents of the same village. Even the names of individuals are sometimes identified using *amba* or village names. For example, names such as Yafre Zehara, Ya Canno Siraj, Ya Gussa Zeyyen, Ya Kaho Tewahir Ya Sonke Mouhammad, etc. suggest that Zehara, Siraj, Zeyyan, Tawhir and Muhammad are from the *ambas* of Afre, Canno, Gussa, Kaho and Shonke respectively.” Abebe Kifleyesus”.(2006:126)

When asked about his /her origin, an Argobba individual more often mentions the name of the *amba* residence to which he/she belongs. As people who live together in such habitats, the Argobba intermarry among themselves and bury their dead, send their herds for grazing, trade goods in the same locality, profess common faith and speak a common language in the same villages and most importantly think of themselves as one Argobba people relating to one another differently from the way they related to other ethnic groups.

Secondly, Hasen Seid and Hasen Mohamed: wrote that during early time the residents of Shonke are not the current Argobba people. They are Christians of Ethiopian nationalities as per the explanation of the current elder resident of Shonke Amba. They are administered by the local authority called 'Shenker'. His wife also called 'Farah', based on the two wives and husband derivative of the compound word Shenkofa is created. Through time the name 'Shenkofar' was shortened as 'Shonke'. On the other hand, the elders of the Shonke Amba explained that the name Shonke is derived from *were-sokite*, meaning persons and the movers respectively in the Oromiffa language both are used to mean 'the migrants' through time *wara-sokite* was converted to Shonke

¹⁰ For additional information, see Appendixes -2 document

The first person who founded the current Shonke Amba was Faqi Ahimed. His aim was to revenge the killers of Kulbas. He invaded Shonke and defeated the indigenous Christian residents and sent them to exile. Faqi Ahimed was from the Argobba people and came to Shonke through Mejhedi from a place called Azelo which is also known as one of the Motera, mountainous area.

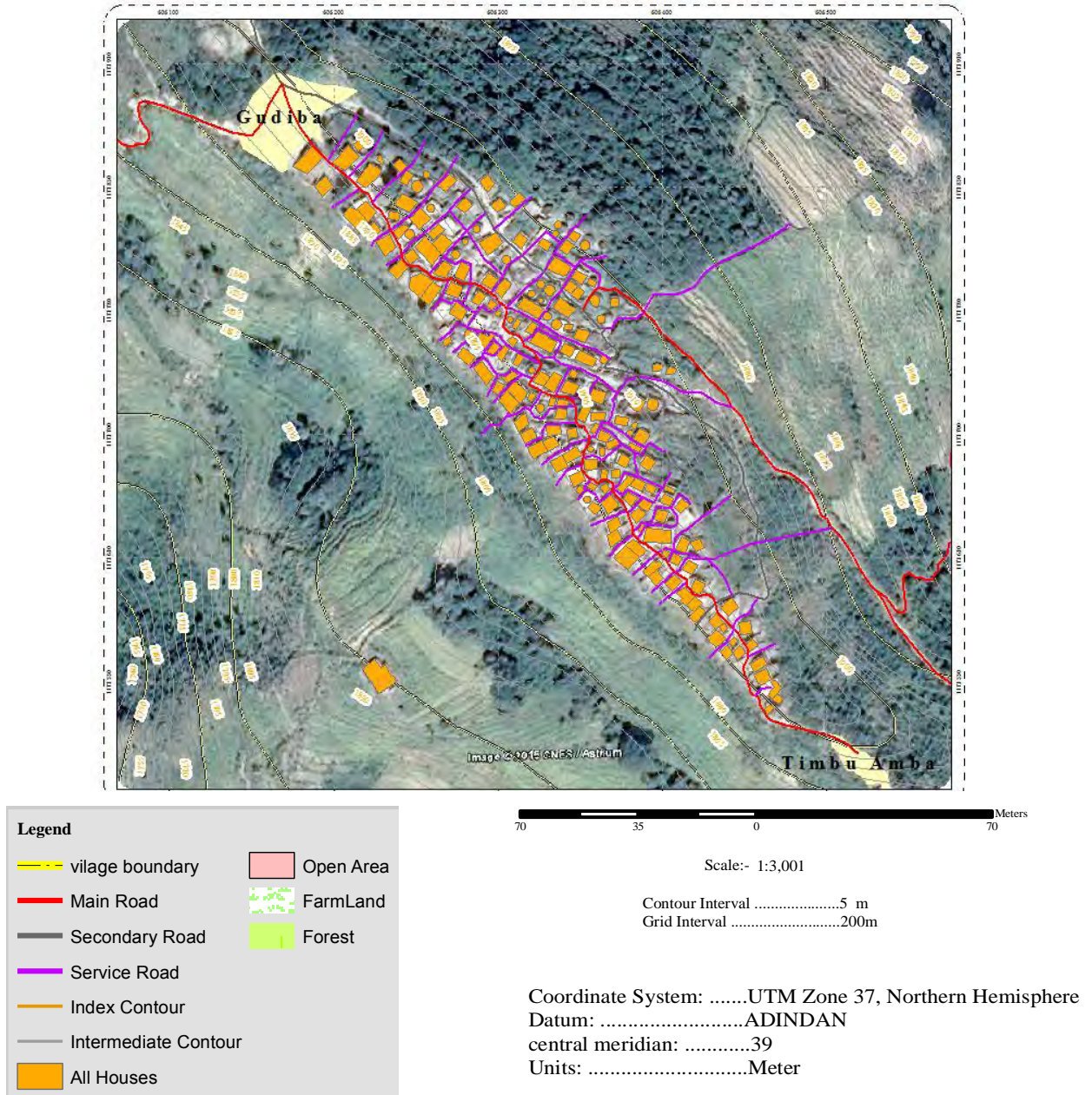


Fig.4:8 Over lay of geo referenced and digitized Google map and EMA topographic map of Shonke Amba settlement.

Source:(Google image 2015, EMA 1992)

Thirdly; Ali Z., Mussa Y., Abdulkarim K. and Mohamed A. (2012), who cited Ato Ahimed Seid's presentation on Argobba people, also strengthen the above idea. Our grand fathers are not only Sheikhs they are also warriors. On the mountain you see in front of you, so many battles took place. Derassa (religion teachers) and their students were good fighters, when there was no peace, and students when there was peace....settling on the mountain

was crucial for Argobba people to defend themselves from their enemies. Our dwelling is also constructed out of stone wall and mud flat roofs. Because the thatched-roofs are easily combustible with fire, therefore we construct stone wall dwellings to protect our homes from fire; due to this we have also protected Islam religion in such a difficult condition. (P.23-24) Ali Z, Mussa Y., Abdulkarim K. and Mohamed A. (2012)



Fig.4:9 Partial view of the defensive and fire resistant of Shonke Amba settlement

Fourthly; Hussen Ali (2003) also describes the formation of Shonke as follows. The word Argobba came from 'Har Guba" meaning a thing placed on silk. Yifat Argobba and Worji people are of the same family. But the Hewareji peoples who settled late after Wargi. Argobba are not married with Hewareji and Warji. The first settlers of Argobba at Shonke Amba are come from Yifat and Harrar. They fought with the indigenous settlers for seven years and defeated them and named the settlement 'Shekorfa', which was adopted from a place in Yifat. (But Dr Hasei Seid and Hasen Mohamed argue that Shenkofer is a name of a wife and husband who were administrators of Shonke), through time this name was converted to Shonke.

Mosques at Shonke and Teleha are found at the Oromo Nationality Zone Dawa Chefe Woreda Amhara regional state 25-30km from Kemise town. There is no consensus regarding whether the first mosque was constructed at Shonke or Teleha. All elders agree that both Shonke and Teleha mosques are about 700-800 years old. In addition to this the dwellings at Shonke including the mosque were about 650 in number and all of them were made of stone and flat roof out of mud mortar. As per Mohamed Teyib, an elder of Shonke, this number is much greater than the current number of houses in Shonke Amba. Until 1975 Shonke and Teleha Amba settlements were independent, self-administered and free of government interference. More over the elders of the settlement also explain that, there is no military and police interference and access to the settlement, even the government tax is paid by the name of the settlement in single invoice only. Hussen Ali (2003: 9-11)

Fifth; the self-administration system mentioned above is also strengthened by Ahimed Mohamed Ibrahim (2007), who wrote:

“Starting from the end of 9th up to the end of 16th century the Argobba people have their own boundary and administration system. The administrative boundary includes; Jeberti, Yifat, Adal and its Administrative structure is called Makhzumite and Hashimite Walasma¹¹ Sultanate. Ahimed Mohamed Ibrahim (2007: 10-11).”

On the other hand (Abebe Kifleyesus 2006) gives a brief description of Walasma and Argobba social stratification as follows. The last one hundred years give rise to the proliferation of social, political and economic groups. Traditionally, ownership of land and oxen and extension of agricultural land and trade were source of prestige for Argobba people, so was Islamic religious aura. Many Argobba social institutions and their associated occupational tasks thus have their roots in commercial, agricultural and religious pursuits which manifested marked status differences through the Islam religion, ethnic and dynastic history. This is perhaps why by the end of the Gagn wars and the following Oromo migration of the 16th century, there evolved two major Argobba social identities which persisted until recent time. The first is reflected wealth based on land and distinguished the Walasma from the peasant Argobba, the second reflected cultural and religious tradition and separated the Argobba from their neighbourhood.

Argobba communities thus consisted of distinct social and economic groups who stood in different relations to the principal source of livelihood, namely cultivation agriculture and commerce. At the top of the hierarchy was the wealthy Walasma nobility made up of owners of vast stretches of land. Then came the rich merchant families and well established wealthy traders some of whom, according to several consultants, had a working capital of up to 150,000 including 200 camels and 50-100 slaves. The third category consisted of the middle class commercial agents of the wealthy merchants and petty traders who had sufficient capital to do brisk businesses at commercial centres. Next come the members of the artisanal class who were mostly strangers practicing blacksmithing and forbidden from intermarrying with Argobba cultivators or trader families, and the tenants who owned small plots of land until the 1974 revolution. The last category comprised of slaves and descendants of slaves who worked as household servants, farm land labourers, or as assistants to caravan traders. If the slaves were young female, they were mostly retained as concubines.

“Until about the mid-15th century, members of the Walasma dynasty held political power in their own right but following the collapse of Yifat and the subsequent Gagn wars and Oromo migrations, the Walasam not only became land nobility subsequent to the rulers of the Christian Kingdom but with the final defeat of the Walasma dynasty and subsequent collapse of trade system many of their Argobba subjects were also transformed into a landless peasant tenant majority. In time the interest of the Walasma families diversified as a result of the acquisition of *gult* rights (it is fief-holding right granted by the state as rewarded and endowments for service rendered by Walasma families) and collection of taxes from Argobba peasants. These could be temporary or hereditary (*rest* or *reste gult*) rights depending on the interest and power of the giver and services of the receiver. Whereas some Argobba peasants had *rest* rights, Walasma families had both *rest* and *gult* or *restegult* rights. This meant that the Walasma were not landless before, but that their acquisition of *gult* rights from Amahara rulers expanded their control of more Argobba agricultural lands with which the Walasma became a landed nobility known as *Melkegna*, and several Argobba individuals returned to landless taxpaying peasantry called *chisaganna*. Abebe Kifleyesus (2006:89-92)

Furthermore (Hasen Seid and Hasen Mohamed 2016), explained that the settlement of Tollha, which is found within a short distance from Shonke contributes a lot to the establishment of Shonke settlement. The elders of Shonke agree that the founder of

¹¹ Walasma is the family tree of Omaer Walasma sultanet before Ahimed Gagn (Tekletsadik Mekuria 1974)

Shonke is Ahmed Feki, but there is no consensus on the time when Shonke was established by Ahmed Feki, 834 years ago (12th century) . This time frame of formation is supported by Sheikh Endires Fereda¹² (who traced with the help of Hajji Mohamed Esmael the resident of Shonke Amba) is living 8km from Kemise towards Addis Ababa at the GPS location of N 10 38.394 and E 039 55.84 have the Arabic script which lists down all the 37 family tree of Shonke Amba starting from Ali Sheikh Mohamed Monazite nick named as 'Sheikhu' up to the son of Abi Talib.

Hassen Seid and Hassen Mohamed explained the dwelling and settlement as follows: The dwellings of Shonke were constructed out of white stone walling material bedded in soil mortar. The roof of the house is covered with horizontal wooden rafters on the top of the wall and is filled with stone hard-core and ramming with compacted mud mortar over hard-core. The flat roof of an individual house serves as roof terrace to view the surrounding landscape as a recreational space and laying space for different home used grains. The dwellings of Shonke are constructed as a row house from the top of the mountain towards the lower point in the form of stepped high rising building. Due to this when the settlement is seen from a certain distance it looks a terraced mountain rather than a settlement.

Shonke settlement is one of the unique vernacular architectures of rural Ethiopian settlements. It should be preserved as a heritage of the country because of its unique combination of art and creativity of Argobba people in dwelling construction. Moreover, Shonke has been also a place for the emerging of different Islamic religion scholars for about 800 years. Due to this, the founders of Shonke are called by the residents as 'Sheikh Shonke' and 'Father Shonke' for their distinguished contribution of Islamic manuscripts.

At Shonke the dwellings are called *Derb (ghinb bet)* and the exit doors are Karra. At Shonke settlement, there is only one main access road towards the top of the mountain. The dwellings of Shonke are very close to the main and secondary internal access road. Due to this the access to every individual dwellings is following the main access road and turning to right or left from the main rod at every junction of internal road which leads to individual dwellings (Hasen Seid and Hasen Mohamed 2016).

4.2.5.2 Claims of the Shonke Amba residents on the origin of Argobba and the settlement formation:

Key informants from the Toleha and Shonke Amba, strongly believe that the origin of Argobba people is Arab. They believe that their ancestors migrated to Ethiopia during the Prophet Mohamed's (PBUH) time; when there was a conflict of religion among the Arab and the Koresh people who migrated to Ethiopia following the instruction of Prophet Mohamed (PBUH) 834 years back. Hajji Mohamed Esmael who was born in Shonke Amba and lived for 62 years indicates that he is the 31st generation of Shonke Amba. In population biology and demography, the generation time is the average time between two consecutive generations in lineages of a population which typically ranges from 22-32 years. Therefore if we take the average of these number it will be 27 years and, $27 \times 31 = 837$ year which almost equal with the formation time of Shonke Amba.

Regarding the formation of the Shonke Amba settlement all the key informants agree except on the time of its formation, which ranges from 800-900 years. However the formation is narrated as the follows based on the informant at Toleha and Shonke Amba residents.

¹²Endris Fereda is the owner of family tree of Shonke Amba resident See Appendixes-2 ii and iii

Hajji Mohamed Esmael said that, during the time of Ahmed Nejashi (PBUH) sent the Koresh people to asylum. The asylum seekers came and settled in the king's country. First they settled at Mejjied and Harer. From Mejjied to Rassa, from Rassa to Haddo then Meshore. During this time these people fought with the Oromo people. In the Great War the Oromo people beheaded the migrants because they did not want to accept the Muslim religion. Finally, they established the first mosque at Haja *mender* called Haja mosque. (The Haja mosque which was established at Shonke Amba 834 years ago is located currently at N 10 37.005' E 039 58.453' at altitude of 1919m above sea level). The first settlers number were about 70 people. The settlers started to plant coffee, chat, different vegetables, cotton and peppers. They used the cotton for their own consumption to make cultural clothes.

On the other hand, the 80 years old Sheikh Nuru Ebrahim Ahimed a resident of Tolah which is a one hour walking distance from Shonke told the researcher quite a different and a more credible history based on the evidence they showed him. The interview was conducted on 17/01/2016 at 10:19 at the GPS location of N 10 38.081, E 039 59.065 at the altitude of 1592. The reason to go Tolah Amba, a one hour journey by foot is because the researcher was informed by Shonke elders that the formation of Shonke is based on Tolah settlement and Sheikh Nuru Ebrahim Ahimed is the right person to explain all the formation of Shonke settlement.



Fig.4:10 Sheikh Nuru Ebrahim Ahimed at his residence adjacent to Toleha mosque

Sheikh Nuru Ebrahim explained that, the settlement of Toleha was about 900 years. The founders of Toleha were Fekih Ahimed and Kulubas (Kulubas' father's name is unknown because he was not willing to notify his father's name). The exact location and from where they come is still unknown, but they came from the North direction from Arab Mecca. First they lived at *Denkoro Washa* (a cliff and gorge place in front of Toleha Amba settlement) for 40 years. After that they established Toleha settlement and become Din (Koran teacher) and have a minimum of 800 students under him. After 34 years of staying at Tolaha they went to the current Shonke Amba. At that time, Shonke Amba was the place of Amhara (the name Amhara was given to all non-Muslim people) the reason they went to Shonke Amba was that the Gini (Devil) was controlling Shonke Amba and its surroundings. During that time they fought with the settlers of Shonke Amba and defeated the residents. The leader of Shonke at that time was Shonkor and his wife's name was Farah and the people of the settlement called the place by combining the husband and wife's name called Shenkofer. Later on the name Shenkofer was shortened to Shonke and became the settlement's name. Finally both husband and wife were converted to Muslim.

The dwellings of Tholeha and Shonke Amba (Toleha is a settlement formed before Shonke Amba, one hour walking distance from Shonke Amba and the residence place of its founders) are similar and made of thick dressed stone wall and flat roof made of mud

mortar. The informants explained that this type of dwelling is similar with Arab dwellings. Both settlements are located on the highest altitude in relation with the surroundings topography. This type of dwelling and higher level was selected to easily defend the surroundings from the enemy. The dwellings are fire resistant and also serve as protection a defensive and protective from any kind of aggression. When we compare both Toleha and Shonke Amba settlement in terms of altitude , Toleha Amba is lower than Shonke Amba since it is found at 1592 meters above sea level where as Shonke Amba is found at 1919 meter above sea level. But both settlements are naturally elevated from the surrounding topography and are accessed only in one direction. Therefore, from the above topographic and dwelling character one can easily understand that Toleha and Shonke settlement is formed to protect the Islamic religion from non-Muslim people.



Fig.4:11 Shonke and Toleha Amba Google Photo Source: Google 2016



Fig. 4:12 Shonke Amba, source: Google 2016

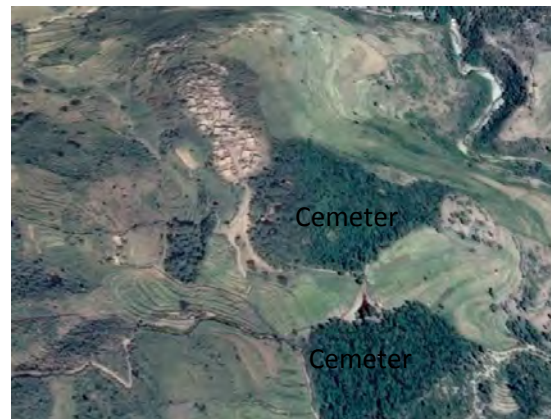


Fig. 4:13 Toleha Amba, Source: Google 2016



Toleha was considered as a sacred place during Feki Ahimed and Kulubas time and also a monastery in which female and male domains are completely separated. Everyone takes off their shoes at the entry of the settlement. The mosques have no minaret, symbol of moon and no carpets inside the floor of the mosques. Carpets, minarets and moon symbols at the mosques are considered as luxurious and decorative elements in their religion as the informants explained. Therefore, the floors are covered with grass to lessen human beings in front of Allah. Feki Ahimed and Kulubas finally went back to Toleha settlement and passed away there. They were buried at Toleha cemetery. Due to this several treasures of Feki Ahimed and kulubass such as chairs, monumental graveyards and decorative clothes are placed at Toleha mosque in inappropriate ways rather than conventional preservation of heritage materials.



Fig. 4:18 Interior of Toleha Mosque



Fig. 4:19 Stone seating place of Fekih Ahimed



Fig. 4:20 wooden seat of Fekih Ahimed



Fig. 4:21 Fabric of Fekih Ahimed



Fig. 4:22 Grave yard of Fekhi Ahimed



Fig. 4:23 the foot prints of Fekih Ahimed on the stone at Toleha

The grave yards at Tolah and Shonke are considered as a sacred place, because those that are buried there Sheikhs, *Oulamas* and *Woliye* Soule can listen to the peoples activity. Due to this when any one enters Tholeh Amba grave yard of Fekih Ahimed he has to take off his shoes.



Fig. 4:24 putting off shoes at Fekih Ahimed grave



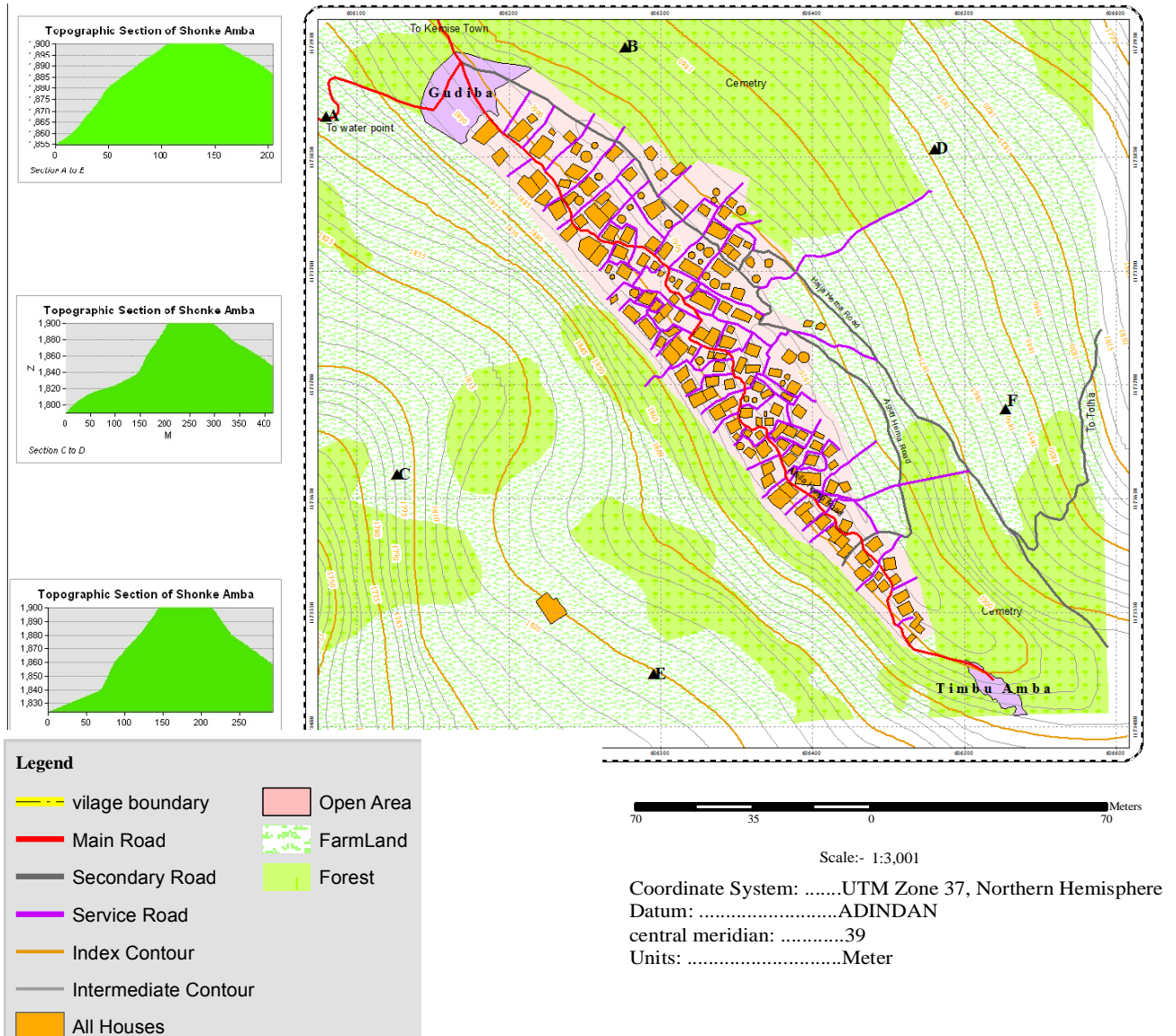
Fig. 4:25 Toleha Amba settlement

Settlement of Shonke Amba

Shonke Amba settlement which was established 834 years is characterized as an urban form rather than a rural settlement. Shonke Amba settlement is sub divided into three menders Haja Genda, Aresho Genda and Tereffo Genda. Hajja Genda is the first mender established at the settlement around the first mosque called Haja mosque. Hajja mender is established on narrow plateau land which is the most elevated of the surrounding landscape areas and strategically very useful for defence. Hajja mender founder was Feki Ahimed. The mender was basically established around the mosque and Fiki Ahimed, who was a religion teacher called Din, has a lot of kuran and Hadis students who came from Toleha and the surrounding area.



Fig. 4:26 Partial view of Hajja Mender(the first Gendah at Shonke Amba)



Following the Hajja mender, Aresho Genda was established due to a limited space around the Hajja mender. Aresho genda was established by Kulubas. As Haja mender is established around Haja mosque, Aresho genda is also established around Juma mosque or Hutuba mosque. Hutuba mosque is the biggest mosque of all at shonke. The third and the late established mender is Terfo genda. Therefore, Terfo genda was established at the remaining space of plateau land at the Shonke Amba. Terfo genda was also established around Terfo genda Mosque.

Shonke Amba is linear settlement on the top of a mountain found between two open spaces called Thimbu Amba and Gudiba Open space. The distance between the two open spaces is 475 metre. Within this distance there are three mosques at an average distance of 152 Meter from each other. The reason behind this is to create access to the mosque in less than five minutes for all residents b) the mosques are meeting places to discuss social issues and to solve any conflict within the community after prayers c) to have breakfast and coffee¹³ together after the Morning Prayer. At Shonke Amba, there is no difference between mosques and dwellings. All of the mosques have no minaret and the symbol of

¹³ For additional evidence see Appendixes –A17 which show cooking space at Hutuba mosque

moon. Due to this it is impossible for new comers to distinguish a mosque from a dwelling. The reason behind this is that putting minarets and symbol of moon and even carpets inside of mosques are considered as decoration and show. So no one gives attention to this.

The internal floor of all of the mosques is covered with plastic sheet and dry grass which are the symbols of lessening human beings at the sacred mosque. Therefore Haja mosque is the same as type *Hulet self* or *jemb*, Hutuba or Juma mosque is *Amist self* or *jemb* and Terfo genda is *Sost self* or *jemb*.



Fig.4.28 Five row type Juma or Hutuba mosque



Fig.4.29 interior of Hutuba of Hutuba mosque

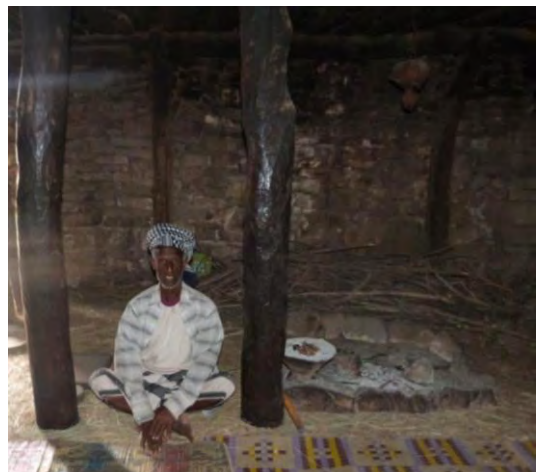


Fig.4.30 cooking space at mosque



Fig.4.31 Type Hulet self or jemb Haja mosque



Fig.4.32 type Sost self or jemb Terefo Genda mosque

Road network of Shonke Amba.

At Shonke Amba, there are three roads which connect the two open spaces at the entry of the settlement-Gudba open space and at the exit Timbu Amba open space. These are one the main road and two secondary roads. There are three roads stretched along the top of the plateau land from NNW (North, North West) direction to SSE (South, South East) direction. In addition to this, there are 20 service roads which connect one main road to two secondary roads at an average distance of 21 metre. runs from North East to South West direction. The main function of this road is to dispose dry waste and give way to the open toilet towards the inaccessible cliff of the mountain. Therefore, the roads at Shonke Amba is categorized based on their function, these are; main road, secondary road and service road. At Shonke using day latrine pit is not introduced as every human waste is drain on top surface of the cliff towards the river and may cause diseases. From the Shonke Amba road network, one can easily understand that, the Shonke Amba residents are the ones who made and used a grid road network and a grid structural system for their dwellings before 834 years.

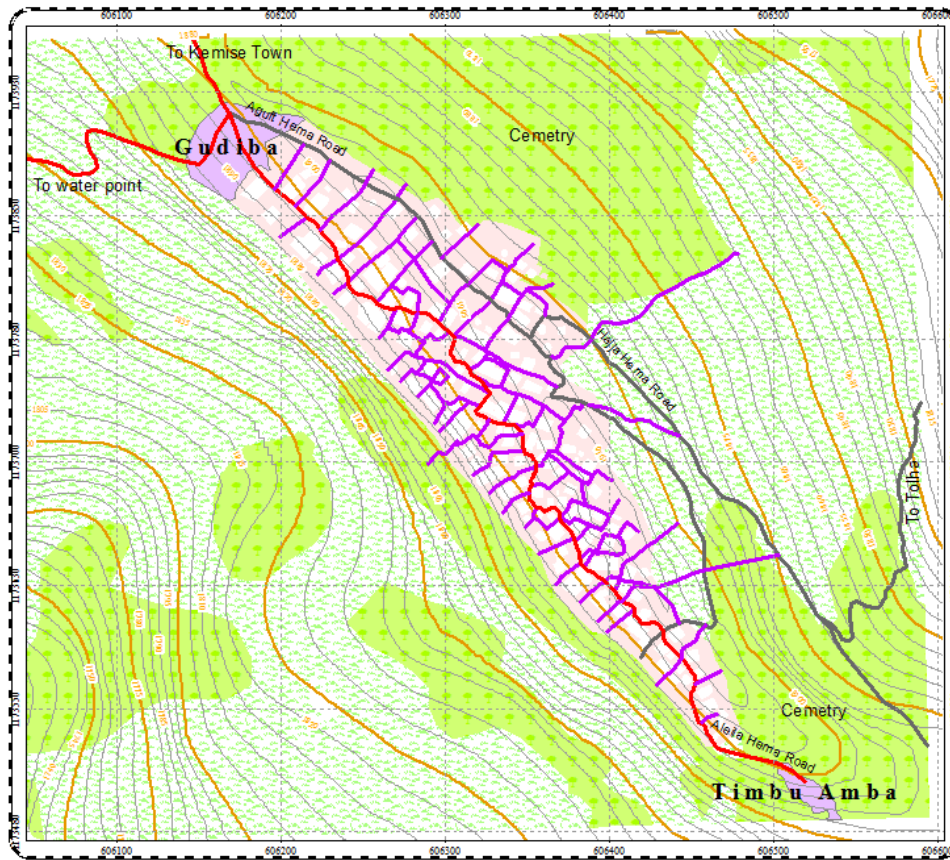
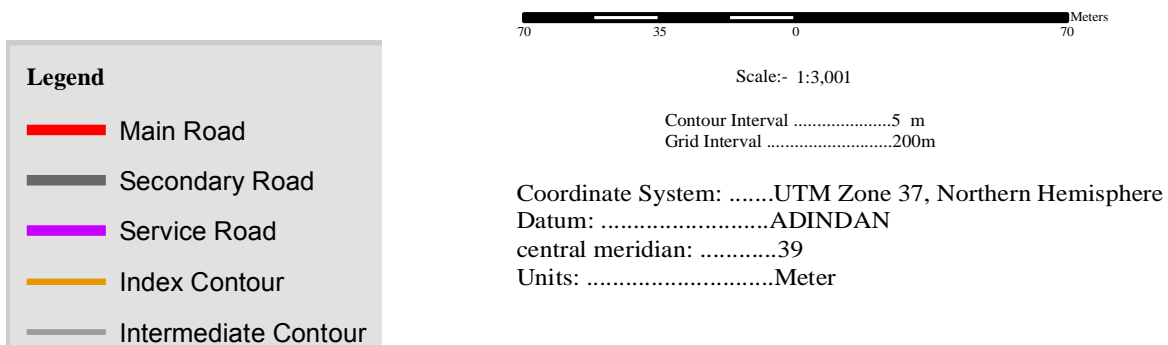


Fig. 4:33 Shonke Amba road network map



In addition to the planning the road network, the residents also understand the term *amb* in architecture in different ways. To create wooden

column - the structural element which supports the upper load of the flat roof, they place in a grid or X and Y direction at equal distance of 2 metre centre to centre. This shows that both the road network and the erection of column for the house they live in are based on grid system.



Fig. 4:34 Grid system of column (*Bala*) at dwellings and mosques.

Services at Shonke Amba

Abbila Primary school which is a 30 minutes' walk from Shonke Amba settlement is located at the coordinate of N 10 37.39 and E 039 57.872 and altitude of 1922 meter above sea level. The primary school serves for both the Oromo and Argobba nationalities, when the study was conducted; the residents of Argobba complained that they were not learning in their mother tongue. After the students have completed their primary school they have two choices. They will either go to Kemise which is 25km from Shonke Amba or they stop their education at the eighth grade. The study shows that none of the students who have completed primary school have proceeded to secondary school.



Fig. 4:35 and 4:36 Primary school at Abbila

The source of water is located at a place called Chilata at the geographical location of N 10 37 130' and E 039 58 084 at the altitude of 1775 metres which is 150 metres lower in altitude from the Shonke Amba. Due to this, the residents of Shonke Amba have to climb a height which is equivalent to a 50 story building carrying 25 liters of water on their back. It takes two hours to walk from Shonke Amba to the source of water depending on the age of the person. The water point is also exposed to water borne diseases since everybody inserts plastic tanks directly to the pond of the spring water.



Fig.4:37, 4:38 and 4:39 a difficult terrain and water point at Chilata respectively

The health post service is geographically located at N 10 38 257' and E 039 57 675' at a place called Dawdo which is 30 minute walk from Shonke Amba.



Fig 4.40 Dawdo health post

To get medical treatment, the residents go to Kemise, the regional capital of the Woreda which is 25 km from Shonke Amba. Some of residents of Shonke Amba to go to Kemise by car once in a week, but most of the residents go there on foot walking for about 8 hours.

At Shonke Amba, there are three mosques distributed within the sub settlement called Mender which takes less than 5 minutes. Meeting places are of three types, open space, Wodaja Amba for women and mosques. The open spaces within the settlement are, Gudiba open space which is located at the main gate of the settlement (N 10 37 184' and E 039 38 293' at the altitude of 1894mt). The second one is called Timbu Amba open space at the geographical location of N 10 36 990' and E 039 58 414' at the altitude of 1924mt. The second meeting places at Shonke Amba are Mosques. There are three mosques within the settlement. These are Hajja Genda Mosque, Aresho Genda or Hutuba Mosque and Terfeo Genda Mosque. All of the three mosques, serve as meeting places after pray time and places to have a coffee and breakfast, to solve conflicts within individuals and to discuss others social issues. Moreover, there is a meeting place called Wodaja Amba, only for women to perform ritual activities that relate to their religion.



Fig 4:41 Gudiba open space for meeting place



Fig 4:42 Activity at Gudiba open space



Fig 4:43 Timbuamba open space place



Fig 4:44 Timbuamba open space place

The market places for the Shonke Amba residents are Chireti and Kemisse town which are located on the main road from Addis Ababa to Desse. It takes 8 hours walk and about 2 hours by ISUZU trucks due to the difficult terrain and dangerous slope to climb, for cars cannot be used.



Fig 4:45 the access road to Kemise Town



Fig 4:46 Transportation means to Kemise



Fig 4:47 Open market at Cheffa Robit



Fig 4:48 Market at Kemise town

The burial place is located within the settlement around the open space of Gudiba and Timbu Amba. It takes 10-20 minutes from the center of the settlement. Since the burial place is the resting place of *Weliys*, *Oulamas* and *Sheikhs*, it is also considered as sacred places. Therefore, cutting trees is forbidden so it is the only remaining green space at the Shonke Abba settlement.



Fig.4:49 The burial places of Shonke Amba



Fig.4: 50 Cemeteries covered with vegetation

4.3. Case study and analysis

4.3.1 Haji Mohammed Esmael's Compound



Fig. 4:51 Haji Mohammed Esmael with his wife and son



Fig 4.52 Hajji on roof top at praying time



The life story of Hajji Mohammed Esmael

Haji Mohammed Esmael was born in 1946 in Shonke Amba. He is the 31st generation of Shonke Amba and is now 62 years old. He is married to his uncle's daughter Aminat Hasen and has a 14 year old son named Ahimed Haji who is a grade eight student at Abila Primary School. Haji Mohammed has attended formal education until grade four and has studied the Koran which is religious educations of Islam. His house is geographically located at N 10 37 127', E 039 58 344'.

Haji Mohammed is well known in Shonke Amba. He was a local administrator during the time of Emperor Hailelessilase the first and was elected by residents of the settlement to represent Shonke Amba during the Derg regime. He was also a party member of Workers Party of Ethiopia (WPE). Currently he is a representative of the Argobba nationality.

Table 4.1 Spaces –Time Diary of Hajji Mohamed Esmael

S.No	Date	Activities (Daily)	Room /place	From/at	To
Haji Mohamed					
Daily activities					
1		Get dressed & pray	Living area	5:00	5:20
2		Read the Koran	Living area	5:20	6:00
3		Laydown in bed	Living area	6:00	6:40
4		Eat breakfast	Living area	6:40	7:00
5		Go to the farm	The road	7: 00	7:15
6		Work on the farm	The farm	7:15	11:00
7		Go home	The road	11:00	11:15
8		Eat lunch	Living area	11:15	13:00
9		Go to mosque	The road	13:00	13:05
10		Pray	Terefo genda mosque	13:05	13:15
11		Work on the farm	The farm	13:15	16:00
12		Go home	The road	16:00	16:15
13		Pray	Terefo genda mosque	16:15	18:00
14		Go home	The road	18:00	18:05

15		Eat dinner & chat	Living area	18:05	20:00
16		Sleep	Living area	20:00	5:00
Weekly activities					
1		Get dressed & pray	Living area	5:00	6:00
2		Sleep	Living area	6:00	6:45
3		Eat	Living area	7:00	7:15
4		Go to the farm	The road	7:00	7:11
5		Work at the farm	The farm	7:11	11:00
6		Go home	The road	11:00	11:15
7		Wash & eat	Home	11:15	11:30
8		Pray	Aresho Grand mosque	11:30	13:00
9		Go to the farm	The road	13:00	13:17
10		Work on the farm	The farm	13:15	17:00
11		Go home	The road	17:00	17:15
12		Go to mosque	On the road	17:15	17:20
13		Pray	Terefo Mosque	17:20	18:30
14		Go home	The road	18:30	18:35
15		Eat dinner	Living area	18:35	19:00
16		Sleep	Living area	20:00	5:00
Monthly activities					
1		Travel	Kemisse or Chirete (by car)	7:00	8:20
		Buy and sell	Kemise or Chirete town	8:30	16:00
		Travel	On the road	16:00	17:20

The life story of Haji Mohammed's wife Aminat Hassen

Aminat Hasen was born in 1961 in Toleha, which is a one hour walk from Shonke Amba. She got married at the age of 15 because of pressure from her mother. She explained her story as follows;

“The decisive factors for my marriage to happen were my parents not me. I did not love my husband so I always went back home every morning, but I was always forced to go back to my husband's house immediately. After four difficult years of marriage I divorced him and freed myself. After the divorce I stayed at my parents' house for three months and then married Haji Mohammed. In Argobba culture it is a custom for divorced women to wait for three months after their divorce before they remarry to check whether they are pregnant or not. If a woman is found to be pregnant after she is divorced she has to give birth and breast feed at least for two months before she remarries.

I came to Shonke Amba after I married my uncle's son Haji Mohammed and settled around Aresho Genda mosque. Our first child who was a girl passed away an hour after she was born and my second pregnancy ended in a miscarriage on the fourth month. After waiting four years to get pregnant I gave birth to a boy at Dese hospital.

I am not educated and I had no chance to study the Koran.”

Table 4.2 Space –Time Diary of Hajji Mohamed Esmael’s wife

S.No	Date	Activities (Daily)	Room /place	From/at	To
Wife (W/ro Aminat Hassen)					
Daily activities					
1		Get dressed & pray	Women’s space	5:30	5:40
2		Bake Injera	Cooking area	5:40	8:30
3		Eat breakfast and clean the house	Living area	8:30	9:00
4		Fetch Water	Chilata water point	9:00	10:00
5		Cook lunch	Cooking area	10:00	12:00
6		Eat lunch & make coffee	Cooking area	12:00	13:00
7		Pray	Women’s space	13:00	13:15
8		Collect fire wood	Farmland	13:15	15:30
9		Rest	Living area	15.30	17:00
10		Pray	Women’s space	17:00	17:15
11		Milk the cows	Back yard	17:15	18:00
12		Cook dinner	Cooking area	18:00	20:00
13		Pray	Women’s space	20:00	20:15
14		Eat dinner	Living area	20:15	21:00
15		Sleep	Women’s space	21:00	5:30
Weekly activities					
1		The daily activities are repeated.			
2					
Monthly activities					
1		The daily activities are repeated.			

Table 4.3 Space –Time Diary of Hajji Mohamed Esmael’s son

S.No	Date	Activities (Daily)	Room /place	From/at	To
Son (Ahmed Haji Mohammed)					
Daily activities					
1		Get dressed	Women’s space	6:00	
2		Pray	Women’s space	6:00	6:15
3		Eat breakfast	Living area	6:15	7:30
4		Go to the farm	The road	7.30	7:45
5		Feed the Cattel	Grazing field	7:45	11:30
6		Go home	The road	11:30	11:45
7		Eat lunch	Living area	11:45	12:00
8		Go to school	The road	12:00	12:30
9		Learn	School	12:30	16:30
10		Go home	The road	16:30	17:00
11		Go to the farm	The road	17:00	17;15
12		Bring the Cattle back home	The road	17:15	18:00
13		Rest and play	Compound	18:00	19:00
14		Read the Koran	Living area	19:00	20:00
15		Eat dinner and rest	Living area	20:00	21:30
16		Sleep	Women’s space	21:30	6:00
Weekly activities					
1		Get dressed	Women space	6:00	
2		Pray	Women space	6:00	6:15
3		Eat breakfast	Living area	6:15	7:30

4		Go to the farm	On the road	7:30	7:45
5		Feed the cattle	Grazing field	7:45	11:30
6		Go home	On the road	11:30	11:45
7		Eat lunch	Living area	11:45	12:00
8		Go to the farm	On the road	12:00	12:30
9		Look after the Cattle	Grazing field	12:30	17:15
10		Bring the Cattle back home	On the road	17:15	18:00
11		Rest and play	Compound	18:00	19:00
12		Read the Koran	Living area	19:00	20:00
13		Eat dinner and rest	Living area	20:00	21:30
14		Sleep	Women's space	21:30	6:00
Monthly activities					
1		The daily activities are repeated.			

Hajji Mohammed's Son, Ahmed Mohamed is going to take eighth grade national exam. He complains that he is forced to learn in Oromiffa while the languages he speaks are Argobbigna and Amharic.

The researcher asked some of Shonke Amba residents including Ahmed to sketch their perception of Shonke Amba. Ahmed was the only one who sketched his perception.



Fig.4:53 Ahmed Mohammed's sketch of Shonke Amba

As it can be seen from his sketch, he understands the flat roof of Shonke Amba Derb bet. He represented it in 3D and indicated the stone masonry wall of the derb bet. He also tried to show gable roof and shade made of Corrugated iron sheet and the house which defines the access road within the settlement. In his sketch he also indicates the thached roof house (sarbet) which is adopted from the surrounding Oromo people's house.

The Compound:

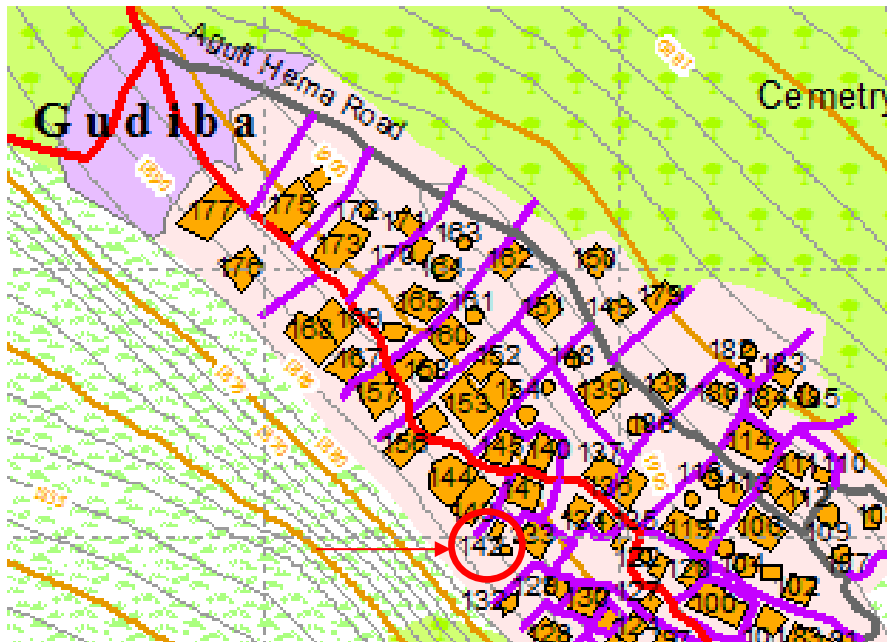


Fig.4:54 No 142, Location of Hajji Mohamed

Haji Mohammed's compound is an irregular polygon with six sides. It is more of an urban form parcel and the total compound area is 213 m². The geographical coordinates of the compounds point are A = N 10 37 126' E 039 58 347', B = N 10 37 127', E 039 58 345', C= N 10 37 129' E N039 58 436', D= 10 37 131' E 039 58 344', E= N 10 37 130', E 039 58 340 and F= 10 37 122' E 039 58 343' with an altitude of 1905 meter above sea level. The compound rests on a total area of 219 m² mainly divided as men and animal dwelling. The perimeter of the compound is fenced with dry stone masonry wall with an average height of 1.2 meter.

The front Yard:

The front yard of the compound is the main entrance for people and animals. The front right side of the compound is animals domain and is fenced with wood and wall made from masonry to separate it from the men's. The space at the main entrance is also a place where cows are milked and fed. At Shonke Amba, the dwellings are very close to each other and it is common to see that the dry dressed stone walls of adjacent houses are used as fences for one another. Likewise because of the topography of the site, the flat roofs of adjacent houses are also used as roof terrace for recreation and space for washing clothes and grains.

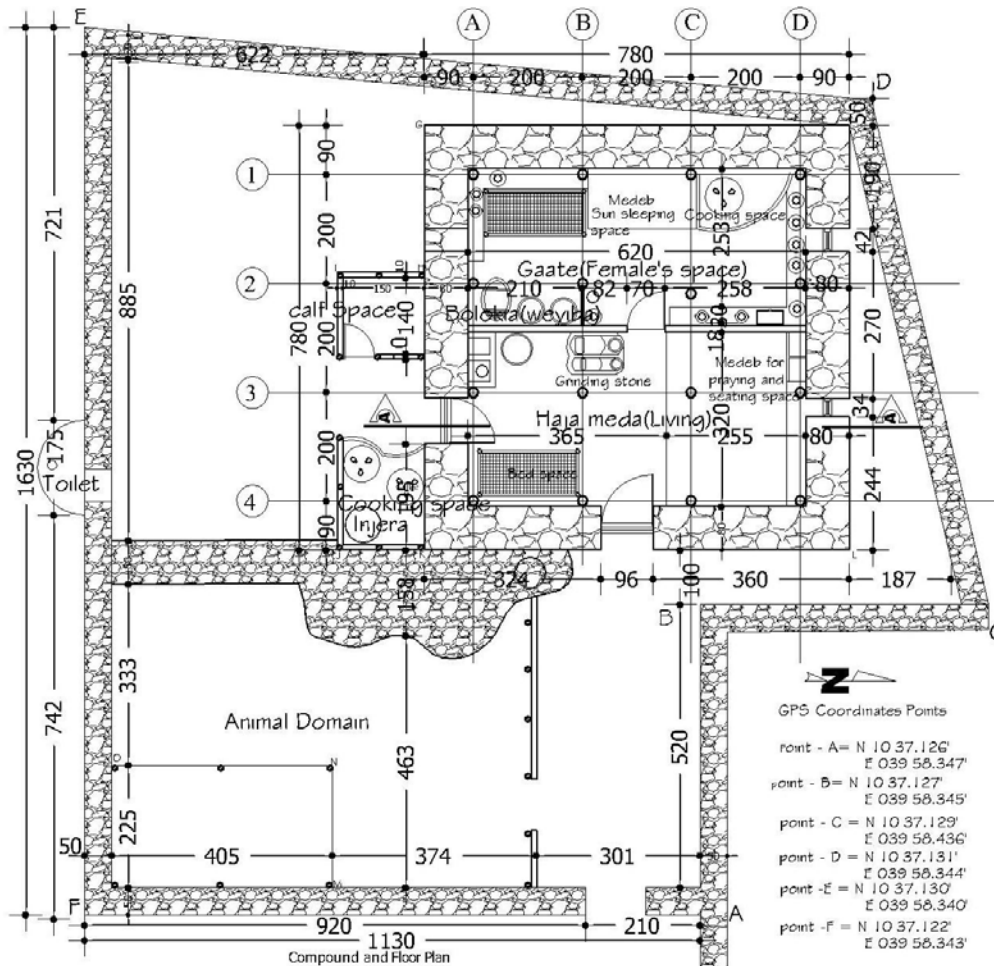


Fig. 4:55 The layout of Haji Mohammed's compound

The back Yard:

The cooking area and the bathroom are found in the back yard. The cooking space is covered with wood and thatched roofing. The toilet is an open area without a pit and the discharge goes to a cliff nearby.

A compound which has a large space adjacent to a cliff side is considered a high value land. This is because all the settlements dry waste and waste from toilets are disposed towards inaccessible cliffs.

The House:

The houses in Shonke Amba are similar in form, they are rectangular. The rectangular form is called *Derb bet*. The houses are constructed from olive tree woods, masonry walls and soil and gravel filled flat roofs.

Based on the size and internal grid column arrangements the house is categorized into two rows (4x6metre), three rows (6x6metre) and four rows (6x8metre). Row (a local name *self* or *jemb*) is the space between axis A-B and 1-3 or B-C and 1-3 or C-D and 1-3 as shown in Fig.4.55 above. Therefore, a three row house is determined between four rows of column or axis placed in both Y and Z direction from center to center of two meters. The standard span between two columns is about two meters because, if the span is more than that the main

beam(local name *feres*)will be sagged due to the load on the flat roof. The columns are placed in X and Y direction in equal span. The Argobban artisans first understood the concept of load to determine the span, the axis and grid system 834 years ago.

The masonry wall which is 70cm thick is dry sandwiched with soil to prevent insects and mouse from entering through openings in the masonry wall.

Hajji Mohammed's house is a three row, house type. The total foot print area of Hajji Mohammed's house is 60.66m². It has 16 wooden Coluns. The Columns are arranged in a grid system. Due to this, the space between the rows of columns are about 2 meters. The internal space of the house is sub divided into two main equal parts the Living Area (local name *Hajja madi*) and the Women's Space (local name *Gaate*). The living area accommodates space for *Medeb* (serves as a bed and prayer space), grinding space, grain store, and shelf (local name *Takat*). The women's space has *Medeb* for prayers, sleeping space for children, beds for women, smoke bath (local name *Bolekeya*) and grain and furniture store. Whenever men and women want to spend the night together they use the women's space. Women's space is also a place where women take smoke bath, put on Kohul and Hinna on their body, hands and feet.

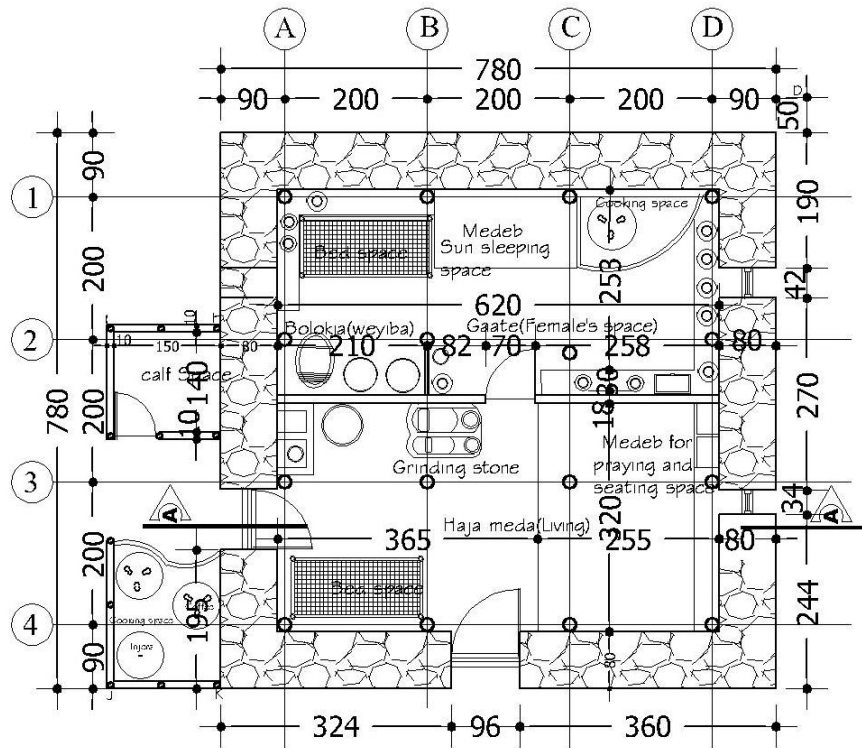


Fig.4:56 Floor plan of Hajji Mohamed's house

Orientation of the House:

The orientation of Hajji Mohammed's house is towards the East side. This was done for two reasons, the first one is to get the morning sun light which lights up and warms the house. The second reason is to be awakened at 5:00 o'clock by the light of dawn that enters the house through the cracks of the main entrance. Five o'clock is the time morning prayers start in the Shonke Amba community who are all Muslims.

For these reasons all the Shonke Amba dwellings are oriented towards the east unless factors such as the condition of the site and adjacent neighbors dwellings forces them to face the other side.



Fig. 4:57 Orientation of Haji Mohammed's house

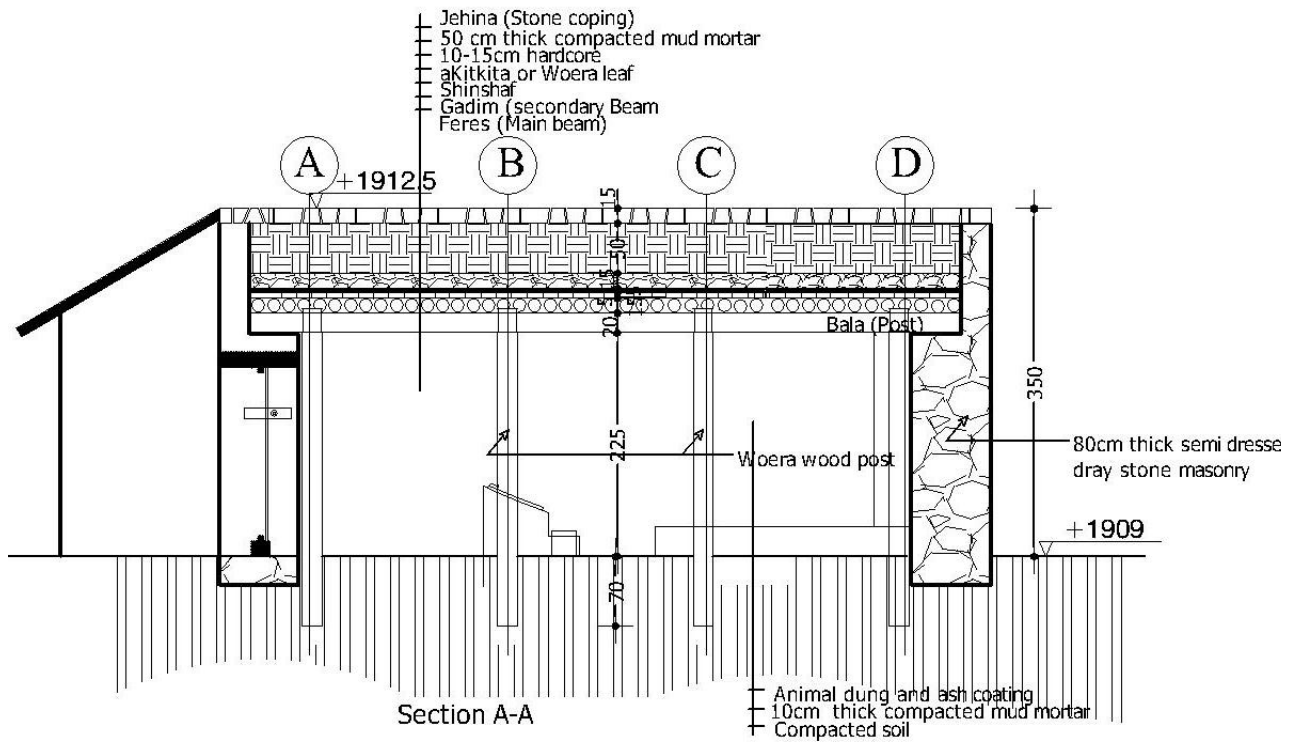


Fig.4:58 Section A-A of Haji Mohammed's house

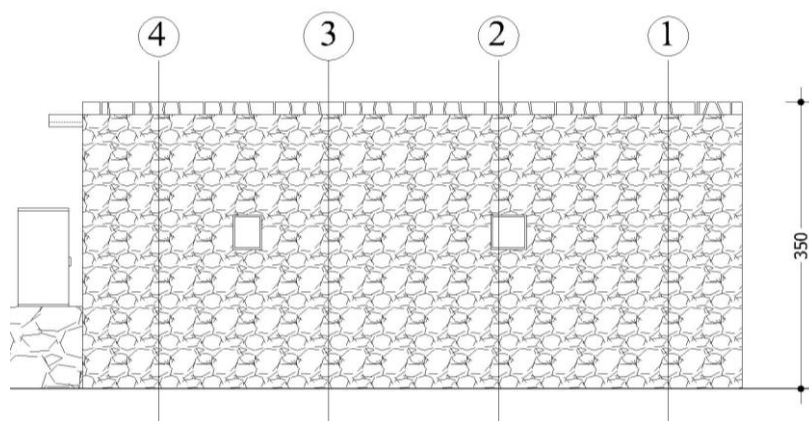





Fig.4:59 North Elevation of Haji Mohammed's house

Table 4.4: Materials used to construct Haji Mohammed's house:

S.no	Units of material	Local names of the materials		remark
1	Wooden post	Bala		
2	Masonry	Ghinb	Kab, Derb	
3	Wooden Main bib	Feres		
4	Wooden secondary beam	Gadim		
5	Strips of wood over secondary beam	Shinshaf		
6	Olive tree	Kitkita kitel	Woirra kitel	
7	Soil	Afer		
8	Wooden partition	Gidigida		
9	Wooden gutter	Dero		
10	Main entrance gate	Kara		
11	Gravel	Teter		
12	Animal dung	Chika		
13	Ash	Amed		
14	Semi-Dressed stone coping	Jahina		

Table 4.5: Basic construction tools used during construction

S.no	Material	Material in local name		remark
1	Hammer	Meraja		
2	Shovel	Akafa		
3	Axe (used to cut stone)	Kelka	Fas	
4	Cups	Chilfa		
5	Rope	Gemed		
6		Zabia		
7		Digino		
8		Konfa		

The study shows that all the “*Derb Bet*” use typical construction materials, basic construction tools and construction steps.

Construction steps:

1. Levelling of the site
2. Layout (for example if the dwelling type is a three row), it will be 6x6 meters excluding the 80cm thick masonry wall on both sides.
3. Constructing 80cm thick dry dressed stone wall by using dry soil between the internal and external part of the masonry wall. The soil is mainly used to bond the external and internal part of the masonry wall and to prevent insects and animals from entering the dry masonry walls which are have a minimum height of 195cm from the natural ground level.
4. Erection of wooden columns
5. Placing of main wooden beams (local name “*feres*”)
6. Placing of secondary beams (local name “*gadim*”) perpendicular main beam.
7. Placing of sliced wood (local name “*shinshaf*”) perpendicular to secondary beams by connected to each other.
8. Placing of olive tree leaf perpendicular to the sliced wood.
9. placing hard-core on the top of the olive tree leaf branch .
10. Put on 50cm thick soil on top of the hard core.
11. Mixing soil with water and ram with feet until the soil becomes thick mud mortar.
12. Compacting the soil with wooden post when the mud mortar curing time is reached 50% by adding gravel.
13. Placing internal wooden partitions.
14. Plastering the internal wall (dressed stone and wooden partition) with mud mortar.
15. Applying final plastering to the internal wall with ash, animal dung and water at the mixing ratio of 1:1:1. This also serves as paint. ***Debo* (group work) during the construction:**

Debo (the team to construct an Argobba house) is organized when a person decides to construct the Argobba dwelling. The person has to prepare themselves by making wooden construction materials such as columns, main beams, secondary beams and sliced wood from olive tree wood. The planting, management and harvesting of the olive tree wood used to make the construction materials takes four years.

Then the person fixes the day the construction starts and asks the settlement neighbors to participate in the *Debo*.

Prior to the construction date the person prepares food and drinks for *Debo* participants which range from 150-250. The food includes goat meat, pasta and Injera while the drink is *Habish* (a nonalcoholic local drink). *Kchat* is also included.

On the day construction is set to begin the *Debo* are grouped in to different groups, one for cutting and transporting wooden materials, and one for carrying stones used to build walls, roofs and foundation.

All construction materials are transported using man power because animals like donkeys are hard to come by. At lunch time food is served followed by coffee and *kchat*. Elders of the community and Sheiks pray and give their blessings. The praying is done by the community for the people who will be living in the newly constructed house so that they will have a bright, healthy and prosperous life. The praying and blessing gives energy for the *Debo*. The *Kchat* chewing that follows boosts the workers' energy. This ceremony continues until the construction is completed. However the level of food service for the *Debo* varies based on the economic capacity of people. If a person cannot afford to slaughter a goat, pasta with Injera, *habish* and *kchat* will be served during lunch time.

Furniture's in each room:

- a) Living area (Living area)

Medeb (sleeping and praying space) master bed, *wefcho* (grinding stone), *rick*, *takat*, (made of wood and mud mortar), sheep and goat skin (local name *ahara kelea* and *atai kelea*).

- b) *Gati* (women's space)

Women's sleeping bed, *medeb* for sons to sleep on, cooking space, grain store, pots, plastic water tank and Cloths.

- c) Back yard fire place

Space for baking Injera.



Fig.4:60 Midija space in the backyard

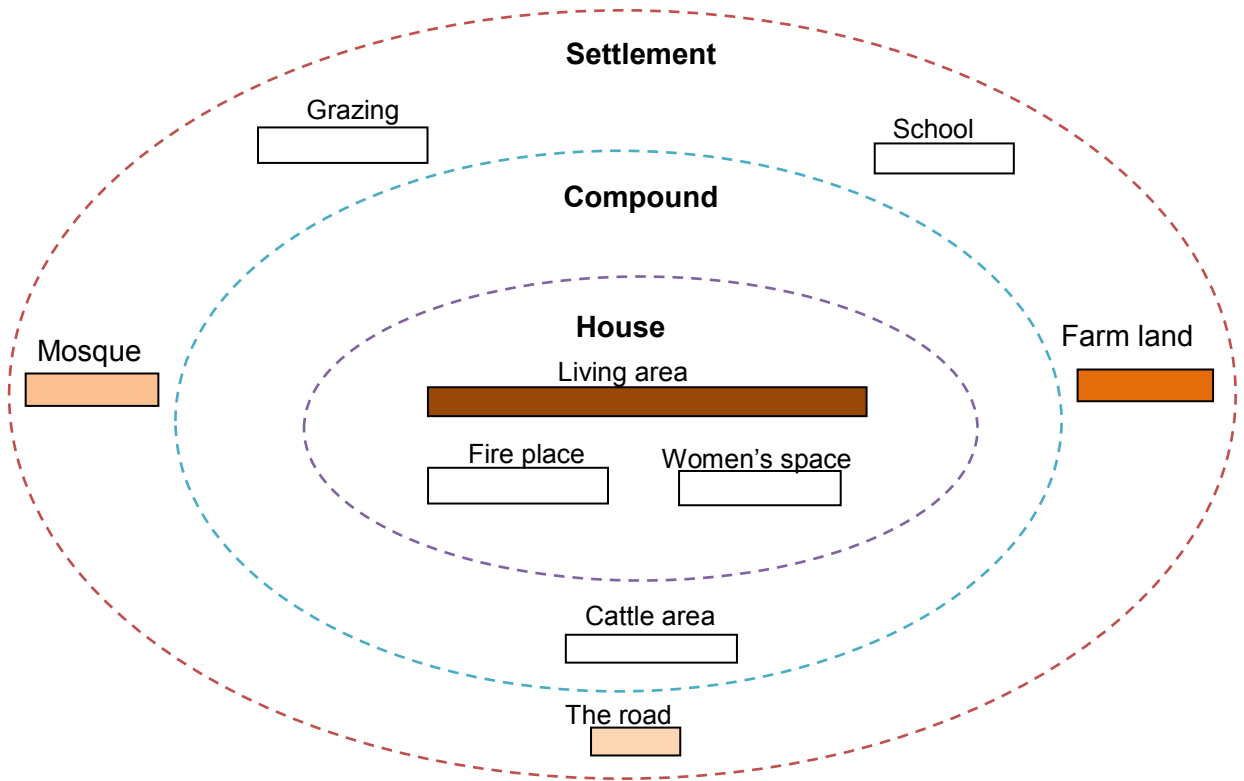


Fig. 4:61 Perception map of Hajj Mohammed in relation to his space claim

15 hours and 40 minute
 Six hours and half
 One hour and fifty five
 Fifty five minutes
 Space used in settlement, compound and house

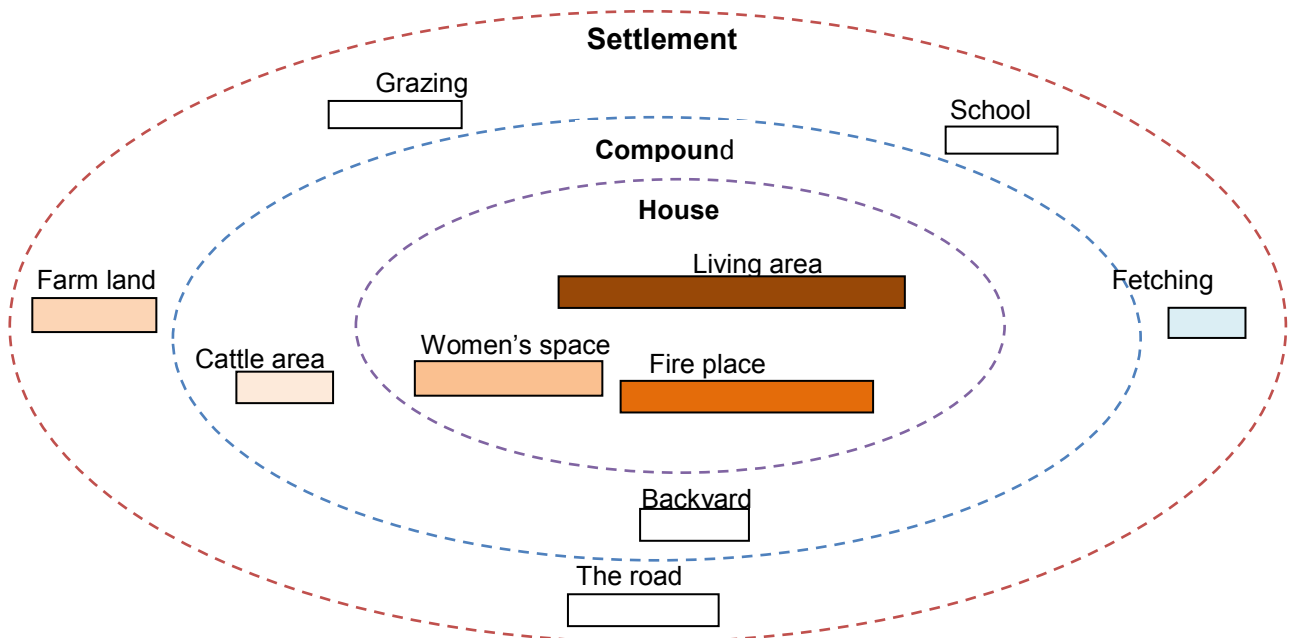


Fig. 4:62 Perception map of Hajj Mohammed's wife in relation to her space claim

Nine Hours
 One hour
 Seven hours
 Four hours
 Two hours
 Forty Five minute
 Space used in settlement, compound and house

Above the perception, Fig 4:62 Haji Mohammed’s wife spends about 10 hours at the women’s space because of her position and for privacy reasons. Women’s space is a space created for Argobba women to sleep, dress, eat and put on makeup. Next to the women’s space, Haji Mohammed’s wife has fire place for cooking, living area for seating and serving food. She also owns the backyard space at which she milks the cows at. At the settlement level she goes to the farm area to collect fire wood and fetch water from Chilata. This is the most difficult activity for the Argobba women as they have to carry 20 liters of water on their back and climb an equivalent of about a 50 story building within irregular bolder of stone steps.

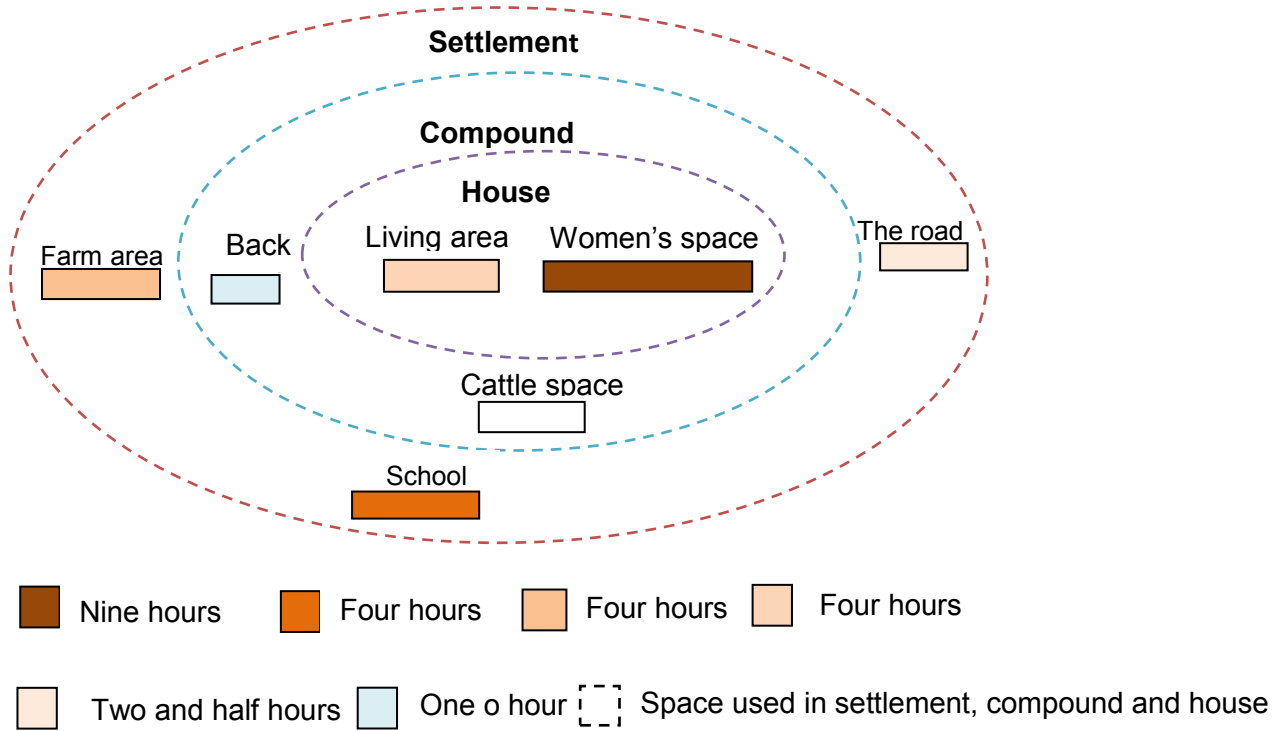
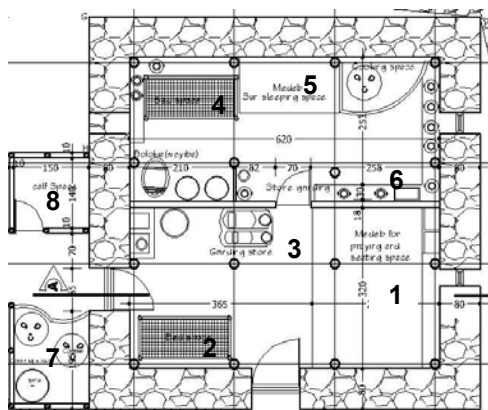


Fig. 4:63 Perception map of Haji Mohammed’s son in relation to his space claim



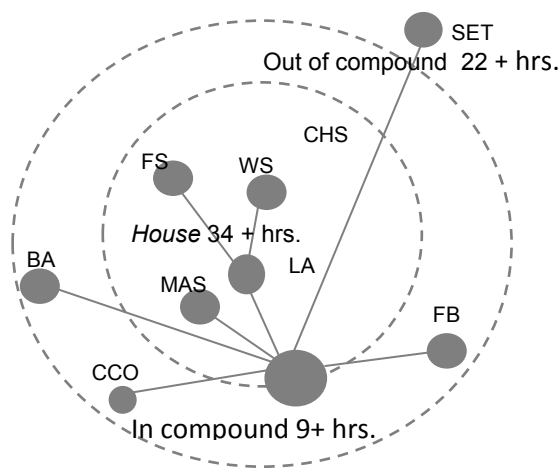
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In the human domain, space 1 is seating and praying area. Space 2 and space 4 are male and female sleeping areas respectively. Space 5 is children’s sleeping area. Space 3 is used for grinding, space 6 is storage, space 7 is cooking space, Space 8 is used for calves and space 9 is animal’s domain outside of the dwelling at the front yard space.

Fig. 4:64 Haji Mohammed’s House Plan

Fig. 4.65 The figure below shows space used by Haji Mohammed’s family in the settlement, compound and house level. As per the interview conducted with three family members, within

the 72 hours they spent 56.04 % of their time with in the house, 11.59% in the compound and 31.25% out of compound.



LEGEND

House	Compound
Mas – Master sleeping area	CCO – Compound cooking area
FS - Female sleeping area	CA- Cattle area
CHS - Children sleeping area	FB- Fore and back yard
CO - Cooking space	Settlement
LA - Living area	SET - farm, fetching water, way market, mosque
WS – Women's space	

The hidden line represents the dwelling and the compound.

Fig.4: 65 J graph of Hajji Mohammed’s house

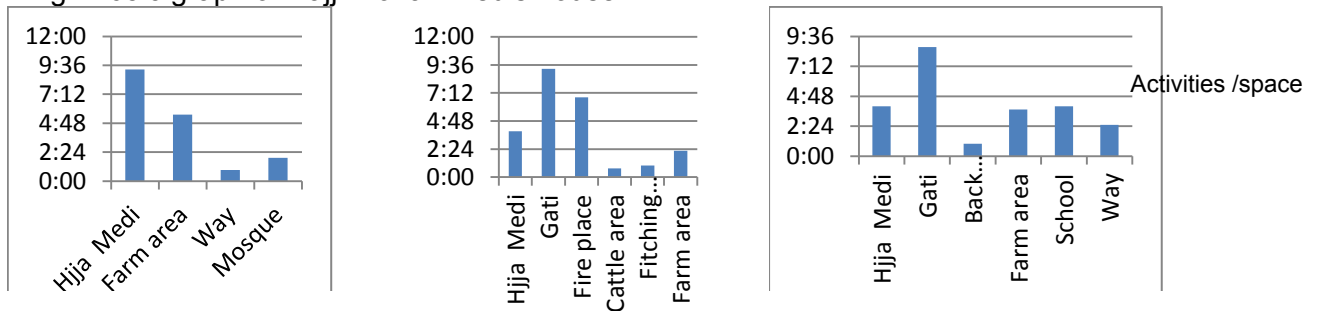


Fig. 4:66 Activity time graph of Hajji Mohamed’s family

4.3.2 W/ro Zehara Mohammed Ousman’s compound

The life story of W/ro Zehara Mohammed Ousman

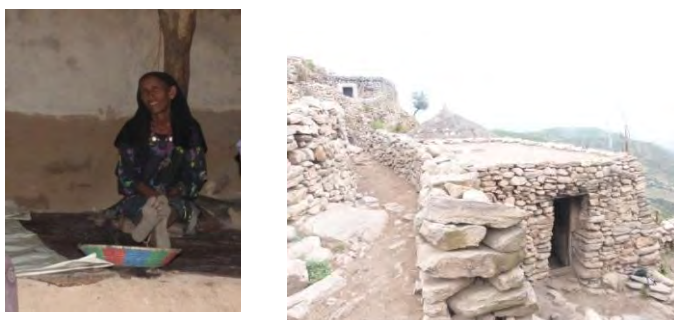


Fig.4:67 W/ro Zehara Mohamed and her

“I was born in Toleha in 1961.I got married at the age of 13.

My parents decided who I should marry since in our culture parents pick partners for their children. I stayed with my first husband only for a year. We divorced because he hated me. When I married him I was a child and I was not physically mature, I did not have breasts and I did not know what a menstruation cycle was. However, at the

time my husband was over 25 years old. (The interviewee was shy to tell the exact reason of the divorce but with the help of Hajji Mohammed, W/ro Zehara was relaxed and told us the following painful memories.) The main reason for our divorce was that he was 25 years old, but I was 13 so our sexual relation was very pain full I was forced to divorce him since I never had my menstruation. After I divorced my first husband I married my second husband and gave birth to a baby boy and then I got divorced again. I was still a child and not matured both physically and mentally. Finally I married my third husband based on mutual love and gave birth to eight children. Four of them passed away at different times before they celebrated their first year the age of one. The remaining four are grown up and married. My husband has passed away but I am supported by my children. They work for me on my husband’s farm. I live with my 15 year old son, Mohamed Beshir. He spends all his time in the farm which is a two hour walk. My daughter that I bore to my second husband is also divorced and is here with me. Her child passed away a week ago. She went to her father’s home.”

Table 4.6 Space –Time Diary of W/ro Zehara Mohamed Ousman

S.No	Date	Activities (Daily)	Room /place	From/at	To
Student Ahimed Hajji Mohammed					
Daily activities					
1		Get dressed and pray	Living area	5:00	5:15
2		Cooki breakfast	Women’s space	5:15	7:00
3		Eat breakfast and have coffee	Living area	7:00	7:30
4		Grind	Living area	7:30	9:30
5		Collect fire wood	Farming land	9:30	12:30
6		Cooki for lunch	Women’s space	12:30	13:00
7		Eat lunch	Living area	13:00	13:30
8		Fetch water	Chilata water point	13:30	16:00
9		Grind	Living area	16:00	18:00
10		Cook dinner	Women’s space	18:00	20:00
11		Eat dinner and chat	Living area	20:00	21:00
12		Sleep	Living area	21:00	5:00

The Compound

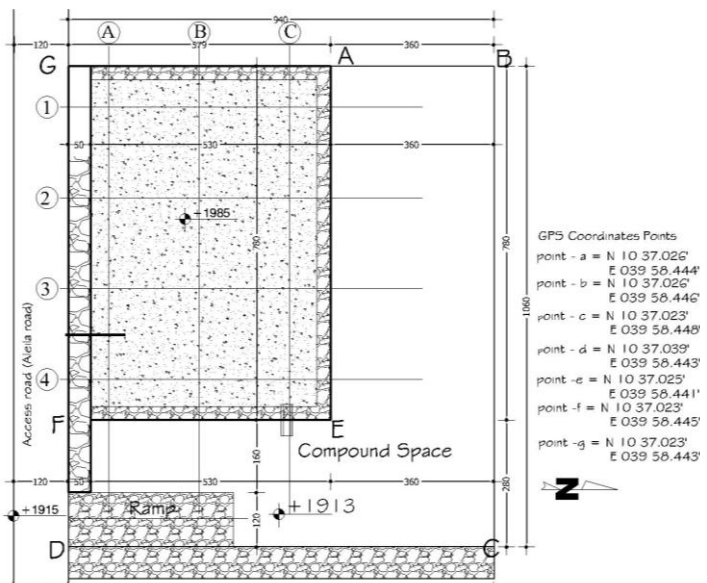
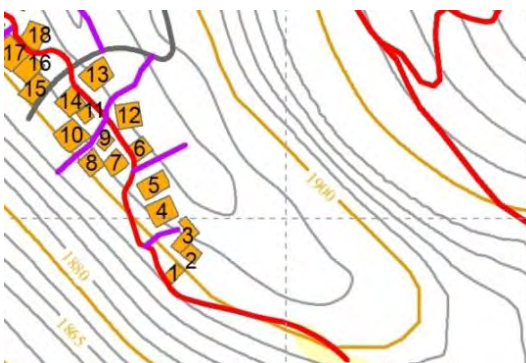


Fig.4:68 Location of W/ro Zehara Mohamed’s

Fig.4:69 W/ro Zehara Mohamed’s compound layout

W/ro Zehara Mohamed's compound is located in the first part of the Shonke Amba settlement called Haj agenda, near the open space of Timbu Amba. It is located at the narrowest part of the settlement surrounded by cliffs on the East, north and south sides. W/ro Zehara Mohamed's compound is geographically located at points: A= N 10 37.026' E 039 58.444', B= E10 37.026 E 039 58.446, C= N 10 37 023 E 02958.448, D= N 10 37.026 E 039 58.443, E= N 10 37.025 E 039 58.441, F= N10 37.023 E 039 58.445 and G= N 10 37.023 E 039 58.443 at the altitude of 1913 meter above sea level. The compound is a rectangular polygon plot with an area of 99.6 m²

As it is indicated in the compound plan, w/ro Zehara's house was constructed in an efficient way. The South and West sides of the house were constructed on the boundary line. This was done for two reasons. The first one is to maximize the compound space and to distribute the limited space of the settlement for the Argoba residents on the Amba (plateau) during the formation of the settlement. The other reason is to respect the regulation that prohibits the building of windows and doors that face neighbors.

The front Yard

The dwelling of W/ro Zehara has a level difference from the main access road located at the south part of the dwelling. Because of this there is a 120 cm wide stone ramp on the front side of the dwelling. The adjacent neighbor dwelling which is located on the eastern side is constructed on the boundary line. Therefore it is used as a front fence for W/ro Zehara's dwelling. This has narrowed the front yard.

The back yard

W/ro Zahra's dwelling has no back yard space since the dwelling is constructed on the boundary line. There is no animal domain, and the cooking space is at back which is on North side of the dwelling. The Northern part of the compound faces the cliff side of the mountain and is used as dry waste disposal ,but it is does not serve as a toilet because it faces the direction Meka Median is found, a religious aspect called *kiblah*.



Fig.4:70 *medeb* space of W/ro Zehara Mohamed at living area

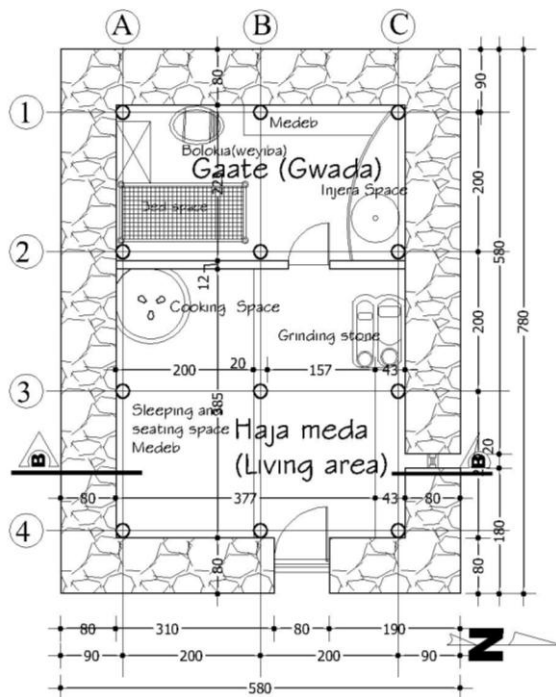


Fig.4:71 Floor plan of W/ro Zahra's house

The House W/ro Zehara's house is two row, as per the classification of Argobba house. The overall size of the house is 580cm x 780 cm. It has 12 columns placed from center to center of 200cm. The term self is given for the space between the two columns as shown on above fig. 4:71, A-B and 1-4 or B-C and 1-4. The wall thickness is 80cm constructed out of dry masonry wall. The height of the house is determined by the availability of post but the minimum internal height is 195-125 cm. the internal space is categorized into two main parts. The first part of the living area has medeb for praying and for men to sleep on *medeb* is also used as eating space for men. In Argoba Amba men and women do not eat together, men are served first. This is because of religion, women's position in the society and for privacy reasons. However W/ro Zehara is using *medeb* to sleep, eat and have coffee on, because her husband has passed away and she is now the head of the house of her son. Living area is also a space used for grinding grains and keeping women's hand craft products like *mesobe and muday*.

The second part of the dwelling is Women's space. This part of the house is allocated for women, children and storage and cooking. It is also a private space where they take smoke bath and beautify themselves. Men's access to this part of the house is limited tonight time only when they enter to sleep with their wives', It is prohibited for a wife and husband to sleep together on *medeb* which is a praying space.

Orientation of the House

Orientation of the dwelling: The orientation of W/ro Zahra's dwelling is towards the East. The reason behind this is religious. A house that faces east can awake a person for the Morning Prayer while the morning star showers the light through the window. In addition to this the Moazin (the pray leader of the mosque) Mohamed Kasim Yasin told the researcher that in Quran there is an article which instructs orientation of a house to be towards the direction of sun rise or sun set. In addition the residents also say that the morning sun warms the living room.



Fig.4:72 painting in two colors of the Living area internal wall.

Furniture's in each room:

a) Living area

Medeb (sleeping and praying space), Grinding stone ,*Mukecha*, *Jebena*, *Agoza*

b) Women's space

Women sleeping bed, *Medeb* for son to sleep on , Injera Cooking space, smoke bath, Pots, Plastic water tank, *Sefed*, Cloth, *Kerkebo*



Fig.4:73 Storage at Women's



Fig.4:74 Cooking space at Women's



Fig.4:75 Smoke bath space at Women's

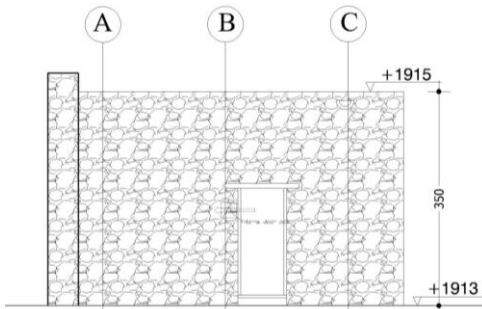


Fig.4:76 East Elevation

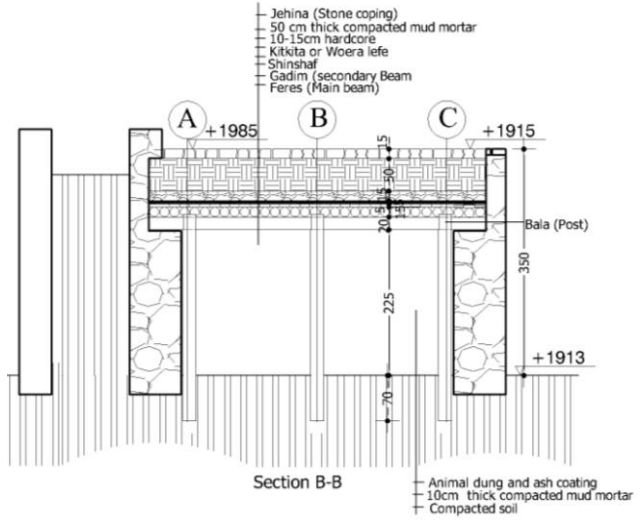


Fig.4:77 Section

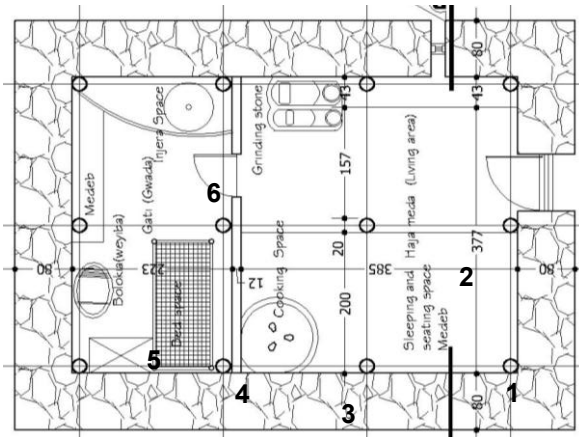


Fig. 4:78 W/ro Zahra's house plan.

W/ro Zehara Mohamed's house is categorized into the living area which is space 1 used for sleeping, space 2 is used for activities like grinding and sitting and 3 is a used for cooking . Women's space which is space 4 is used for sleeping, space 5 is used for *smoke bath* which is women's beauty space and space is 6 for baking Enjera

For the rest of the case studies 4.3.2 to 4.3.21 see **domestic space use and perception map** at the appendixes part from page 237 to page 279

Fig. 4.79 below shows the space used by W/ro Zehara within the settlement, compound and house level as per the interview conducted with one family member within the 24 hours. She spends 76.25 % of her time with in the house, 25% out of the compound and she uses the compound as a transition space and no activity was observed during the time the interview was conducted at the compound space.

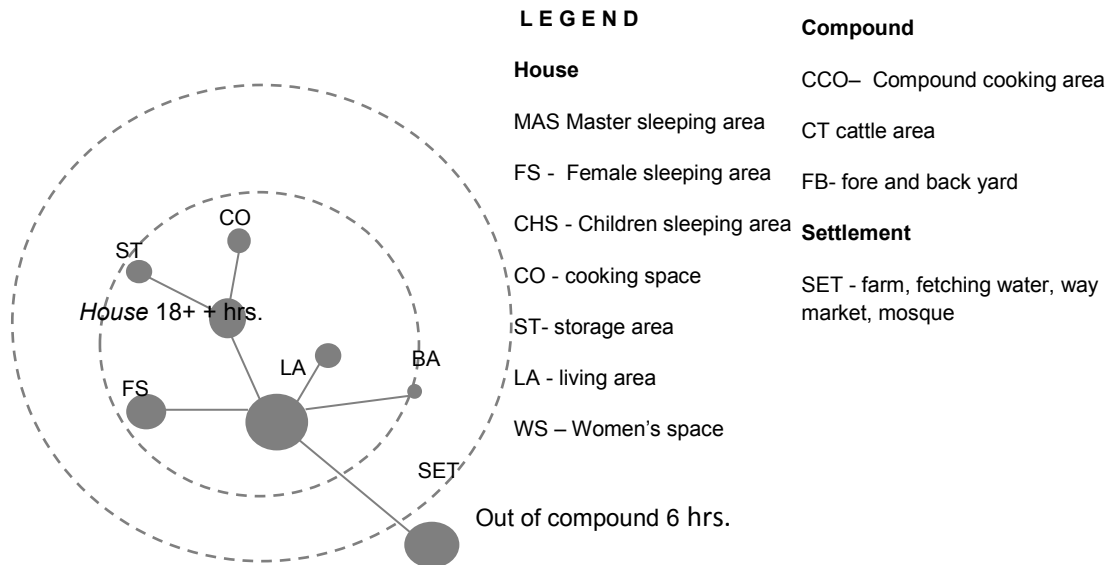


Fig. 4:79 J graph of W/ro Zahra's house.

The hidden line represents the dwelling and the

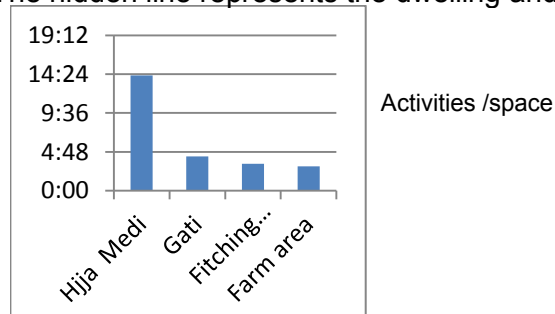


Fig. 4:80 Activity time graph of W/ro Zehara

4.3.3 Ato Hamid Mohamed Abamusa's compound

The life story of Ato Hamid Mohamed Abamusa



Fig.4:81 Ato Hamid Mohammed and his dwelling

Hamid Mohammed who is a farmer was born in Shonke Amba. He is 65 years old. He got married and he narrated his history as the following.

"We divorced in less than a year after we got married. At the time both of us were not mature enough to manage our lives. A year later; I married my uncle's daughter Kersuma Ebrahim who was 15 years old. We gave birth to 11 children but six of them died when they were under the age of 5. Three of them were girls and the other three were boys. From the remaining five children, three are married and two of them are living with us at our farm out of Shonke Amba. I am not educated. Ato Hamid was asked how he perceives the domestic space. 'He said; *medeb* is a place where I rest and sleep therefore when I sit on the *medeb* I start to think about my daily activities so *medeb* is a kind of working space for me. . Ato Hamid Mohamed is strictly against the modernization of dwellings, he says the architecture of their dwellings is inherited from their fathers and reflects their culture".

His wife Kersuma Ebrahim is 50 years old. She was not to have her picture taken when the researcher interviewed her. Ato Hamid Mohamed's annual income is about 30,000 Birr. Moreover he has a cow, 2 oxen, 2 sheep and 4 goats".

Table 4.7 space –Time Diary of Ato Hamid Mohamed Abamusa and his wife

S.No	Date	Activities (Daily)	Room /place	From/at	To
Ato Hamid Mohamed Abamusa					
Daily activities					
1		Get dressed and pray	Living Area	5:00	5:15
2		Read the Koran	Living Area	5:15	6:30
3		Rest on medeb	Living Area	6:30	7:00
4		Eat breakfast	Living Area	7:00	8:00
5		Go to the farm	The road	8:00	8:10
6		Work on the farm	Farm area	8;10	12:00
7		Go home	The road	12:00	12:10
8		pray	Aresho Mosque	12:10	13:00
9		Eat lunch	Living Area	13:00	14:00
10		Go to the farm	The road	14:00	14:10
11		Work on farm	Farm area	14:10	17:00
12		Go home	The road	17:00	17:10
13		Pray	Aresho Mosque	17:10	17:30
14		Rest	Living Area	17:30	20:00
15		pray	Living Area	20:00	20:15
16		Eat dinner have coffee	Living Area	20:15	21:00
17		sleep	Living Area	21:00	5:00
Weekly activity					
1		The daily activities are continued			
Monthly Activity					
1		The daily activities are continued			
Ato Hamid Mohammed Abamusa's wife					
Daily activities					
1		Get dressed and pray	Women's space	5:00	5:15
2		Cook breakfast	Women's space	5:15	7:00
3		Eat breakfast	Living area	7:00	8:00
4		Fetch water	Chilata water point	8:00	9:30
5		Cook	Women's space	9:30	13:00
6		Pray	Women's space	13:00	13:15
7		Eat lunch	Living area	13:15	14:00
8		Hand craft	Living area	14:00	17:00
9		pray	Women's space	17:00	17:15
10		Cook dinner	Women's space	17:15	19:00
11		Eat dinner and have coffee	Living area	19:00	21:00
12		sleep	Women's space	21:00	5:00
Weekly activity					
1		The daily activities are continued			
Monthly Activity					
1		The daily activities are continued			

The Compound:

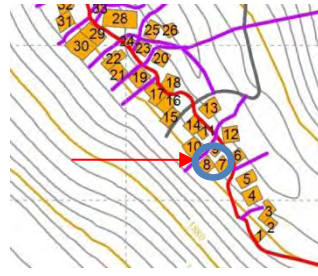


Fig. 4:82 Location of Ato Hamid Mohamed Abamusa's House

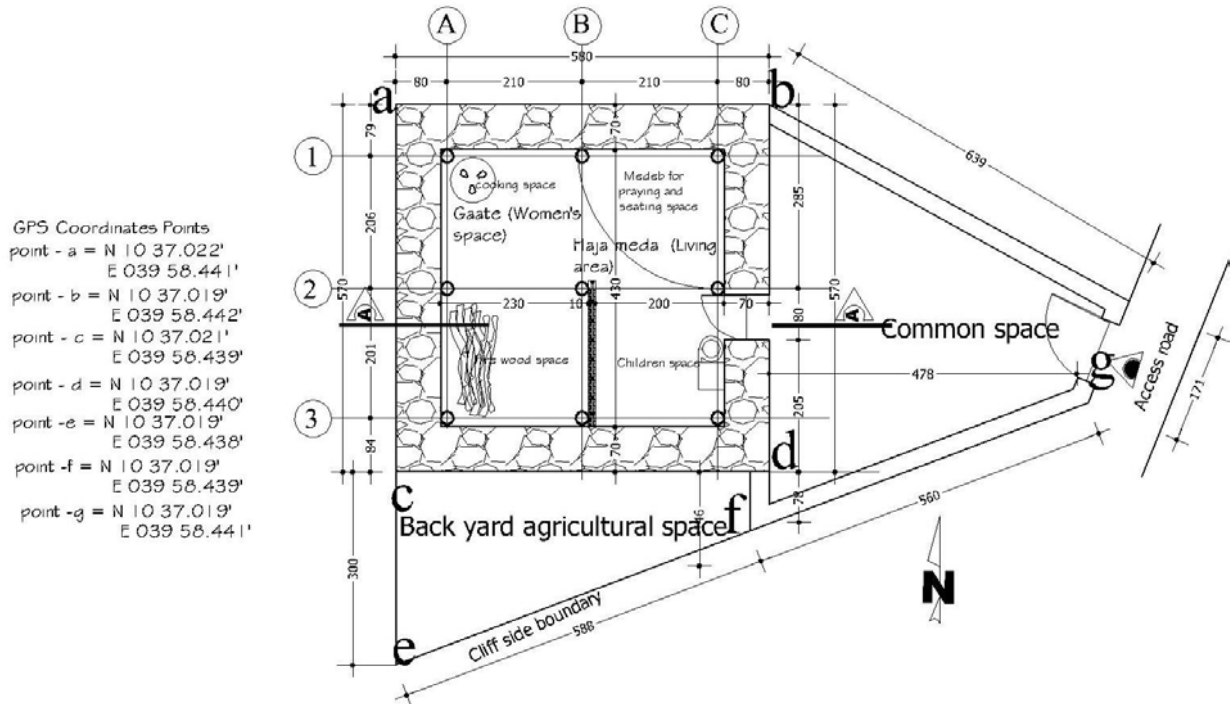


Fig. 4:83 Compound and floor plan layout

Ato Hamid Mohamed Abamusa's compound is geographically located a= N 101 37.022 E 039 58.441, b= B 10 37.019 E 039 58.442, c= N 10 37.021E 039 58.439, d= N10 37.019 E 039 58.440, e= N10 37.019 E 03958.438, f= N 10 37.019 E 039 58.439 and g= N10 37.019 E 039 58.441 with an altitude of 1912 meters above sea level. The irregular polygon shaped of the compound is 71m² and categorized into three main parts. The North-West side space is allocated for the dwelling foot print area, which is laid on the border line in the North and West side.

The front Yard

The front yard is a triangular space used as main entrance and as space to milk the cows. It is fenced with dry stone masonry wall with an average height of 70cm. This height is reduced to 30cm on the Cliffsides.

The back yard

The back yard, which is located in the South, is used for agriculture and dry waste and animal dung disposal which are used as compost during rainy seasons to grow vegetables and maize. The animal dung which is stored at this space is also transported to the farm land to serve a compost fertilizer.

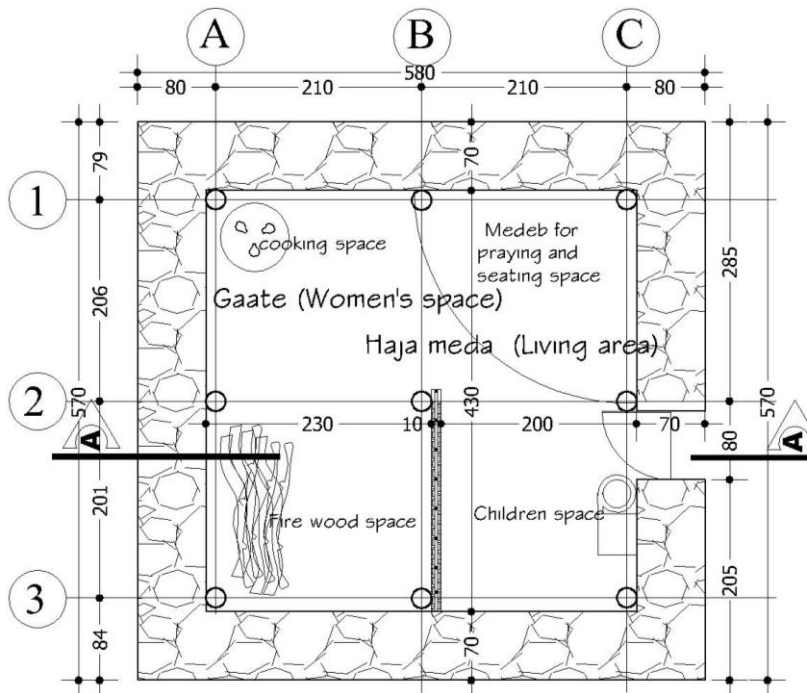


Fig. 4:84 Ground Floor Plan

The house

Ato Hamid's house is constructed out of 70cm thick dry stone masonry wall soil sandwiched between the external and internal wall. The house has 9 wooden columns with an average diameter of 20cm. the columns are arranged in grid system in almost equal distance. The house type is two row determined by space between axis A-B and 1-3 or B-C and 1-3.

The dwelling is categorized into two main parts. The living area *and* the *Women's space*. The *Living area* is a space where men sleep and pray. It also has sitting space for children. The *Women's space* is used for cooking, sleeping, praying and storing food items. During the time the study was conducted the women's space was used for cooking and as a storage for fire wood and because the family lives in the farm area out of the Shonke Amba settlement. The size of the house is 580x570cm including 70cm thick masonry walls.

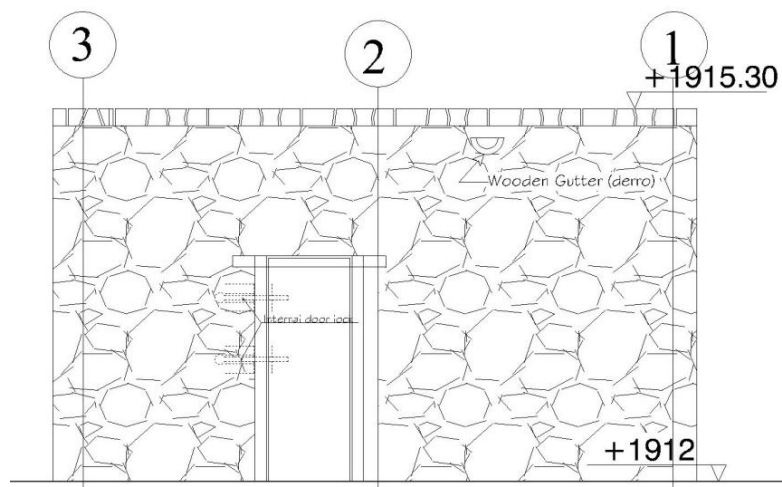


Fig. 4:85 East Elevations

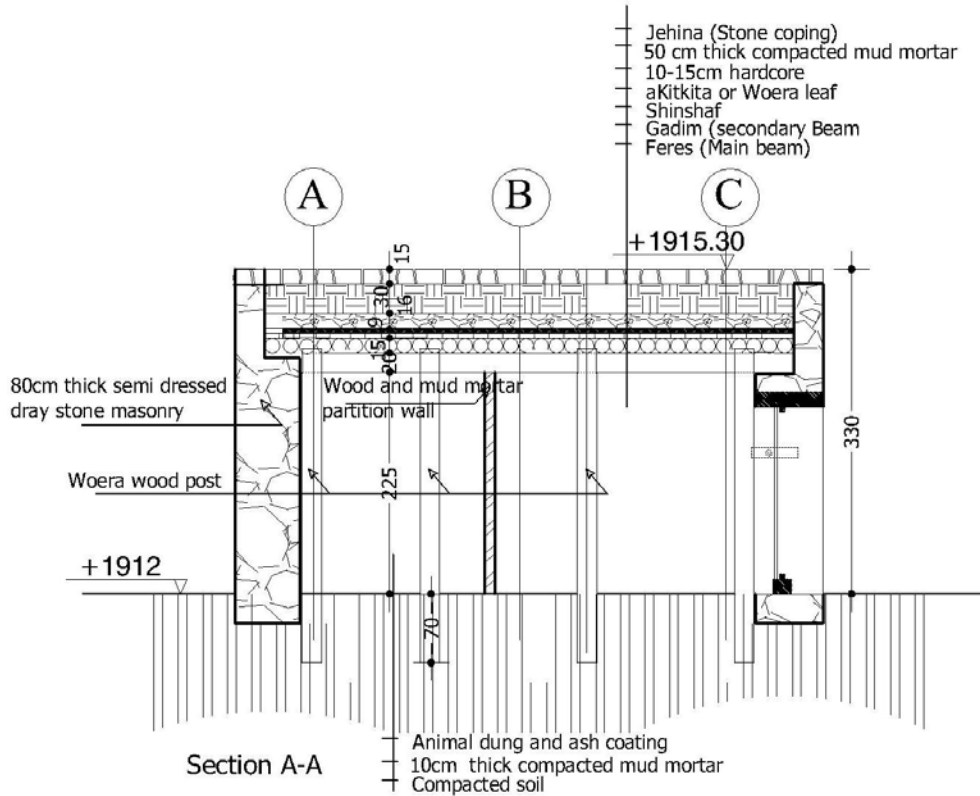
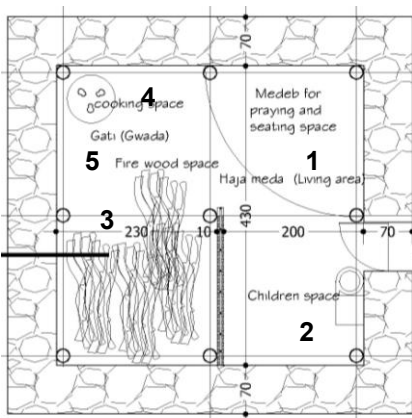


Fig. 4:86 Section

Orientation of the House

Orientation of Ato Hamid's is towards the East direction. The religious reasons for this have been mentioned above.



In Ato Hamid's house men use space 1 for sitting, praying and sleeping. Children use space 2 for sitting and space 5 for sleeping. Women's space is used frequently by women. Space 5 is also a sleeping space for women, space 3 is used as storage space and space 4 for is used for cooking.

Fig.4:87 Plan of Ato Hamid Mohamed's house

Fig. 4.88 below shows that space used by Ato Hamid Mohamed Abamusa's family at settlement, compound and house level. From the interview conducted with two family members within the 48 hours, they spent 79.16 % of their time with in the house and 20.83% out of compound.

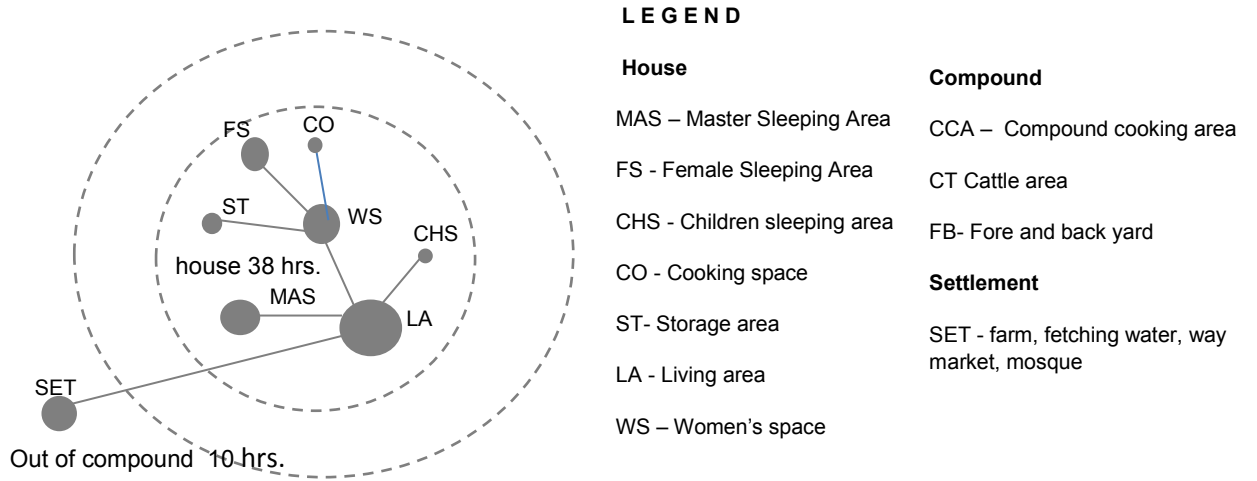


Fig. 4:88 J graph of Ato Hamid Mohamed's house

The hidden line represents the dwelling and the compound.

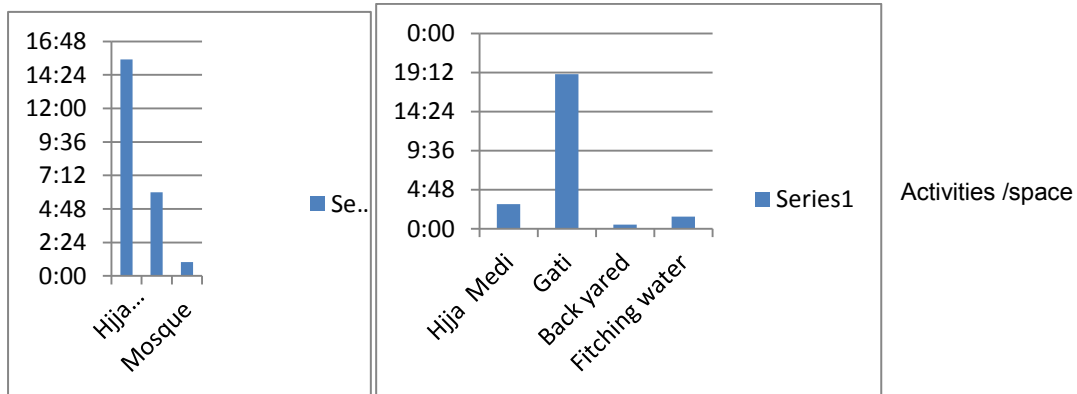


Fig. 4:89 Activity time graph of Ato Hamid Mohamed's family

4.3.4 W/ro Merema Mohammed Defar's compound

The life story of Merema Mohamed Defar



Fig 4:90 W/ro Merema Mohammed Defar's and her daughter Compound

Merema Mohammed was born in 1961 in Shonke Amba. She is 55 years old. She married Ato Nuru Hussien at the age of 14. W/ro Merema was not willing for her picture to be taken during the interview and was also shy to explain the exact cause of her divorce. But she has told the researcher the following.

“I returned home a few months after I got married but my parents forced me to go back to my husband’s house. I was very young at the time. After I returned to my husband’s house we had a fight that led to our divorce, I then returned to my parents’ house. I did not bear him any children.

“My husband did not have good behavior. He did not allow me to see my parents so I divorced him. After I divorced him I married Ato Habib Sema and gave birth to two daughters. My eldest daughter is married and she is living with her husband, but the youngest one Halima Habib is divorced and she is living with me. My husband passed away 15 years ago I remarried after my husband’s death and gave birth to a son. Me and my husband are divorced and my son lives with his father now. I have no reliable income; I sell handcraft products and firewood in Kemise for a living. I carry bundles of fire wood on my back and walk for three hours to catch ISUZU truck which costs me 15 birr for myself and the firewood I sell the firewood for 50 Birr every week.

Women’s space for W/ro Merema is place to sleep, think and beautify herself. The women’s space is a magical place for her, it makes her feel different emotions.

Table 4.8 Space –Time Diary of W/ro Merema Mohamed Defar

S.No	Date	Activities (Daily	Room /place	From/at	To
W/ro Merema Mohamed Defar					
Daily activities					
1		Get dressed and pray	Living area	6:00	6:15
2		Cook breakfast	Women’s space	6:15	9:00
3		Collect Fire wood	The farm	9:00	12:00
4		Go back home and eat lunch	Living area	12:00	12:20
5		Get rest	Living area	12:20	14:00
6		Collect Fire wood	The farm area	14:30	16:30
7		Go back home and rest	Living area	16:30	17:00
8		Pray	Living area	17:00	17:20
9		Hand craft	Living area	17:20	18:00
10		Help my daughter cook	Women’s space	18:00	21:00
11		Eat dinner	Living area	21:00	21:30
12		Chat with my daughter	Living area	21:30	22:00
13		Sleep	Living area	22:00	6:00
Weekly activities					
1		Get dressed	Living area	4:00	
2		Cook my breakfast	Women’s space	4:00	5:00
3		Pray	Living area	5:00	5:20
4		Eat my breakfast	Living area	5:20	6:00
5		carry fire wood way to the market	Go to Borkenna	6:00	9:00
6		Go to Kemise by car	On the road	9:00	10:00
7		Seal fire wood	Kemisse town	10:00	17:00
8		Go to Borkenna with car	On the road	17:00	18:00
9		Walk to Shonke Amba	On the road	18:00	21:00
10		Eat dinner	Living area	21:00	22:00
11		Sleep	Living area	21 :00	6:00

The life story of Halima Habib

Halima Habib was born in 1994 in Shonke Amba. She is 22 years old. She has attended school until the 8th grade, but she cannot read and write properly in neither her mother tongue Amharic nor the medium of instruction Oromiffa. Argobbigna is also her mother tongue. She has a three year old daughter with her husband whom she married in 2010. She got divorced in 2016. She said the following about her divorce:

My husband is rich but when I asked him to buy me earrings, nucleus and watch he refused to buy. That means he doesn't love me so I divorced him.

I love Shonke Amba and I can't live without Argobba and this Amba".

For Halima Habib women's space means a place where people can work, rest, have children, love and meet women. In five years she wishes to see herself married to a man who loves her and a mother of six children.

Table 4.9 Space –Time Diary of W/ro Merema Mohamed Defar's Daughter

S.No	Date	Activities (Daily	Room /place	From/at	To
Halima Habib					
Daily activities					
1		Get dressed and pray	Women's space	6:00	6:30
2		Bake Enjera	Women's space	6:30	8:00
3		Eat breakfast	Living area	8:00	8:30
4		Fetch water	Chilata water point	8:30	9:30
5		Clean the compound	Compound	9:30	10:00
6		Make Handcraft materials	Living area	10:00	12:00
7		Cook and eat lunch	Women's space	12:00	13:00
8		Pray	Women's space	13:00	13:30
9		Grind grains	Women's space	13:30	16:30
10		Fetch water	Chilata water point	16:30	17:00
11		Cook dinner	Women's space	17:00	19:00
12		Eat dinner	Living area	19:00	19:30
13		Make coffee and chat	Living area	19:30	22:00
		sleep	Women's space	22:00	6:00
Weekly activities					
1		Get dressed	Women's space	5:00	
2		Cook breakfast	Women's space	5:00	6:00
3		Fetch water	Chilata water point	6:00	7:00
4		Wash cloth	Borkena river	7:00	10:00
5		Drink coffee	Living area	10:00	12:00
6		Grind Grains	Living area	12:00	14:00
7		Collect fire wood	The farm	14:00	17:00
8		Fetch water	Chilata water point	17:00	18:00
9		Cook Dinner	Women's space	18:00	19:00
10		Eat dinner	Living area	19:00	19:30
11		Make coffee and chat	Living area	19:30	22:00
12		Sleep	Women's space	22:00	5:00
Monthly Activities					
1		No monthly activities			

The Compound:

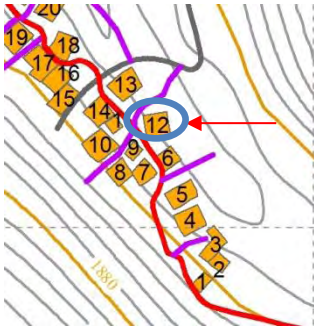


Fig.4: 91 Location of W/ro Merema's House

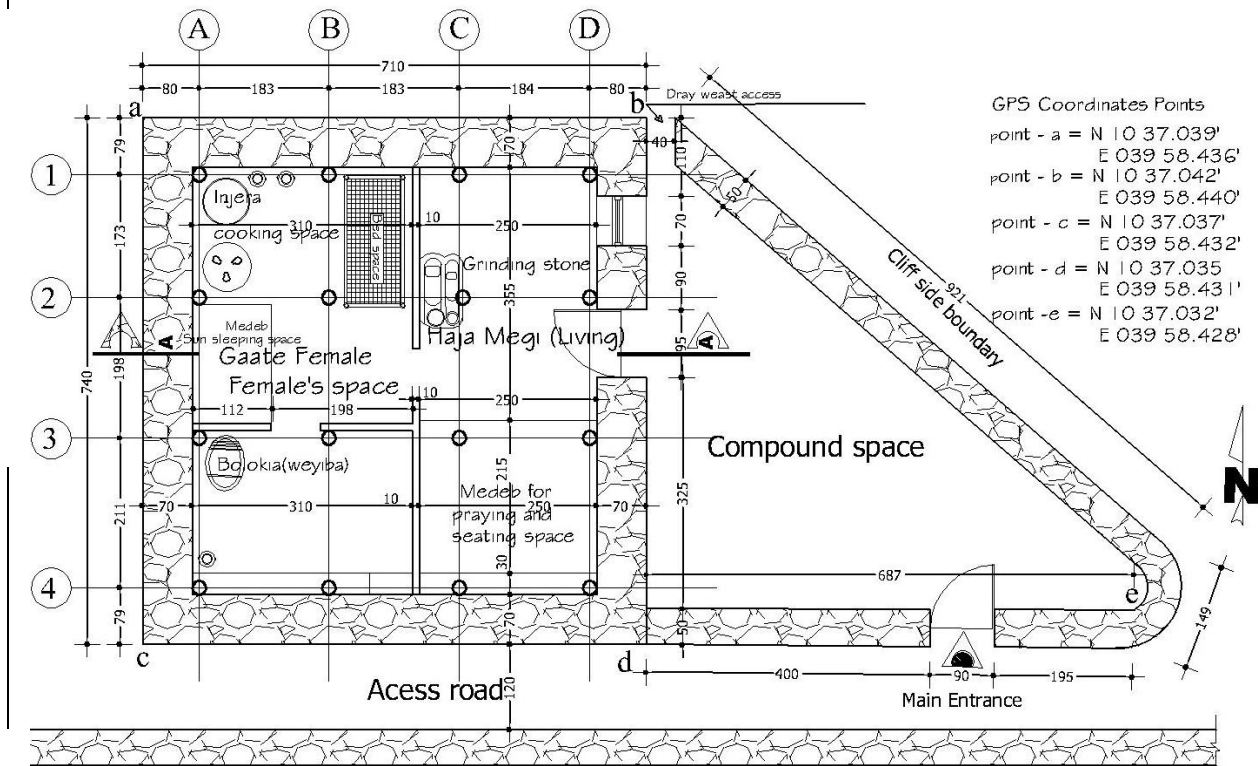


Fig. 4:92 Compound lay out and floor plan of W/ro Merema

The geographical location of W/ro Meremais A= N10 37.039 E 039 58.436, B= N 10 37.042 E 039 58.440, C= N 10 37.037 E 039 58.432, D= N 10 37.035, E 039 58.431 and E = N 10 37.032 E 039 58.428 at altitude of 1917 above sea level . The total area of w/ro Mewrema's compound is 86.67 m². Out of the total area the house foot print area is 53 m² which is constructed on the border line facing the North, the South and the West sides.

The Front Yard

The only space left for construction in w/ro Merema's compound is the front yard, which is triangular in shape and is mostly used to store fire wood for sell in kemise town.

The northern part of the front yard faces the cliff side of the mountain. On this side there is 40cm open fence wall which is used to throw dry waste to the cliff. This space is not used for toilet disposal, because it is forbidden in the Muslim religion to pee or defecate in the north North direction. The main entrance which faces the access road is also located in the front yard.

The back yard

W/ro Merema's house is built in back yard So there's no open space left.

The House

w/ro Merema's is a three row house with 710x740cm total size including 70 cm thick dry stone masonry wall. The clear height of the internal space of the room is 225cm. The house is sub divided into two main parts the Living area and the women's space. The Living Area, which is the men's space, accommodates the *medeb* used by the head of the household W/ro Merema since her husband passed away. The women's space is sub divided in to two. The smoke bath space is separated from other spaces with wood and mud mortar wall. Smoke bath is frequently used and sometimes on a daily basis by young and newly married women. The other part is the female and children sleeping space and the cooking space.

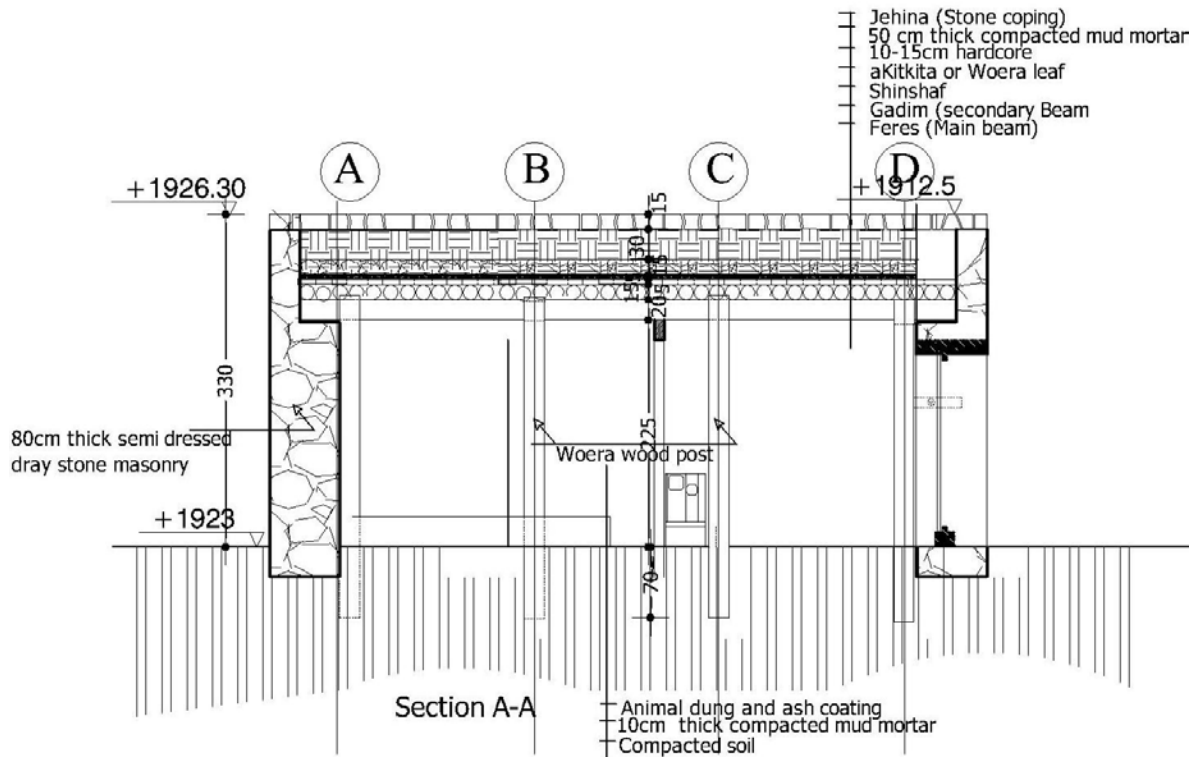


Fig. 4:93 Section of W/ro Merema's house

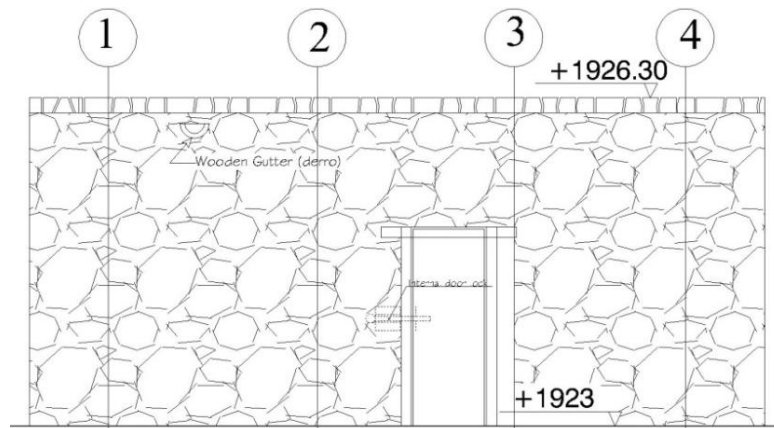


Fig. 4:94 East Elevation

The external elevation wall is constructed out of stone masonry wall to a height of 230cm above natural ground level. The wooden roof gutter (local name *dero*) is located on the front side of the house to collect rain water easily during the rainy season. After it rains continuously for two weeks dust particles are cleaned of the flat roof of *the* house *bet*. Then the rain water which comes down the wooden gutter of the flat roof were used as potable water saving women the journey to *chilata* water point.



Fig. 4:95 Collecting rain water from the wooden gutter of the flat roof

Orientation of the House

W/ro Merema's house is oriented towards the East direction to follow the Muslim religion's rules.

Furniture's in each room:

a) Living area

- *Medeb* (sleeping and praying space) *grinding stone*, *Mukecha*, *Jebena*, animal hide and skin for bed sheet.

b) Women's space

- Women's sleeping bed, *Medeb* for son to sleep on and for women to take smoke bath

In W/ro Merema's house men use space 1 for sitting, praying and sleeping. Space 2 is for sitting, grinding and living area. In the Women's space, 3 is for female's sleeping area, 4 is for *smoke bath*, 5 is children's sleeping space and 6 is for cooking.

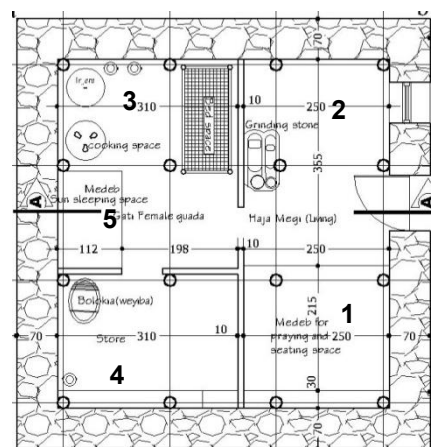


Fig. 4:96 Plan of W/ro Merema's house

Fig. 4.97 below shows the space used by W/ro Merema's family in the settlement, compound and house level. From the interview conducted with two family members within the 48 hours the family spend 83.333 % of their time with in the *house*, 0.62 % in the compound and 13.12% outside of the compound.

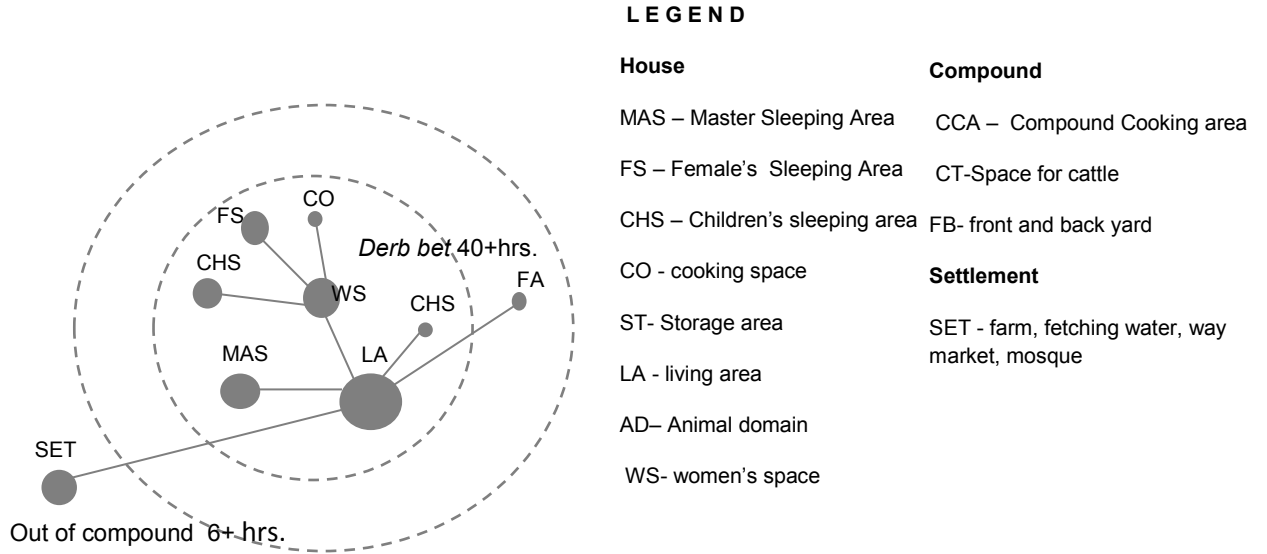


Fig. 4:97 J graph of W/ro Merema's house

The hidden line represents the dwelling and the compound.

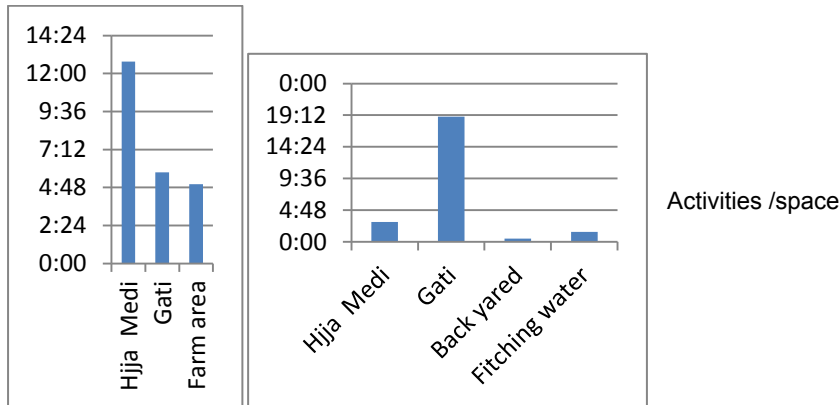


Fig. 4:98 Activity time graph of W/ro Merema's family

4.3.5 Ato Edris Mohammed's compound

Life story of Edris Mohamed



Fig.4:99 Ato Edris & his wife

Ato Edris Mohammed was born in 1985 in Tor Hamba, which is a 30 minute walk from Shonke Amba. When he grew up, he went to Asela to start a business . After staying there for 10 years he came back to Tor Amba and stayed for four years. In 2008 he went to Jeddah as an illegal migrant via Djibouti and worked there as a guard earning 300 Saudi Arabia Rial, for two years. He fell sick in 2002 and was treated at a hospital in Jeddah but did not recover fully from his illness. Since he was an illegal immigrant he surrendered to the police and was detained for 21 days. While in prison he got treatment for his stomach ache and recovered from his illness. When he was released from prison he was deported back home. He had about 15,000 Ethiopian Birr when he came back and started living with his sister in Chefa Robit. He narrated his history as the follows:

“I married a woman named Fatuma Awel and we became parents of two children in the same year we got married. Fatuma is poor in house and money management so I divorced her and our children started living with her. After I divorced her, I went back to my birth place, Tor Amba and married my grandfather’s daughter, Aminat Tahir. we got married in 2014, as per the Argoba tradition”.

Edris was asked to explain his perception of Shonke Amba and he said:

“Shonke Amba is the place of Sheiks and religious people. The place is convenient for praying. The air of Shonke Amba is the same as that of Meka Medina. The taste of the water is also nice what is saddening is that we are forced to learn in Oromiffaa instead of our language Argobbigna. I’ll be happy if our kids learn in Argobbigna and the Chilata water point is developed”.

The most used space by Ato Edris is the Living area and the farm . He spends his time in the living area by chewing kchat and chatting with his wife. That is to them and the Living area for them is a space to pray in and a place to plan for work. The farm area is place of prosperity for them and he plans to buy water pumps and machineries to modernize it.

Table 4.10 Spaces –Time Diary of Ato Edris

S.No	Date	Activities (Daily	Room /place	From/at	To
Ato Edris					
Daily activities					
1		Get dressed and pray	Living area	5:00	5:15
2		Go back to bed	Living area	5:15	7:30
3		Eat breakfast	Living area	7:30	8:00
4		Go to Abbila	On the road	8:00	8:15
5		Buy kchat	Abbila market	8:15	9:00
6		Go to Borkena	On the road	9:00	10:00
7		Sell kchat	Borkena market	10:00	11:00
8		Go home	On the road	11:00	12:00
9		Eat lunch	Living area	12:00	12:30
10		Chew kchat	Living area	12:30	15:00
11		Go to the farm	On the road	15:00	15:15
12		Work on the farm	The farm area	15:15	17:00
13		Go home carrying fire wood	On the road	17:00	17;15
14		Pray	Living area	17:15	17:30
15		Eat dinner and chat with my wife	Living area	17:30	23:00
16		Sleep	Living area	23:00	5:00
Weekly activities					

1		Get dressed and pray	Living area	5:00	5:15
2		Go back to bed	Living area	5:15	7:30
S.No	Date	Activities (Daily)	Room /place	From/at	To
3		Eat breakfast	Living area	7:30	8:30
4		Go to the farm	On the road	8:30	8:45
5		Collect kchat	The farm area	8:45	9:00
6		Go back home	On the road	9:00	9:15
7		Chew Kchat & pray (duwa)	Living area	9:15	15:00
8		Go to the farm	Abbila	15:00	15:15
9		Collect Fire wood & relax	The farm land	15:15	17:00
10		Go back home	On the road	17:00	17:15
11		Chew Kchat & eat dinner	Living area	17:15	23:00
12		Sleep	Living area	23:00	5:00
Monthly Activities					
1		Get dressed and pray	Living area	5:00	5:15
2		Go back to bed	Living area	5:15	7:30
3		Eat breakfast	Living area	7:30	8:00
4		Go to greet my children	On the road	8:00	10:00
5		Chat with my children & sister	Cheffa	10:00	14:00
6		Go home	On the road	14:00	16:00
7		Rest at home & eat dinner	Living area	16:00	21:00
8		Sleeping	Living area	21:00	5:00

The life story of Edris's wife

Aminat Tahir is 20y ears old she was born, grew up, educated and married in Shonke Amba. She attended primary school at Abbila primary school until 8th grade, 15 minute walk from Shonke Amba. She married her grandfather's son when she was 20. She had a baby but the baby died an infant.

Table 4.11 Spaces –Time Diary of Ato Edris Mohamed's wife W/ro Aminat Tahir

S.No	Date	Activities (Daily)	Room /place	From/at	To
Wife					
Daily activities					
1		Get dressed	Women's space	6:00	
2		Fetch water	Chilata water point	6:00	7:00
3		Cook breakfast	Women's space	7:00	8:00
4		Eat breakfast	Women's space	8:00	8:30
5		Clean the house	Living area	8:30	8:45
6		Grind grains	Living area	8:45	10:00
7		Hand craft work (sifet)	Living area	10:00	12:00
8		Fetch water	Chilata water point	12:00	13:00
9		Grind grains	Living area	13:00	14:00
10		Cook dinner	Women's space	14:00	15:00
11		Hand craft (sifet)	Women's space	15:00	18:00
12		Eat dinner and chat	Living area	18:00	22:00
13		Sleep	Women's space	22:00	6:00
Weekly activities					
1		Get dressed and pray	Women's space	5:00	5:15
2		Fetch water	Chilata water point	5:00	6:00
3		Cook breakfast	Women's space	6:00	7:00
4		Eat breakfast	Living area	7:00	8:00

5		Hand craft work	Living area	8:00	12:00
6		Eat lunch & make coffee	Living area	12:00	14:00
7		Hand craft work	Living area	14:00	17:00
8		Collect fire wood	Farming area	17:00	18:00
9		Cook dinner	Women's space	18:00	20:00
10		Eat dinner	Living area	20:00	22:00
11		Sleep	Women's space	22:00	5:00
Monthly Activities					
1		Get dressed and pray	Women's space	5:00	5:15
2		Fetch water	Chilata water point	5:00	6:00
3		Cook breakfast	Women's space	6:00	7:00
4		Eat breakfast	Living area	7:00	8:00
5		Clean the house	Living area	8:00	9:00
6		Prepare to go	Women's space	9:00	11:00
7		Go to my parents' home	Abbila	11:00	11:30
8		Roast and eat lunch	Living area	11:30	12:30
		Chat with my mother	Living area	12:30	23:00
		Sleep next to my mother	Women's space	23:00	6:00

The Compound:

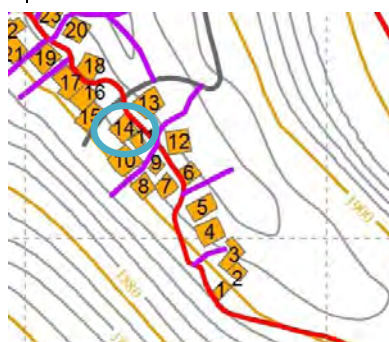


Fig.4:100 Location of Ato Ediris

Mohamed's House

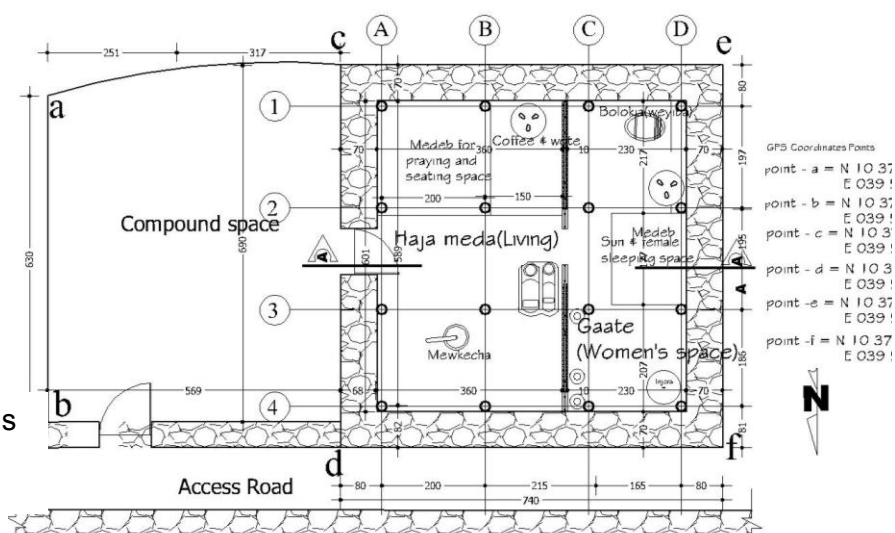


Fig. 4:101 Ato Ediris Mohamed's compound & Floor Plan.

The geographical location of Ato Ediris Mohamed is; a =N 10 37.030 E 039 58.434, b= N10 37.032 E 039 58.436, c= N10 37.033 E039 58.432, d= N 10 37.033 E 039 58.433, e= N 10 37.034 E 039 58.430 and f= N 10 37.037 E039 58.432 at the altitude of 1917 above sea level. In the compound of Ato Ediris Mohamed, the front part is an open space which is used as a main transition to the house located in the Eastern side. The other West side is fully allocated for the house built on the border line on the street sides. The total plot area of the compound is 101 m²; out of this the foot print area is 54.83 m².

The Front Yard:

The front yard, which faces the East, is the point of access for the entrance gate. The space is allocated for fire wood storage and washing during the rainy season. During summer, most of the Shonke Amba residents go to Borkena River to wash their clothes, because fetching water from Chilata water point and Shonke Amba which are 1755 and 1925 above sea level respectively is very difficult. Therefore 170 meter height difference is like climbing a 50 story building carrying 20 liters of water

The back Yard

There is no back yard space in Ato Edris's compound. The foot print of the house fully rests on the back yard space. For toilet and dry waste disposal the residents use the south side of the front yard.

The House

The House of Ato Edris is a three row house type. It has 12 posts with 70cm thick stone masonry wall. The internal space is divided into two parts. The living area and the women's space. The internal partition which divides the house into two parts is made of wood and mud mortar. The internal part of the dry semi-dressed stone is also plastered with mud mortar, which is a mix of straw and water. The internal plastering and decoration part such as mixing of ash, animal dung and water which is uses as a final paint is carried out by women.



Fig. 4:102 Women plastering and decorating the house.

The Living area is men's space, where they rest, sleep and pray on *medeb* however, women use the space for grinding grains and making traditional hand crafts, which is used to serve *njera* and other food. They used to make hand craft work at living area is that there is no sufficient natural light to perform the activity, The women's space is used as a private space for women to beautify themselves, smoke bath and sleep. Women's space is also shared with children for sleeping and men also use it also when they want to spent the night with their wives. The internal size of 6x6 meter and the clear internal height is 2.25 meter which is a common height in Shonke Amba.

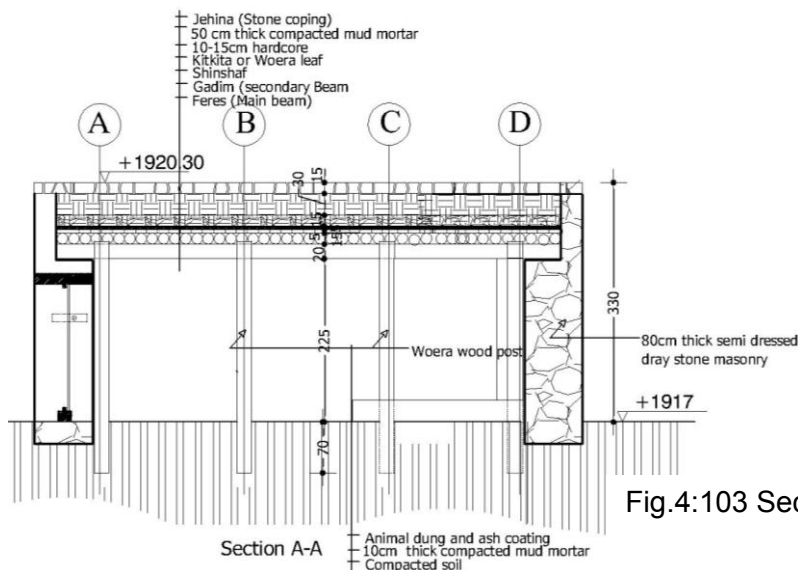


Fig.4:103 Section of Ato Ediris's *derb bet*

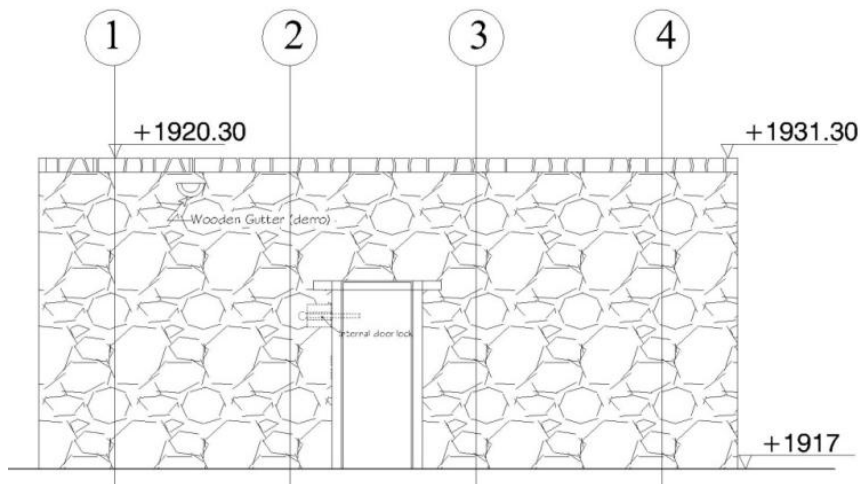


Fig. 4:104 East Elevation

Orientation of the house

The house is oriented towards the East direction. The orientation is for religious reasons mentioned previously.

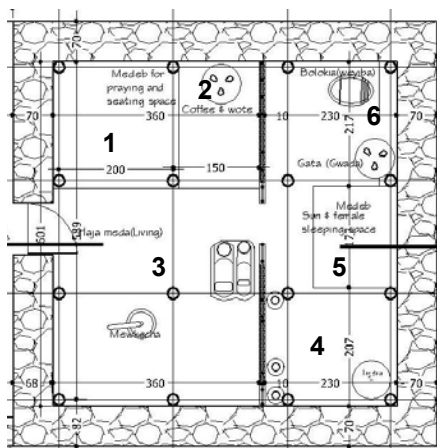
Furniture in each room

a) Living area (Living area)

Medeb, Grinding stone, Mukecha, Jebena, Hide and handcraft products.

b) Women's Space

Women's sleeping bed, Medeb for son's to sleep on, njera baking space, smoke bath, pots, plastic water tank, and cloth



At the house the human domain is classified based on sex. Living Area is for men and Women's space is for women and children. Men use space 1 for seating, praying and sleeping. Space 2 is for cooking and 3 is for living and activities such as grinding. 4 which is women's space is for storage and baking njera. Female and children use space 5 for sleeping and 6 is used by women for smoke bath and beauty spot. Space 6 also serves as additional cooking space.

Fig.4:105 Plan of Ato Edris's house

Fig. 4.106 below shows space used by Edris's family at settlement, compound and house level. From the interview conducted with two family members within the 48 hours. The family spent 82.18 % of their time with in the house and 16.97% out of compound.

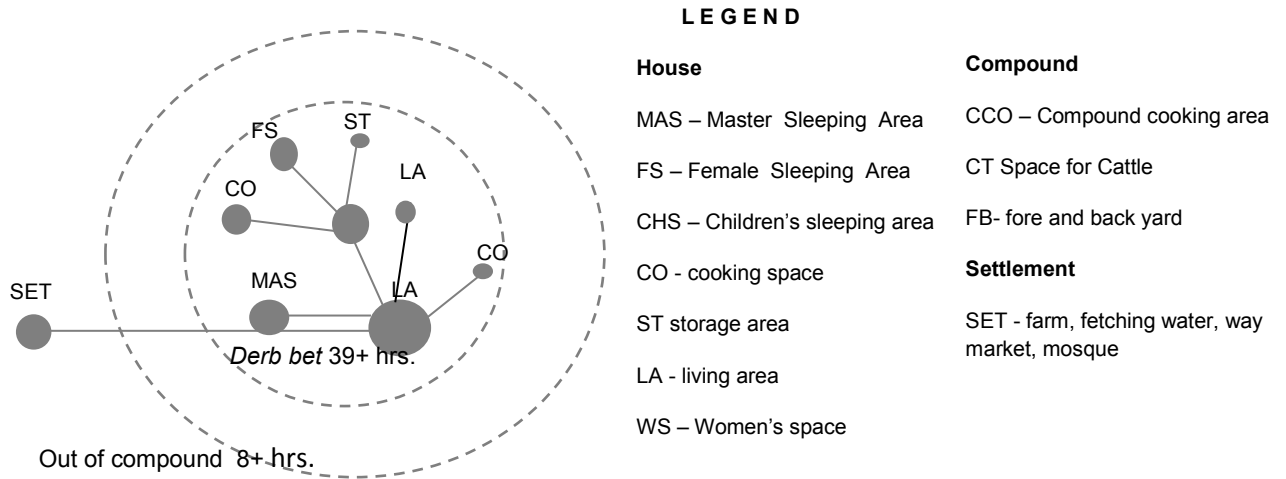


Fig. 4:106 J graph of Edris’s house

The hidden line represents the dwelling and the compound.

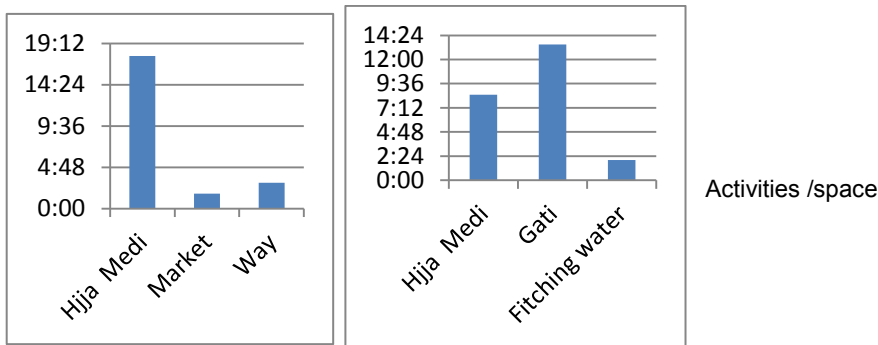


Fig. 4:107 Activity time graph of Edris’s family.

4.3.6 W/ro Alima Kamil Ali’s compound.

The life story of Alima kamil Ali



Fig. 4:108 W/ro Alima Kamil Ali’s family.

Wro Alima Kamil is 45 years old. She was born, grew up and married in Shonke Amba. She married twice. Her first marriage was when she was 14 years old. She lived with her husband for less than a year. She divorced her first husband because of sexual abuse and sexual relation. Her husband was 26 years old.

At the time she did not know about menstruation cycle and her breasts had not developed. She stayed with her family for three years and then married Ato Ahmed Ali, the father of her son and daughter, when she was eighteen 18. Although she gave birth to three children one of them died an infant. Ato Ahmed Ali passed away but she did not marry again. She is not educated and earns an income selling coffee, grass and from her husband's land. She also works as a laborer in the settlement. The living area means strength to her because it is a place she prays in when she is unhappy with things in her life and women's space means the secret to getting children. Space has two meanings for her.

Table 4.12 Spaces –Time Diary of W/ro Alima

S.No	Date	Activities (Daily	Room /place	From/at	To
Mother					
Daily activities					
1		Get dressed and cook breakfast	Women's space	6:00	8:00
2		Eat breakfast	Women's space	8:00	8:30
3		Fetch water	Chilata water point	8:30	9:30
4		Collect fire wood	Borkena river	9:30	11:30
5		Hand craft (Sifet)	Living area	11:30	13:00
6		Eat lunch and having coffee	Living area	13:00	14:00
7		Hand craft work(sifet)	Living area	14:00	16:00
8		Bake Injera	Women's space	16:00	18:00
9		Rest	Living area	18:00	21:00
10		Eat dinner	Living area	21:00	22:00
11		Sleep	Living area	22:00	6:00
No Weekly activities and Monthly activities					

The life story of Alima's son (Hasen Ahmed)

Hasen Ahmed is 18 years old. He was born in 1998 and grew up in Shonke Amba. He attended his education until the 6th grade and dropped out because he had to earn a living. Even though he has had formal education he cannot read and write in either Oromiffa or Amharic. He is employed as a cattle keeper within the settlement and earns 1000.00 Birr per year. His food and annual clothing cost are also covered by his employer. He has quit working as a cattle keeper and now works on his father's farm.

"I grow chat and cultivate sorghum. I do not have oxen but, in Shonke Amba you can borrow other people's oxen to cultivate your plot as much as you want to. On my father's plot, we have also coffee which covers our consumption. I have a plan to marry, but first I will construct my own house. The expensive construction materials will be wooden elements such as post, main beam, secondary beam and ...etc. it will cost me about 10,000.00 birr. I will work hard to collect the money".

Hasen Ahmed thinks that Shonke Amba will be change when the time comes. He feels the farm is the only means of prosperity. "If I work hard on the farm I can buy a car and live in the town".

In Shonke Amba a young boy above 18 years of age does not sleep together with his parents. He spends the night with his peers who has own a house. Until they marry young boy's spend the night with their best friends. Because of this Hasen feels that the night space is their future destiny.

Table 4.13 Spaces –Time Diary of W/ro Alima Kamil Ali’s son.

S.No	Date	Activities (Daily	Room /place	From/at	To
Son					
Daily activities					
1		Get dressed and go to the farm	The road	6:00	6:15
2		Pick chat from the field	The farm	6:15	8:00
3		Go to Abbila chat market	The road	8:00	8:15
4		Sell chat	Abbila market	8:15	9:00
5		Go home	On the road	9:00	9:20
6		Eat breakfast	Living area	9:20	9:40
7		Go to the farm	On the road	9:40	10:00
8		Pick chat from the field	The farm	10:00	10:15
9		Go home	On the road	10:15	10:30
10		Chew chat	Living area	10:30	13:00
11		Eat lunch and drink tea	Living area	13:00	13:30
12		Go to the farm	On the road	13:30	13:45
13		Work at the farm	Farm area	13:45	17:00
14		Go to the Tea house	On the road	17:00	17:15
15		Chat with friends	Tea house	17:15	19:00
16		Go home	he road	19:00	19:10
17		Eat dinner	Living area	19:10	20:00
18		Chat with friends	Friend’s house	20:00	22:00
19		Sleep	Friend’s house	22:00	6:00
No Weekly activities and Monthly activities					

The life story of Alim’s daughter (Fatuma Ahmed)

Fatuma Ahmed is 14 years old and a grade 8 student. She was born at Abbila which is a 20 minutes’ walk from Shonke Amba. She tells her life story as follows:

“I have no interest to continue my education, because at *Abbila* primary school we can learn only up to the 8th grade, if we seek to further our education we have to go to *Kemisse*. My parents are poor so they can’t send me to *Kemisse* so I have to get married. My parents have been asked for my hand in marriage as per the Argoba tradition and they have accepted. My soon to be husband is building his own house and has bought the engagement gifts which are our engagement clock and rings made of *Martreza* silver coins for 1,800 birr. The gifts were given to me through our women neighbors so now he can come and take me any time he wants.

I don’t know about the menstrual cycle and my breasts are not well developed but my mother has decided that I should marry and I have to agree as it is our tradition”.

Fatuma is a teenager and her weight does not exceed 35 Kg. She has never heard of problems caused because of early marriage and affect girls her age. Even her mother does not tell her about her first husband sexual abuse while she was at a thin age.

Her mother has not even told her about the sexual abuse she experienced by her first husband, when she was a teenager.

Table 4.14 Spaces –Time Diary of W/ro Alima’s Kamil Ali’s daughter

S.No	Date	Activities (Daily	Room /place	From/at	To
daughter					
Daily activities					
1		Get dressed & fetch water	Chilata	6:00	7:00
2		Clean the house	Hajja medi	7:00	7:30
3		Eat breakfast	Hajja medi	7:30	8:00

4		Make Hand craft	Living area	8:00	10:00
5		Go to school	The road	10:00	10:30
6		Play in the school compound	Abila	10:30	12:00
7		Learn	Abila	12:00	17:00
8		Go home	The road	17:00	17:30
9		Eat lunch	Living area	17:30	18:00
10		Fetch water	Chilata water point	18:00	19:00
11		Get rest	Living area	19:00	20:00
12		Eat dinner	Living area	20:00	20:30
13		Sit	Living area	20:30	21:00
14		Sleep	Living area	21:00	6:00

The Compound:

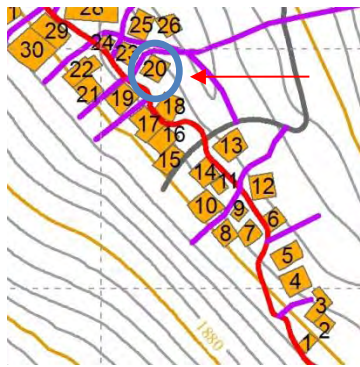


Fig.4:109 location of W/ro Alima

Kamil's house

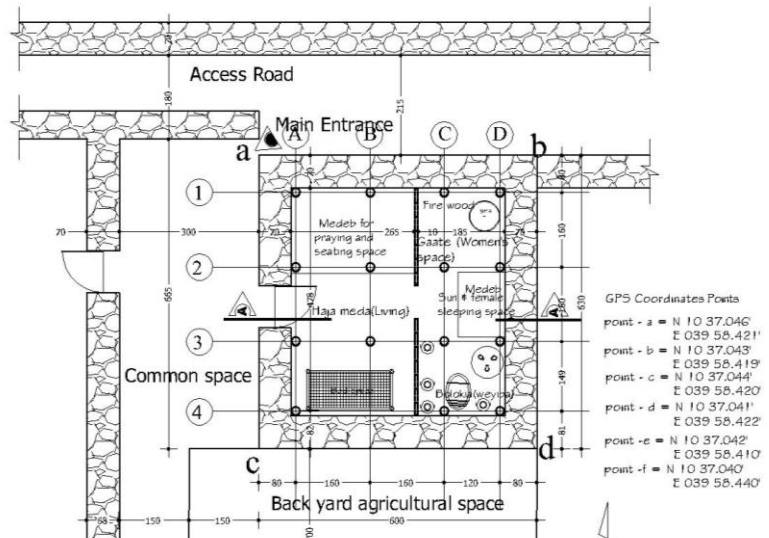


Fig. 4:110 Floor plan and compound layout of W/ro Alima's compound

W/ro Alima's compound is geographically located at compound at a= N 10 37.046 E

039 58.421, b = 10 37.043 E 039 58.419, c= N 10 37.044 E 039 58.420, d= N 10 37.041 E 039 58.422, e= N 10 37.042 E 039 58.410 and f = N 10 37.040 E 039 58.440. with an altitude of 1928 above sea level. The total plot area of the compound is 90.26m² including the back yard which is used for agriculture during rainy season. The plot has an urban form like all other Shonke Amba compounds.

The Front Yard

The front yard of W/ro Alima's compound is a space which is shared by her neighbor Ato Ebrahim Endris. The main entrances of the two houses face each other. The open space between them is 3x6.65 meter. This open space is also shared by other residents, to dispose dry and toilet waste towards the cliff side of the mountain. The front yard is directly accessed through the main road which is a boundary on the North side of the compound as indicated below.

The back yard

The back space of W/ro Alima is located at the South side of the compound and is bordered with the cliff. This makes the cliff accessible to the compound allowing the disposal of dry and human waste. The back yard which is about 52 m² is used to grow vegetables and maize like urban agricultural land. The difference is the space is dependent on rainfall while urban agriculture is dependent on potable and rain.

The House

W/ro Alima's house is a three row house. The size of the house is 6x6.30 meters including 0.70 meter thick wall on both sides. The column which is about 0.20 meters in diameter is placed at a grid system. Columns are placed at a distance of 2.00 to 2.20 meters. The clear internal height of the house is 2.25 meters and the overall external height of the house is 3.30 meters. The internal space is categorized into two main parts. The living area and the Women's space is also used as a sleeping and praying space. In addition to the *medeb*, there is a bed made of animal skin and wood. The Women's space is arranged to accommodate two spaces for *Engera* and coffee, these do not include the separate cooking space.. It is also used as women's space for smoke bath and as a store for fire wood.

Orientation of the house

The orientation of the house of Shonke Amba is towards the East side due to religious reasons mentioned earlier. However some of the houses are ordinated towards the West which is the second preferable orientation In the Muslim religion. W/ro Alima's house is oriented to the West side due to the adjacent No-16, Ato Ahmed Amoye's house at the eastern side and w/ro Halima Kemal share common wall.



Fig. 4: 112 The back yard of the house

Fig. 4: 111 The front yard of W/ro Alima's house.

Furniture's in each room:

- a) Living area: *Medeb* Sheep skin, Hand craft, Bed



Fig.4:113 Traditional bed at Hajja medi



Fig.4:114 Medeb at Hajja medi

b) Women's space

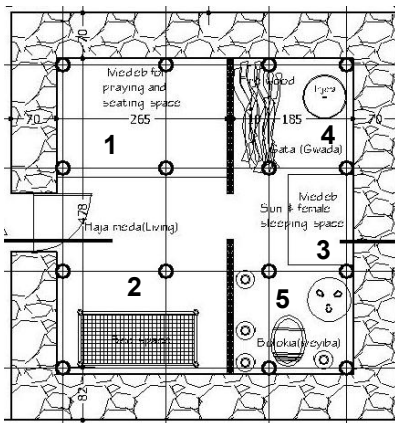
- Women's sleeping bed, *Medeb*, *Enjera* cooking space, smoke bath and pots.



Fig. 4:115 Enjera making



Fig. 4:116 Smoke bath space



At the *house*, the living space which is 1 is used for *medeb* which serves as prayer Space. Space 2 is used for sitting. In the Women's space, space 4 is used for storage and to bake Enjera. Space 3 is children's sleeping space and space 5 is used for women's smoke bath and also as an additional cooking space.

Fig.4:117 Plan of W/ro Altima's house

Fig. 4.118 below shows the space used by W/ro Alima's family at settlement, compound and house level. From the interview conducted with three family members within the 72 hours. The family spent 54.72 % of their time with in the house and 44.70% outside of the compound.

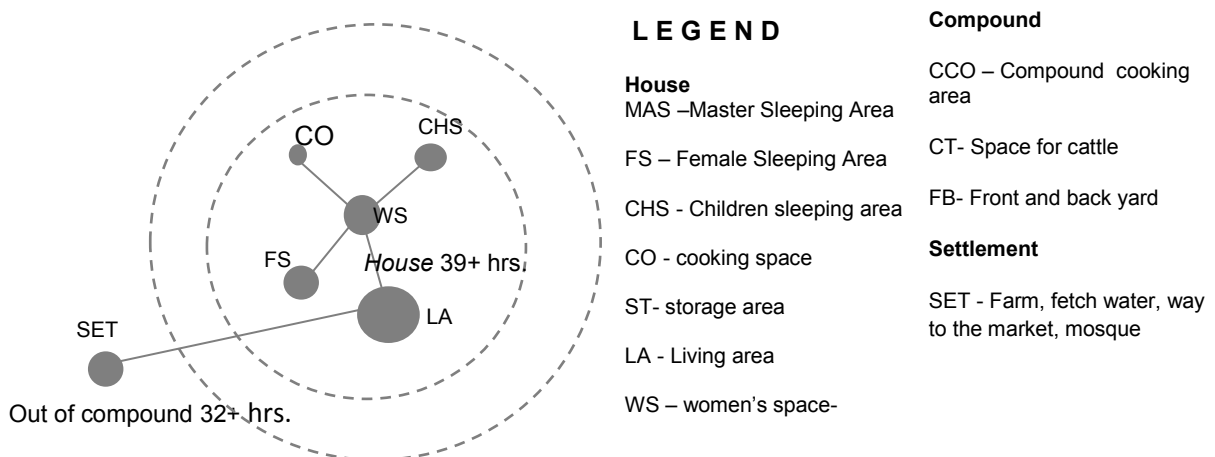


Fig. 4:118 J graph of W/ro Alima's house.

The hidden line represents the dwelling and the compound.

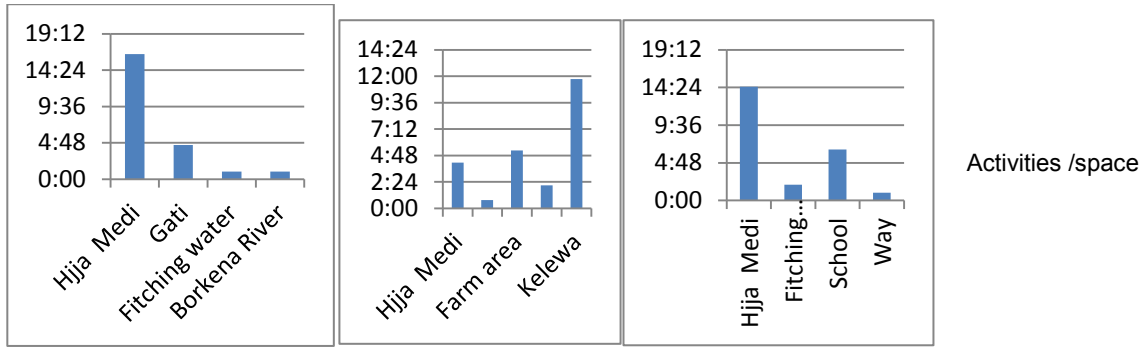


Fig. 4:119 Activity time graph of W/ro Alima Kamil Ali's family

4.3.7 W/ro Shemshu Ahmed Siraj's Compound

The life story of Shemshu Ahmed Siraj



Fig.4:120 W/ro Shemshu Ahmed siraj and her house.

Shemshu Ahmed Siraje was born in 1956 in Shonke Amba. She is 60 years old and has lived in Shonke Amba all her life. She married Ato Mohamed Nur when she was 15 but didn't bear any children.

"My husband passed away. He had children with other women. I inherited this house from my father. When I was healthy and strong I used to earn a living making handcraft, now I have nothing God. My eyes can hardly see so life is difficult for me. The Shonke Amba residents provide me with food and water. I am not educated; everything is in God's hand I only know about today; I never worry about tomorrow and the coming five years. Thanks to my father for providing me with this house. Otherwise I would have been eaten by a hyena".



Fig.4:121 W/ro Shemsu searching for food & water in Shonke Amba.

Table 4.15 Spaces –Time Diary of W/ro Shemshu Ahmed Siraj’s.

S.No	Date	Activities (Daily)	Room /place	From/at	To
W/ro Shemshu Ahmed Siraj					
Daily activities					
1		Get dressed and pray	Living area	7:00	7:30
2		Get food from the residents	Settlement	7:30	10:00
3		Chat with people providing me food	Settlement	10:00	12:00
4		Go back home and pray	Living area	12:00	13:00
5		Walk around the settlement and search for food in the settlement	Settlement	13:00	17:00
6		Go back home and pray	Living area	17:00	18:00
7		Wait for the residents to bring food and water to the house	Living area	18:00	19:00
8		Sleep	Living area	19:00	7:00
Weekly activities					
1		Daily activities are continued			

The Compound:

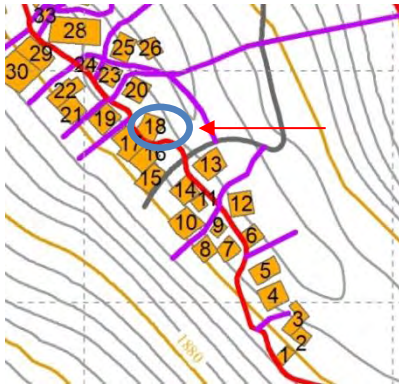


Fig.4:122 location of W/ro Shemsh Ahmed Siraj's house

Compound

The geographical location of W/ro Shemshu Ahmed siraj's house is; a= N 10 37.047 E 039 58.426, b= N 10 37.046 E 039 58.428, c= N 10 37.046 E 03958.430, d= N10 37.046 E 039 58.425 e= N10 37.044 E039 37.425 and f= N10 37.042 E 039 58.431, at altitude of 1925 above sea level. The total compound area is 89.73m²

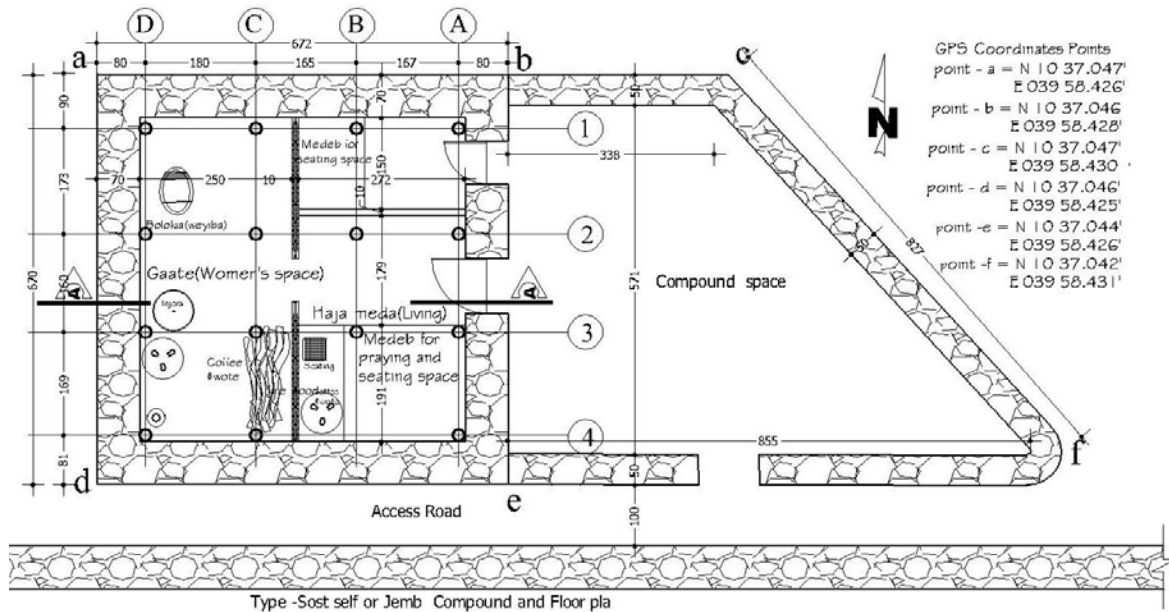


Fig.4:123 Compound and floor plan of W/ro Shemshu Ahmed Siraj.

The Front Yard

W/ro Shemshu's front yard is empty. The compound is fenced with dry masonry wall, as it was hundreds of years ago. It is visited by the few people who bring water and food to W/ro Shemshu . The main entrance gate is located in the South side, and is accessed directly from the main road. W/ro Shemshu Ahmed is one of the poorest of the poor people so her gate does not close making it easy for people and animals to enter. Water is also a luxury for her since she cannot go down 171 meters on the irregular stone roads of Shonke Amba and fetch water. She relies on the residents to fulfill her needs.

The back Yard

There is no back yard space in W/ro Shemshu's Compound. The house is built on the boundary line on the North, West and South sides of the compound.

The House

W/ro Shimshon's house is three row types, it has 12 wooden columns. Its size is 6.70x6.72 meter including 0.70 meter thick walls. The internal height of the house is 2 meters, but the overall external height of the house is 2.95 meter. The house is divided into two main parts, the living area and the women's space. The living area is sub divided into two and each of them have separate doors. This is made for W/ro Shimshon's relative. However when the research was conducted, the separated room from the house is 4m² and closed. The room has *medeb* for sleeping.

At the Women's space there is *medeb* for children and women. W/ro Shemshus's women's space is subdivided into the smoke bath space and space for *baking Enjera* and other cooking spaces.

Orientation of the House

The house is oriented towards the East side due to religious reasons mentioned previously.

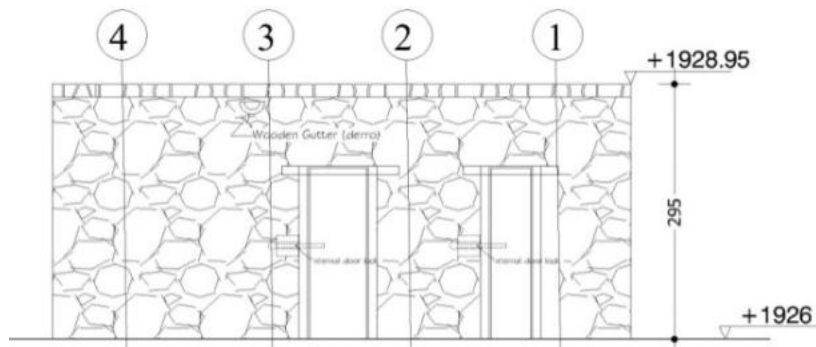


Fig. 4:124 East Elevation of W/ro Shemshu Ahmed's house.

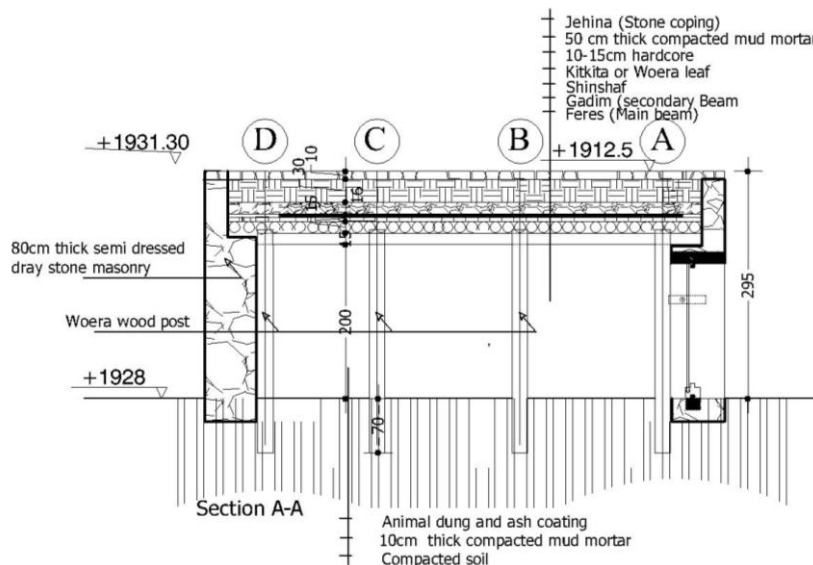
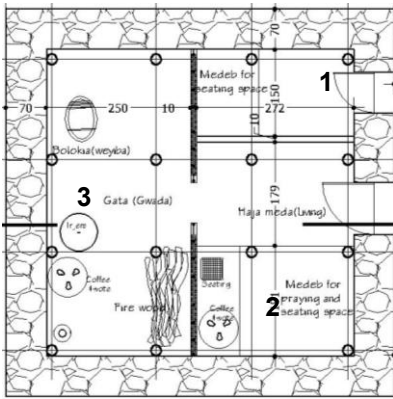


Fig. 4:125 Section of W/ro Shemshu Ahmed's house.



At the *house* Space 1 where *medeb* is found is used for praying and sleeping. Space 2 is for sitting and cooking. In the women's space space 3 is used for storage and to bake *Enjera*

Fig.4:126 W/ro Shemshu Ahimed Siraj's house

Fig. 4.127 below shows space used by W/ro Shemshu's family at the settlement, compound and house level. From the interview conducted with one family member within the 24hours. The family spent 63.75 % of their time with in the *house* and 34.58% outside of the compound looking for food at her relative's house.

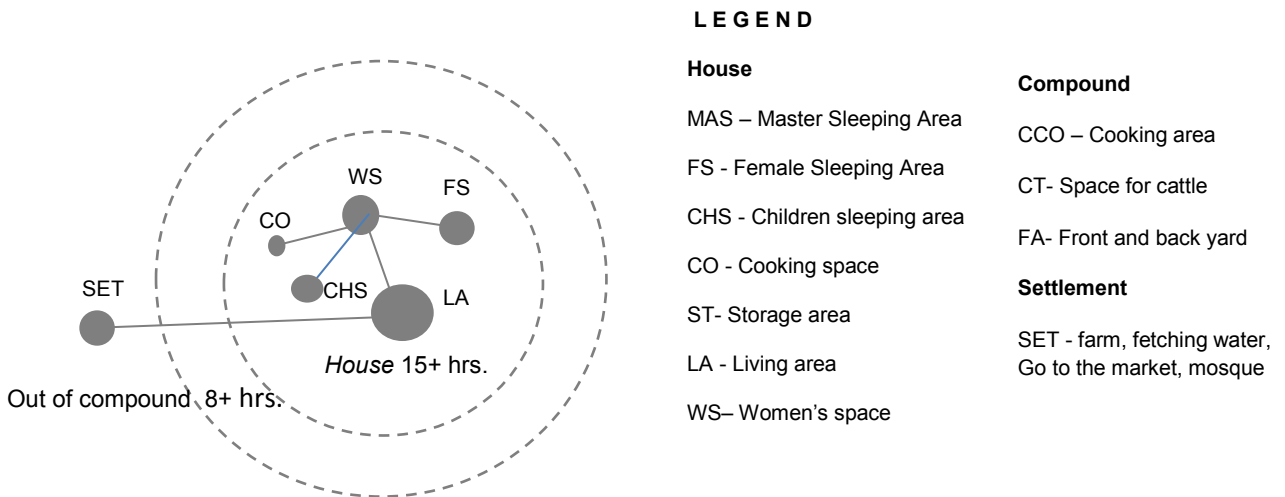


Fig. 4:127 J graph of W/ro Shemshu Ahimed Siraj's Ali's house

The hidden line represents the dwelling and the compound.

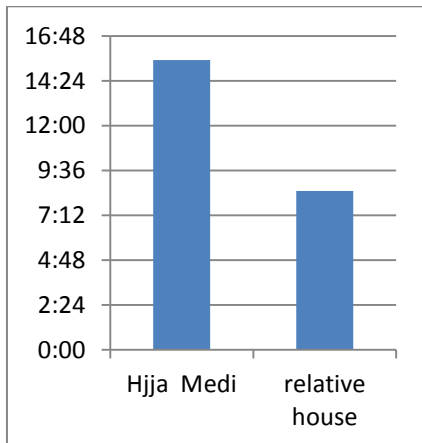


Fig. 4:128 Activity time graph of W/ro Shemshus Ahimed Siraj's family

4.3.8 W/ro Merema Kelil's Compound

The lifestory of W/ro Merema Kelil

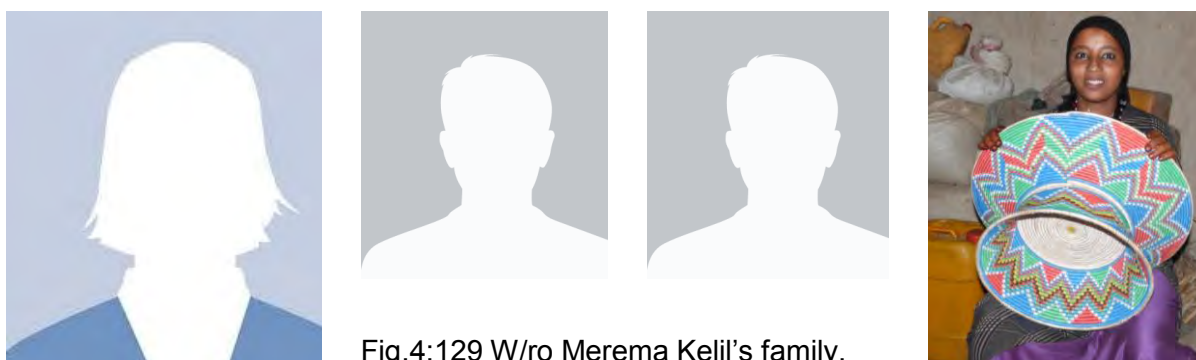


Fig.4:129 W/ro Merema Kelil's family.

W/ro Merema Kelil was born in 1961 in Toleha Amba settlement. She married to Ato Ahimed Abiye at the age of 13, she narrated her story as follows:

Within less than a year in to our marriage we had a fight and I divorced him. (She is not willing to describe the exact reason for her divorce). After I divorced him, I married Mohamed Siraj Kemal; who later become a well-known religion leader (*Kadi*) and came to Shonke Amba. I had 11 children with him and seven of them died when they were kids. Out of my four remaining children three are married, but only one of my sons lives with his family. The other two are living with me. My oldest son's wife died in child birth. . My daughter divorced her husband because they could not get along.. My husband passed away last year. We earn an income from cultivating Sorghum, Coffee, kchat and beehive and etc on our farm. In addition to I make traditional handicrafts”.

W/ro Merema is not educated. She likes Argooba's house because it is passed from generation to generation.

Table 4.16 Spaces –Time Diary of W/ro Merema Kelil's

S.No	Date	Activities (Daily	Room /place	From/at	To
W/ro Merema kelil					
Daily activities					
1		Get dressed and pray	Living area	5:00	5:30
2		Bake Enjera	Fire place	5:30	7:00
3		Eat breakfast	Living area	7:00	7:30
4		Grind grains	Living area	7:30	8:30
5		Clean the house & cook lunch	Fire place	8:30	12:00
6		Eat lunch	Living area	12:00	12:30
7		pray	Living area	12:30	13:00
8		Rest and praying with the children	Living area	13:00	17:00
9		pray	Living area	17:00	17:30
10		Cook for dinner	Fire place	17:30	18:00
11		Rest	Living area	18:00	20:00
12		pray	Living area	20:00	20:30
13		Eat dinner	Living area	20:30	22:00

14	Sleep	Living area	22:00
Weekly activity (Daily activities are continued in the weekly and monthly activities)			

The life story of Merema’s son(Ahmed Siraj):

“My name is Ahimed Siraj, I was born in 1985 in Shonke Amba. I am not educated. In 2008 I went to Djibouti as an illegal migrant by paying 3000 Birr to smugglers. I stayed worked in Djibouti for three months to earn money that I could pay to smugglers to take me to Yemen. Finally I saved 1000 Birr and paid smugglers to take me to Yemen. From Yemen I travelled to Saudi Arabia for 15 days. e In Yemen I earned a living cutting grass that served as animals food, the money helped me cover my daily expense for food and transport. As soon as I reached Saudi Arabia I was got a job as a shepherd for 700 Rial which is equivalent to 1400 Birr per month. In addition to my monthly salary, my employer provided me with food such as rice, sugar, bread and etc.

I wake up early in the morning, prepare my breakfast and take the sheep out to the fiels and look after them. At lunch time I would bring the sheep back to their barn and prepare my lunch. After lunch I take them to their barn and feed them. Then I cook my dinner and eat and go to my bed. I worked as a shepherd for 14 months. In 14 months I had saved about 20,000 Ethiopian Birr and came back home to Shonke Amba.

After staying in Shonke Amba for 40 days, I went back to Saudi Arabia in 2009 on the same route I used previously. When I reached Saudi Arabia I was employed in a vegetable Irrigation. I worked until 2014 until I was caught by police for being an illegal immigrant and was imprisoned for one month and then deported to Ethiopia. When I came back home I had 300,000.00 Ethiopian birr. I allocated 35,000 Birr to my elder brother younger sister and for me also wedding ceremony. For the three of us the money was more than enough because my parents covered the cost of food and drinks. A year later my beautiful wife passed way while giving birth to my son. Fortunately my son was born safe. He is now 8 month old. My younger sister is divorced. My heart broken and I miss my beautiful wife. I am still single and I have grown kchat on my one hectare farm. I work hard to forget about my sorrow. I am not educated but since I have studied the Koran I can read and write in Arabic”.

During the interview Ahmed was asked about his perception of Shonke Amba settlement. He replied as follows ;

“The current and the previous Shonke Amba are different. Earlier Shonke Amba was interesting. Koran education was available; my father was a religion leader *and* was the administrator of Shonke Amba. Everything was ruled as per the norms of our Argobba tradition, but now all these are gone. I am always amazed how our grandfathers planned the settlement without having the concept of modern town planning.”. The roads and the houses are equivalent to any town so our grandfathers knowledge amazes me.



Gig. 4:130 W/ro Merema Kelil’s *derb bet* at roof level

Table 4.17 Space –Time Diary of W/ro Merema Kelil’s son Ahmed siraj Mohamed

S.No	Date	Activities (Daily	Room /place	From/at	To
Son					
Daily activities					
1		Get dressed and pray	Living area	5:00	6:45
2		Eat breakfast	Living area	6:45	7:00
3		Go to the farm	On the road	7:00	7:20
4		Work on the farm	The farm area	7:20	11:30
5		Go home	The road	11:30	12:00
6		Eat lunch	Living area	12:00	12:30
7		Rest at home	Living area	12:30	14:00
		Go home	The road	14:00	14:30
8		Go to the farm	The farm	14:30	17:00
9		Go home	On the road	17:00	17;30
10		Pray	Living area	17:30	18;00
11		Eat dinner, chat and have coffee	Living area	18:00	22:00
12		Sleep	Living area	22:00	5:00
Weekly activities					
1		Get dressed and pray	Living area	5:00	6:45
2		Eat breakfast	Living area	6:45	7:00
3		Take a shower and dress	Living area	7:00	11:00
4		Pray at mosque	Mosque	11:00	13:20
5		Eat lunch and rest	Living area	13:20	14:20
6		Go to the farm	On the road	14:20	14:50
7		Work at the farm	The farm	14:50	17:00
8		Go home	The road	17:00	17:30
9		Pray	Living area	17:00	17:20
10		Chat & eat dinner	Living area	17:20	22:00
11		Sleep	Living area	22:00	5:00
Monthly Activities					
1		Get dressed and pray	Living area	5:00	6:45
2		Eat breakfast	Living area	6:45	7:00
3		Go to Kemmise Market	On the road	7:00	9;00
4		Sell Chat and Coffee	Market	9:00	17:00
5		Go back home	The road	17:00	19:00
6		Eat dinner and chat	Living area	19:00	21:00
7		Sleep	Living area	21:00	5:00

Ahmed siraj was asked about his space usage, activities and what his living area and the farm mean to him. For Ahmed the activities carried out in the living area are eating, drinking and chatting with family and to him it is a place of love, happiness and where prosperity is talked about. When he is in the farm his main activity is managing the kchat he has cultivated. His farm is a symbol of hard work and road to prosperity to him.

The life story of Merema's son (Mohamed Siraj Mohamed):

"My name is Mohamed Siraj Kemal. I was born in 1996 in Shonke Amba. My father was Sheikh Siraj Mohamed and my mother is Merema Kelil. I attended school up to the 6th grade but I was not interested in my education because the medium of instruction was Oromiffa. At the time my brother was in Saudi Arabia. I had some money and I paid 3000 Birr to human traffickers and smugglers to go to Djibouti. In Djibouti I paid 2000 Birr to reach Yemen. The Yemen Human traffickers were very dangerous and threatened to kill me so my brother sent me 30,000.00 Birr to save my life. After I paid 30,000.00, I reached Riyadh, the capital of Saudi Arabia by car. In Riyadh I met Ethiopians and with their help I found work as a shepherd in the rural area. I worked there for one month then quit because of certain difficulties. I returned to my Ethiopian friends and stayed with them for one month. One day an Arab came to me and asked me if I needed a job. I was happy and went with him. but instead of getting a job I was robbed of all my money and mobile. After certain difficulties I went back to working as a shepherd. After I worked for four days, the police arrested me. I spent three weeks in jail and was then deported to Ethiopia. I came back to Shonke Amba five months later here".

Mohammed Siraj has no work in Shonke Amba, He chews kchat and relaxes . He wishes to go back to Saudi Arabia if he gets money.

Table 4.18 Spaces –Time Diary of W/ro Merema Kelil's son Mohamed Siraj's

S.No	Date	Activities (Daily)	Room /place	From/at	To
Son					
Daily activities					
1		Get dressed and go home	Kelewa	9:00	9:10
2		Eat breakfast	Living area	9:10	9:30
3		Go to pick kchat from the farm	On the road	9:30	10:00
4		Pik Kchat from the farm	The farm area	10:00	10:30
5		Go back home	On the road	10:30	11:00
6		Eat lunch	Living area	11:00	12:00
7		Chew Kchat	Kelewa	12:00	17:00
8		Stay at the tea house	Settlement	17:00	20:00
9		Eat dinner	Living area	20:00	22:00
10		Chat with my friends	Kelewa	22:00	23:00
11		sleep	kelewa	23:00	9:00
No weekly activities and monthly activities					

The life story of Merema's daughter (Kedija Siraj):

Kedija Siraj was born in 2000 in Shonke Amba. She attended primary School up to grade 8 at Abbila, 30minutes walk from Shonke Amba. She got married at the age of 14 and got divorced a year later. As she told the researcher the reason there are two reasons for her divorce . The first one was that he was not willing to buy her a gold necklace and gold rings. The second reason is she wanted to go to Saudi Arabia to make money so that she can buy whatever she needed. During the interview she was not willing to tell the exact reason

she hates her husband. All young divorced residents of Shonke Amba are not willing to tell the exact reasons for their divorce. However the divorcing rate is alarming.

Kekida was asked if she wanted to get married in the coming five years. She responded saying that she wants to marry a man who has money and loves her. She also wishes to have at least three children.

Table 4.19 Spaces –Time Diary of W/ro Merema Kelil’s daughter (kedija Siraj).

S.No	Date	Activities (Daily	Room /place	From/at	To
Daughter					
Daily activity					
1		Get dressed and pray	Women’s space	5:00	5:30
2		Cook breakfast	Fire place	5:30	6:00
3		Fetch water	Chilata water point	6:00	7:00
4		Eat breakfast	Living area	7:00	8:00
5		Hand craft work	Living area	8:00	13:00
6		Pray	Living area	13:00	13:30
7		Eat lunch	Living area	13:30	14:30
8		Rest	Compound	14:30	16:00
9		Hand craft work	Living area	16:00	17:00
10		Pray	Living area	17:00	17:30
11		Cook Dinner	Fire place	17:30	18:00
12		Rest & chat with mother	Living area	18:00	20:00
13		Pray	Living area	20:00	20:30
14		Serve and eat dinner	Living area	20:30	21:30
15		Chat with my brothers	Living area	21:30	22:30
16		Sleep	Women’s space	22:30	5:00
No weekly and monthly activities					

The Compound:

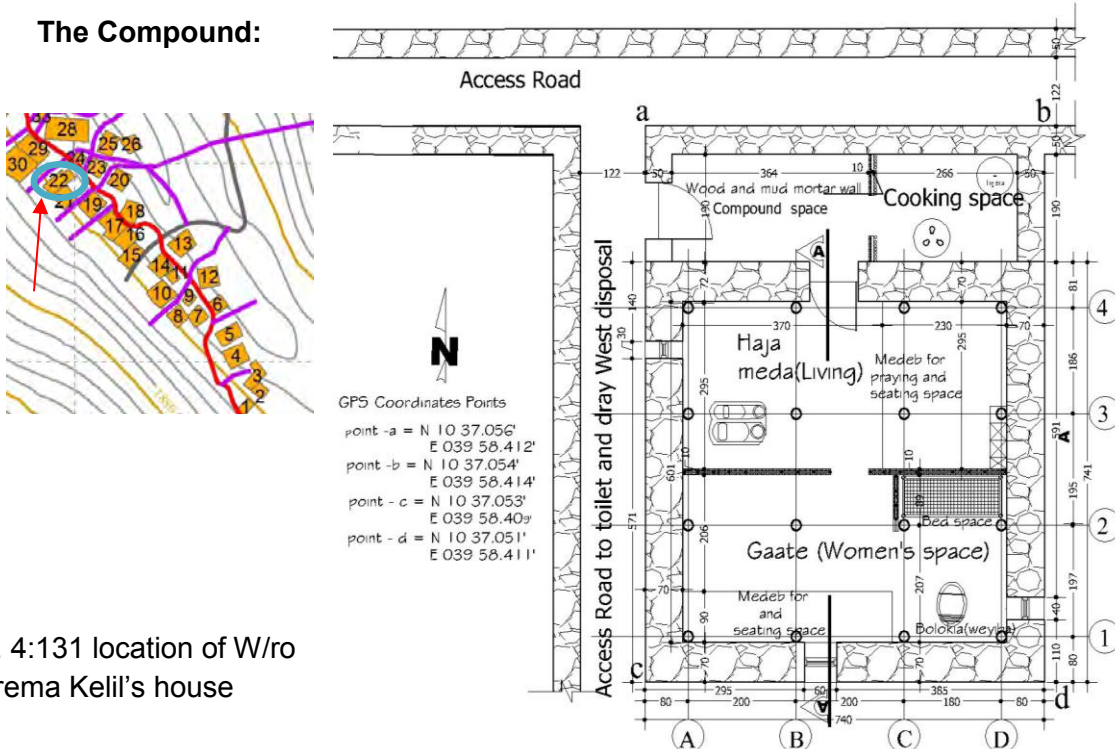


Fig. 4:131 location of W/ro Merema Kelil’s house

Fig. 4:132 compound and floor plan of W/ro Merema Kelil’s house

W/ro Merman's Compound is geographically located at a= N 10 37.056 E 039 58.412, b= N10 37.064 E 039 58.414, c= N 10 37.053 E 039 58.049 and e= N 10 37.081 E 039 58.411 at altitude of 1925mt above sea level. The total compound area is 72.6m² out of this the house foot print is laid on 54.83m².

The Front Yard

The front yard of the house is adjacent to the main access road. The front yard space is sub divided into an open space access to the house. It is also used as a sitting space within the compound which is 9 m². The reaming space is a shade used as cooking space and to smoke and fire from the house.

The Back yard

There is no back yard space in wr/o Merema's dwelling. The house is constructed on property line on the South, east and West sides. There is a common access road on the west side of the house which serves as a dry waste and toilet disposal. This is also a main root to despose waste towards the cliif for w/ro Merema.

Orientation of The Huse

W/ro Merema's house faces the North direction due to the construction of adjacent houses on the eastern side property line and access roed which sevres as toilet and dry waste disposal.

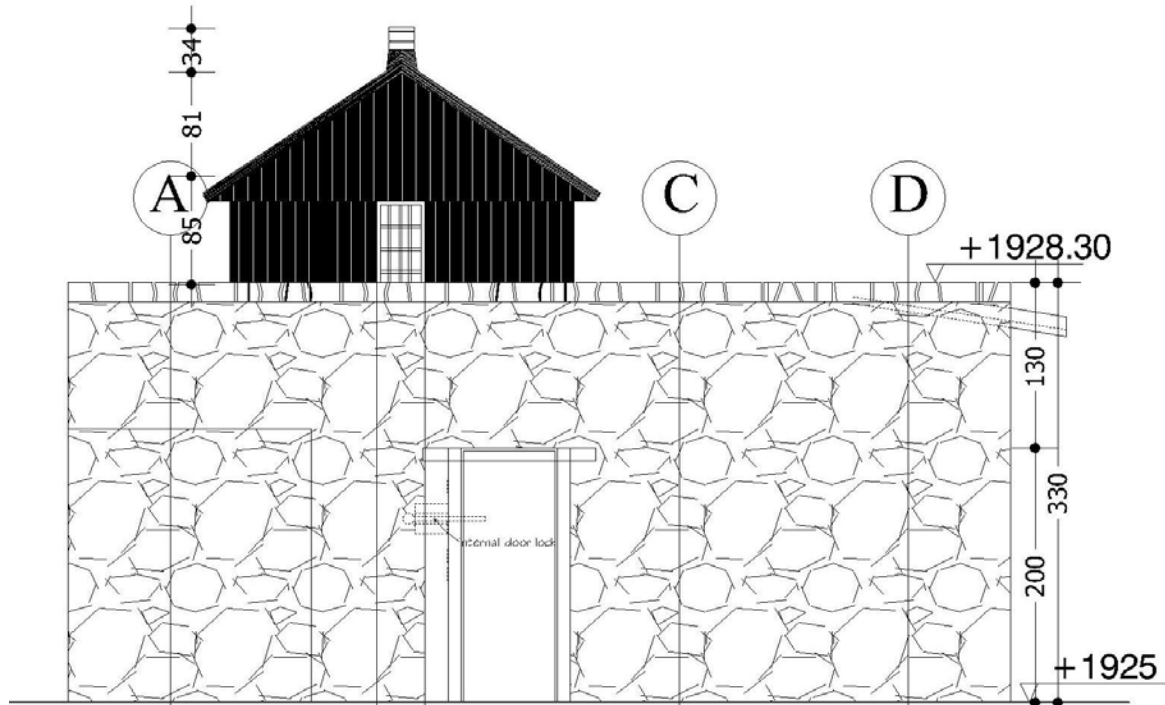


Fig. 4:133 South Elevation of the house

In Shhonke Amba, thatched roofing is not allowed according to the rule that of Shonke Amba's founder Fekhi Ahimed and kulubas. As it was stated earlier, this is due to the easy combustibility and poor protection of the house type. But currently there are 28 thatched

roofing houses that were recorded when the study was conducted. The main reason for the transformation of Argobba houses to the thatched roofing is shortage of wooden elements. Currently there is no security problem for the Argobba people and a little money and time is enough to construct thatched roofing house. The thatched roofing is adopted from the surrounding Oromo people. Based on the above facts, on the roof of house a *Sar bet* is constructed. This house is used as a sleeping space for young boys above 18. The sleeping space is called *kelewa*. *Kelewa* is not only constructed on flat roof houses, it is also constructed sparily on ground floor. *Kelewa* is also a space where the young get-together to chat about their future wives and goals etc. The thatched roofing which is constructed above W/ro Merema's house is a modified *kelewa* and it is a space used for bee hives.



Fig. 4:134 space for bee hives on top of the flat roof

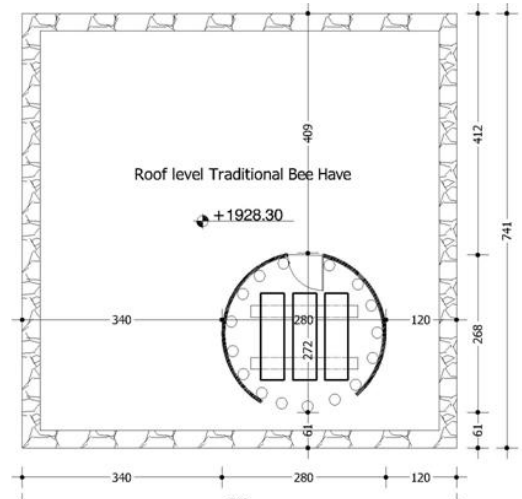


Fig.4:135 roof level floor plan for bee hive space.

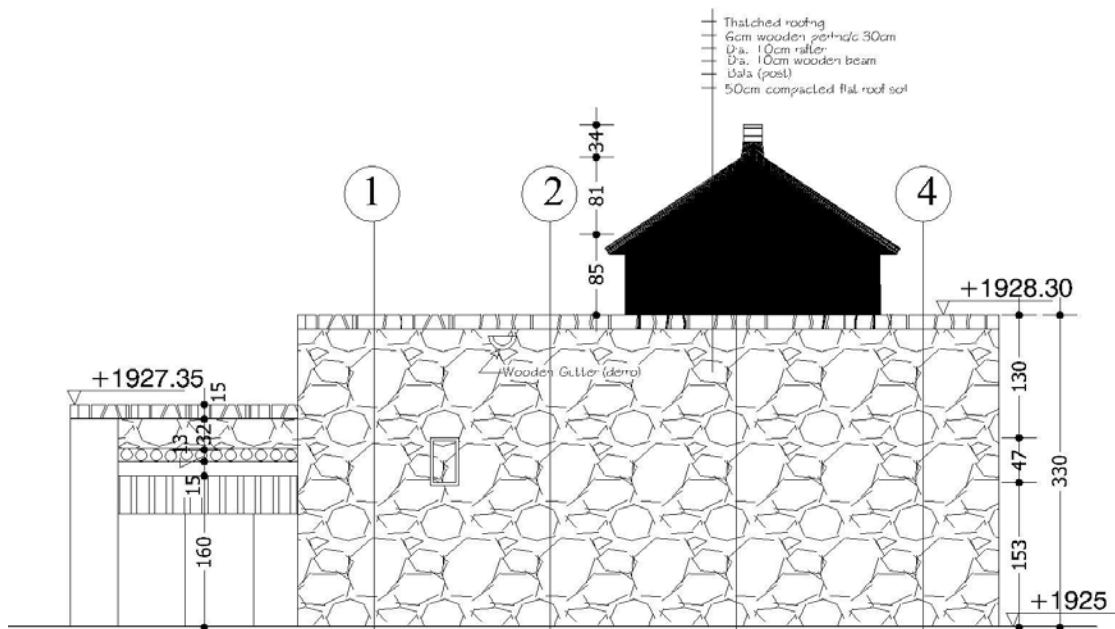


Fig. 4:136 West Elevation of the house

The interior space

The interior space of w/ro Merema kelil's house is spacious in the living area and compacted in the women's space. In the living area around the *medeb* there is a clean and uncompact traditional shelf.



Fig. 4:137 Shelf (local name *takat*) in the living area area.



Fig. 4:138 *medeb* in the living area



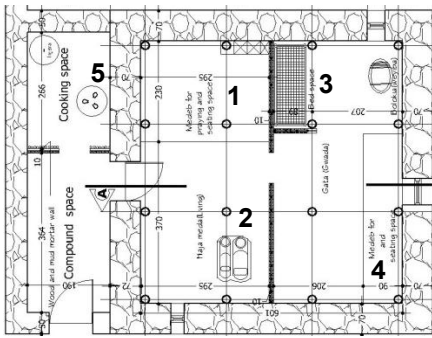
Fig.4:139 pots at Women's space



Fig. 4:140 Grain store at women's space



Fig.4:141 Cloth hanging system in the women's



At the house of, W/ro Merema Kelil's the family uses space 1 that is the *medeb* space, as a praying and sleeping space. Space 2 for sitting and living . In the women's space 3 is used as children's sleeping area, space 4 is a storage. Space 5 which is found at the front yard of the compound is used as cooking space.

Fig.4:142 Plan of W/ro Merema's kelil's house Plan

Fig. 4.143 below shows space used by W/ro Alima family at settlement, compound and house level. From the interview conducted with four family members within the 96 hours, he family spent 26.45 % of their time with in the *derb bet*, 9.68% at the *compound* and 33.43% outside of the compound.

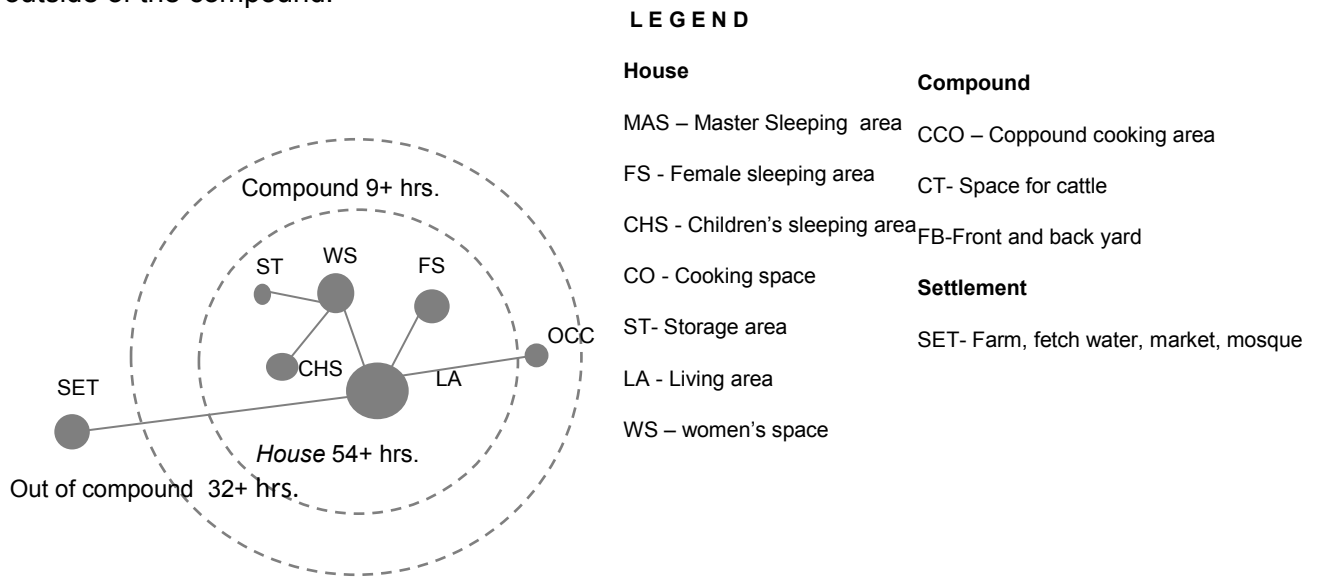


Fig. 4:143 J graph of W/ro Merema kelil's house

The hidden line represents the dwelling and the compound.

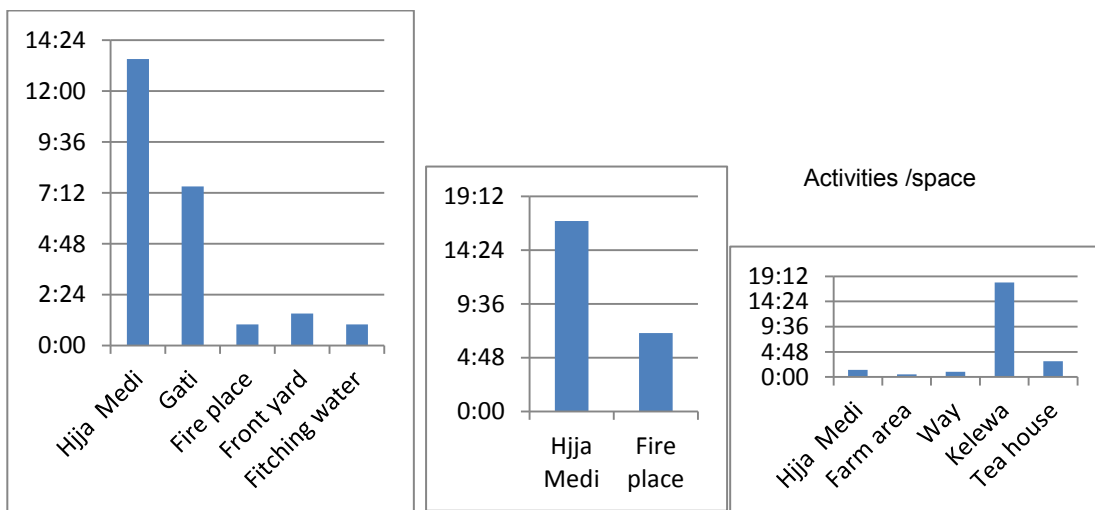


Fig. 4:144 Activity time graph of W/ro W/ro Merema kelil's family

4.3.9 Ato Mehamed Sheku's Compound

The life story of W/ro Merema Seid (Ato Mohamed Sheku's wife):



Fig.4:145 Mohamed Sheku's Family

W/ro Merema Seid was born in Shonke Amba. She is 45 years old. She says:

“Mohamed Sheku is my 4th husband. He suddenly stopped cut all ties with me and his children and disappeared. We don't know where he is; three years have passed since we saw him. I have been sick for a long time and fighting for my health. I married my first husband when I was 12 years old but he was above 22. Whenever teenager marries a person older than her there are a lot of problems, he may be affected because of dis proportional sexual relations. My marriage to my first, second and the third husbands did not last long and ended without me bearing children. I have four children with my fourth husband Two of them live with me, the other two live at Senbete and Toleha, to earn a living and help me as much as they can. (W/ro Merema Seid is not willing to tell the reason for her divorce).”

W/ro Merema said she has been sick and in bed for a long time before the interview was conducted. During the interview she had recovered a bit but as the photograph shows she cannot sit properly. The family burden has fallen on the shoulders of her 22 year-old son who is a farmer. The family's income depends on grains, coffee and kchat, They have also, 2 milk cows, one ox, 4 goats and 2 hens. Her dream in the coming five years is to recover from her sickness and see all her sons get married.

Table 4.20 Spaces –Time Diary of Ato Mohamed Sheku's wife (Merema Seid).

S.No	Date	Activities (Daily	Room /place	From/at	To
Wife					
Daily activities					
1		Get dressed and pray	Women's space	5:00	5:20
2		Cook	Women's space	5:20	6:00
3		Eat breakfast	Living area	6:00	8:00
4		Sleep because of the sickness	Women's space	8:00	13:00
5		Eat lunch	Living area	13:00	14:00
6		Sleep	Women's space	14:00	20:00
7		Eat dinner	Living area	20:00	21:00
8		Sleep	Women's space	21:00	5:00
Weekly activity					
1		Daily activities are continued			

The life story of Ato Mohammed Mohammed Sheku's son)

“My name is Mohammed Mohammed Sheku I am 22 years old. I was born in Shonke Amba. I attended school up to the 7th grade, but I cannot read and write in either Amharic or Oromiffa. Our teachers promoted us every year from grade to grade. It would have been good if we learned in Amharic but Amharic is not a medium of instruction. I farm on my father's plot, which is too small. In addition to my father's plot I rent land from others and give each 50kg of sorghum in return”.

In the coming five years Mohamed-Mohamed Sheku wants to get married, work hard by contracting more land, plant more kchat and change his life.

Table 4.21 Spaces –Time Diary of Ato Mohamed Sheku's Son and daughter

S.No	Date	Activities (Daily	Room /place	From/at	To
Son					
Daily activities					
1		Get dressed and eat breakfast	Kelewa	6:00	8:00
2		Go to the farm	On the road	8:00	9:00
3		Work on the farm	The farm	9:00	13:00
4		Eat lunch and pray	The farm	13:00	14:00
5		Work on the farm	The farm	14:00	17:00
6		Go home	On the road	17:00	18:00
7		Chat at tea house with friends	Tea house	18:00	20:00
8		Eat dinner	Living area	20:00	20:30
9		Way to peer group kelewa house	On the road	20:30	20:45
10		Chat with my friends	Kelewa	20:45	21:00
11		Sleep	Kelewa	21:00	6:00
Weekly activities					
1		Daily activity are continued			
Monthly activities					
1		Daily activities are continued			
S.No	Date	Activities (Daily	Room /place	From/at	To
Daughter					
Daily activities					
1		Get dressed and fetch water	Chilata water point	6:00	6:45
2		Fetching water again	Chilata water point	6:45	7:30
3		Eat breakfast	Living area	7:30	8:00
4		Collect fire wood	Borkena river	8:00	11:00
5		Eat lunch	Living area	11:00	11:15
6		Go to school	way	11:15	11:45
7		Play	school	11:45	12:00
8		Learn	School	12:00	17:00
9		Way home	On the road	17:00	17:30
10		Fetch water	Chilata water point	17:30	18:15
11		Cook <i>wati</i>	Women's space	18:15	19:30
12		Serve dinner and eat	Living area	19:30	20:00
13		Make <i>absit</i> in the morning, to bake <i>injera</i>	Women's space	20:00	21:00
14		Sleep	Women's space	21:00	6:00
Weekly activity (Daily activities are continued)					

The lifestory of Shemshu Mohamed (Ato Mohamed Sheku's daughter)

Shemshu Mohamed is 12 years old .She is in the 7th grade at Abbila which is a 30 mint walk from Shonke Amba. She is the one who cooks for all the family and fetches water from Chilata a 171 meter drop from Shonke Amba. She carries 20 liters of water climbing an equivalent of 57 story building three times a day. Her mother has been sick for a long time so she is carrying out responsibilities in the place of her mother. . She is acting like a mother at 12 years of age. She cannot play like her age mates since she works from 12:00 in the morning till bed time. This is her life but her only concern is her mother's health. Shemshu was lucky enough not to be asked for her hand in marriage until the interview but as soon as the researcher left the house a woman from the neighbor came and asked Shemshu's mother to marry Shemshu to a man above 25 years of age. Shemshu does not know what sexual abuse means.

Before leaving the researcher asked Shemshu a final question, where do you see yourself in five years? She kept quiet for a moment, slowly lowered her neck and answered "I want to continue my education".She didn't say anything else.

The researcher left feeling deeply sad comparing the destiny that awaits Shemshu with his daughters who are at the same age and level of education as Shemshu. Who is going to change this culture through education? The Argobba education for children in Shonke Amba is limited to grade 8.

The Compound

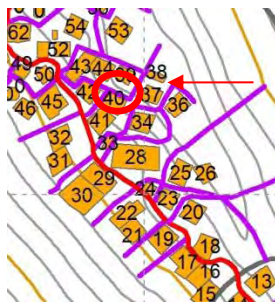


Fig.4:146 location of Ato Mohamed's house

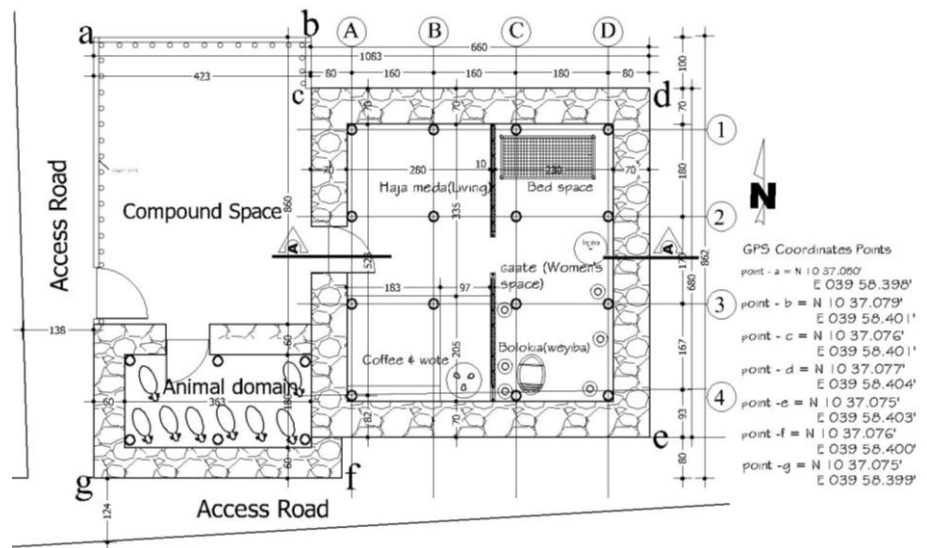


Fig.4:147 compound and floor plan of Ato Mohamed Sheku

The geographical location of Ato Mohamed Sheku's compound is a= N 10 37.080 E 039 58.398, b= N 10 37.079 E 039 58.398 c=N 10 37.076 E 039 58.404 d= N 10 37.077 E 039 58.404 e= N 10 37.075 E 039 58.403 f= N 10 37.076 E 039 58.400 and g= N 10 37.075 E 039 58.399 with an altitude of 1918 above sea level. The total compound area is 80.85m²

The front yard

The front yard of Ato Mohamed Sheku is 23.25m². The front yard is mainly used for feeding animals. In addition to this, the space is used to milk cows in the evening and in the

morning. The front space which is called is also used as a transition space for human and animals to the house and animal domain. The Animal space is located at the left side of the front yard.

The back yard:

There is no back yard space in at Ato Mohamed's compound. The house is constructed on the border line adjacent Ato Mohamed Yusuf's compound who is a neighbor.

The house:

Ato Mohamed's house is a three row type. The foot print of the house is 45m² which is 6.60x6 80 meter in size. The house is mainly subdivided into two main parts the living space and the Women's space. The living area is a space accommodating the *medeb* a praying and sleeping space for men. In Argobba culture men and women do not sleep together. Men share women's sleeping space at the women's space on two conditions. The first one is when women beautify themselves to attract men since they do not directly ask this is how they express their desires to spend the night with men. . women beautify themselves using *khul* around their eyes, *hinna* on their hands and legs and taking smoke bath. The second one is when the men need to spend the night with the women in their bed room. Women's space is also a space for storing different items and it is also children's sleeping space. The clear internal space of the *derb bet* is 225cm. and the outer elevation is 330cm.

The orientation of the house:

The orientation of the Argobba house is towards the East which is the first choice and the West if the site condition is a forcing factor. Ato Mohammed's house is facing West since the adjacent house is constructed on the border line. Both house share a common boundary.



Fig.4:148 Front yard space of Ato Mohamed's compound.

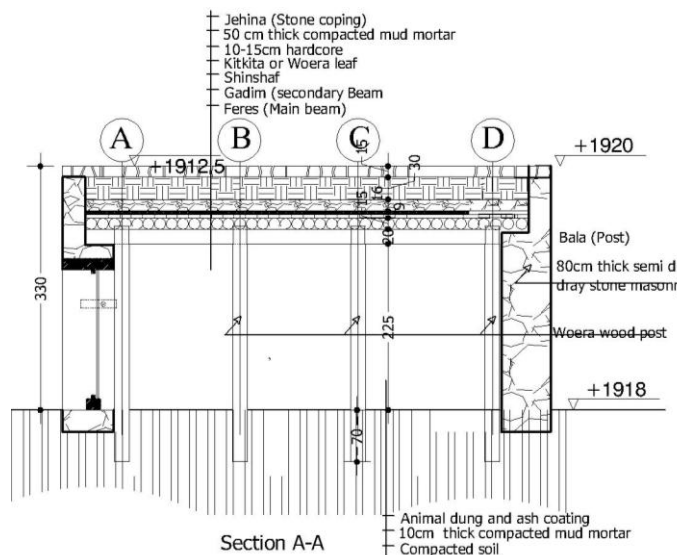
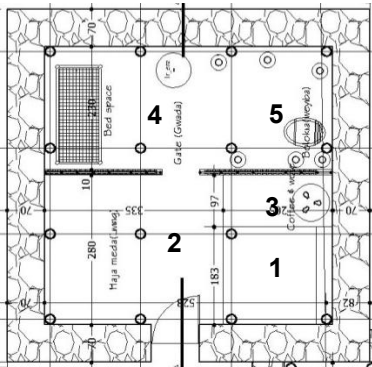


Fig.4:149 Section of house



At the house living area 1, is used for praying and sleeping, 2 for sitting and living space. Space 3 which is found at the women's space is a cooking area used. In the Women's space 4 is used as children's and women's sleeping space. Space 5 is used as storage and smoke baths space for women's

Fig.4:150 plan of Ato Mohamed Sheku's house

Fig. 4.151 below shows space used by Ato Mohammed's family at settlement, compound and house level. From the interview conducted with three family members within the 72 hours. The family spent 50.41 % of their time with in the house and 48.61 outside of the compound.

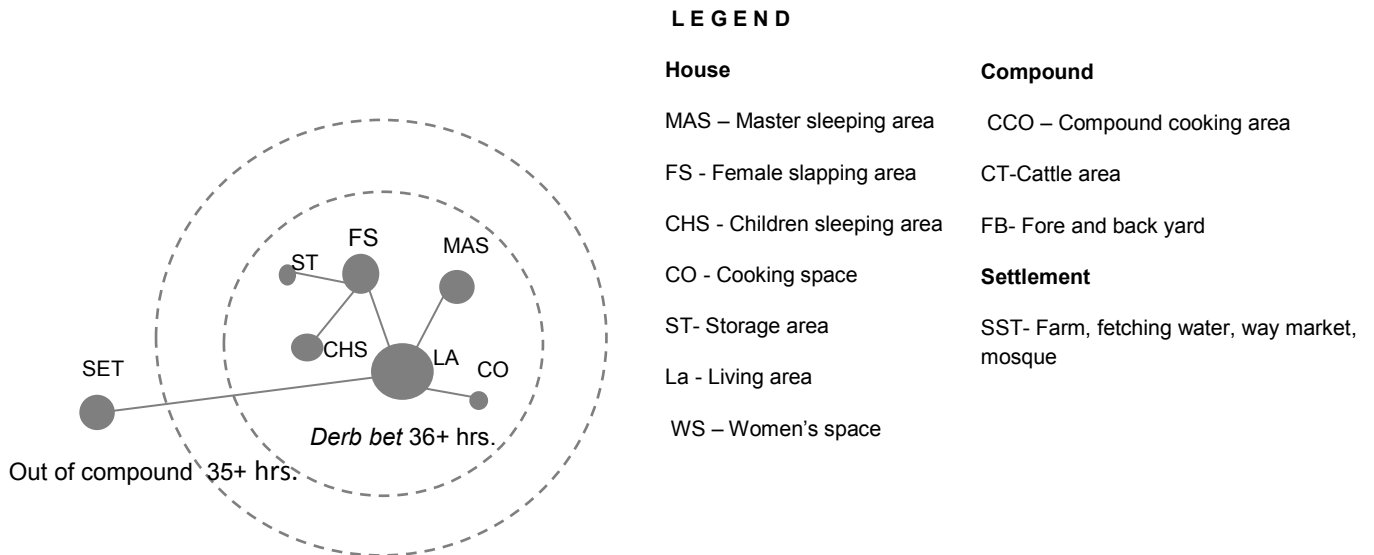


Fig. 4:151 J graph of Ato Mohamed Sheku's house

The hidden line represents the dwelling and the compound.

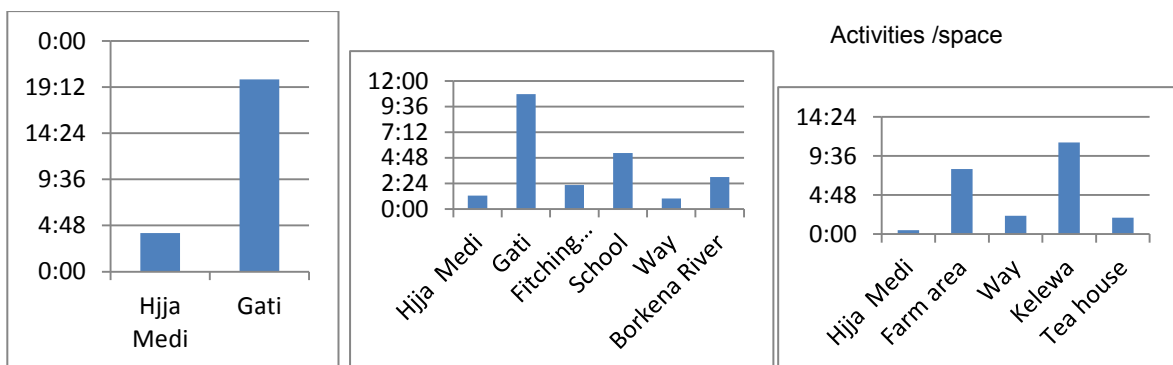


Fig. 4:152 Activity time graph of Ato Mohamed's family

4.3.10 Ato Mehamud Mohammed Kemalu's Compound

Life story of Ato mehamud Mohammed Kemalu



Fig. 4:153 Ato Mehmud Mohammed kemalu's Family

Ato Mohamud Mohammed Kemalu was born in Shonke Amba to his well-known father Sheik Siraj Mohamed. He is 28 years old and he is not educated but he studied the Koran from his father, sheik Siraj. He married his first wife Kedija Yesuf who is from *Jerota Kebele*, a 30 minute walk from Shonke Amba at the age of 23. . Mohamud kemalu narrates his life history as follows:

“After three months’ my wife Kedija Yesuf became pregnant and went to her parents to give birth to our child. She delivered our child peacefully but, the child died. Later She refused return to our home. I Aminat Mohamed Ali and we now have a 1 year old son called Yasin Mohamud”.

Mehamud Mohamed is a farmer working on the land he inherited from his father. His annual income from the farm which includes the sale of kchat is about 24,000 Birr. In the coming five years he wants to see himself work hard on the farm, earn more money and have 6 children. He regularly prays at mosque.

Table 4.22 Spaces –Time Diary of Mohamud Mohamed Kemalu.

S.No	Date	Activities (Daily	Room /place	From/at	To
Son					
Daily activities					
1		Get dressed and pray	Mosque	5:00	5:15
2		Stay at the mosque and rest	mosque	5:15	7:00
3		Eat breakfast	Living area	7:00	7:30
4		Go to the farm	On the road	7:30	8:00
5		Work at the farm	The farm	8:00	12:00
6		Go home carrying fire wood	On the road	12:00	12:30
7		Rest at home	Living area	12:30	13:00
8		Eat lunch	Living area	13:00	13:30
9		Pray at Mosque	Mosque	13:30	14:00
10		Go to the farm	On the road	14:00	14:30
11		Go to the farm	The farm	14:30	17:00
12		Go home	On the road	17:00	17:30
13		Pray and rest at mosque	Mosque	17:30	20:00
14		Eat dinner and rest	Living area	20:00	21:00
15		Sleep	Hajja medi	21:00	5:00
No weekly and monthly activities					

The life story of Ato Mehamud Mohamed Kemalu’s wife (Aminat Mohamed Ali)

Aminat Mohamed was born in 1998 in Shonke Amba to her father Mohamed Ali and her mother Halima Mohamed. At the age of 12 she married Mohamed Mussa who was 25years old. She divorced him within three months because of inequivalent relations. As she said:

“It is very hard to explain, after I divorced, I spent three years with my family. I attended my education until the 8th grade. . During these years I only learned how to write my name. I can’t read and write in both Amharic and Oromiffa. Our teachers gave us free promotion and free marks. After that they told us that we had completed grade 8. I stopped my education. I married again three years ago at the age of 15 to Mehamud Mohamed and gave birth last year. Now I have a 1 year old son. In the coming five years Aminat Mohamed wants to give birth to more children, work, have money and live in peace and love with her husband.

Table 4.23 Spaces –Time Diary of Mohamud Mohamed Kemalus Wife.

S.No	Date	Activities (Daily)	Room /place	From/at	To
Son					
Daily activities					
1		Get dressed and Cook	Women’s space	5:00	7:00
2		Eat breakfast	Living area	7:00	7:30
3		Fetch water	Chilata water point	7:30	8:30
4		Fetch water for the second time	Chilata water point	8:30	9:30
5		Rest	Living area	9:30	10:30
6		Grind grains	Living area	10:30	12:30
7		Cook lunch	Women’s space	12:30	13:00
8		Pray	Living area	13:00	13:15
9		Eat lunch	Living area	13:15	14:00
10		Rest & look after my son	Living area	14:00	17:00
11		Cook for dinner	Women’s space	17:00	20:00
12		Eat dinner	Living area	20:00	21:00
13		Sleep	Women’s space	21:00	5:00
No weekly and monthly activities					

The Compound

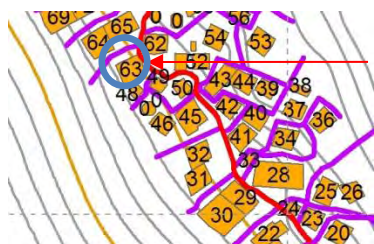


Fig.4:154 location of Ato Mehamud Kemal’s House

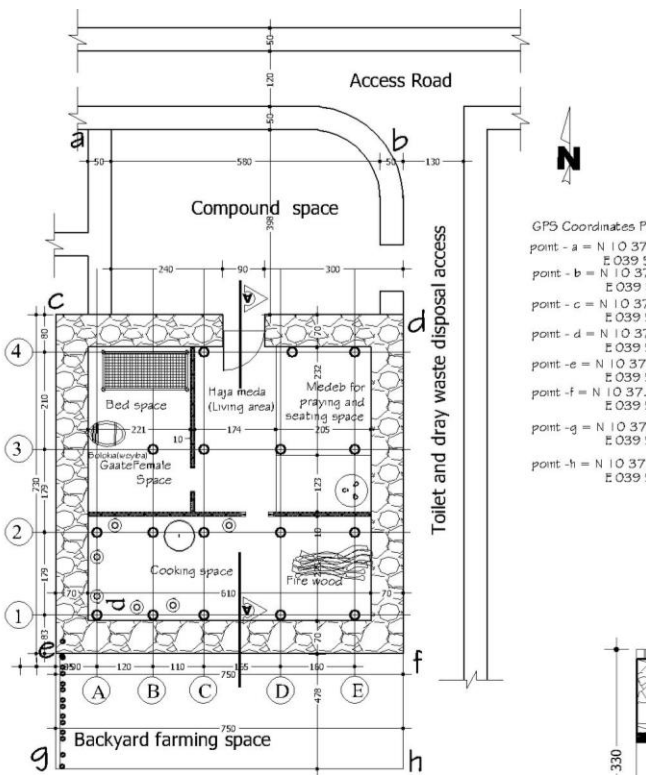
Ato Mehamud Mohamed kemalu’s compound is geographically located at a= N 10 37.066 N039 38.403, b= N 10 37.063 E 039 37.406, c=N 10 37.046 E039 38.401, d= N 10 37.062 E 039 38.402, e= N 10 37.063 E 039 38.397, f= N 10 37.045 E 039 38.398, g= N 10 37.054 E 039 38.398 and h= E 10 37.058 E 039 38.396, with an altitude of 1917 above sea level. The total area of the compound is 130m²

The front Yard:

The front yard of the compound faces the main access *Alila hema* road. The total area of the front yard is 30.77m² and the main gate is located off the main access road and on the crevice road towards the toilet and dry waste disposal. The reason that the main gate is off the main access road is because it is elevated from the compound space and to separate it from the narrow and relatively busy main road. The front yard is a way to the house and is also a temporary storage for fire wood. It is also a sitting area as the short dry masonry fence along the main access road serves as a chair.

The Back yard:

The back yard space is located on the South side of the compound towards the cliff side of the mountain. There is no direct access to the back yard from either the house or the compound, It can be accessed through the service road. The total area of the back yard is 36 m². The backyard is mainly used as to plant vegetables and maize during the rainy season.



GPS Coordinates P
 point - a = N 10 37
 E 039 5
 point - b = N 10 37
 E 039 1
 point - c = N 10 37
 E 039 1
 point - d = N 10 37
 E 039 1
 point - e = N 10 37
 E 039 1
 point - f = N 10 37
 E 039 1
 point - g = N 10 37
 E 039 1
 point - h = N 10 37
 E 039 1



Fig.4:156 Front elevation & front yard

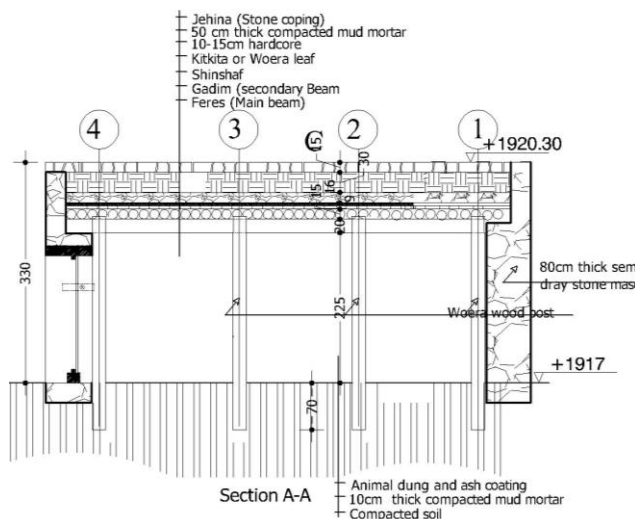


Fig.4:157 section of the house.

Fig.4:155 compound and floor plan

of Mehamud Mohamed Kemalu's house.

The Hose:

Ato Mehamud Mohamed's house's is laid on a total foot print area of 54.94 m². The overall size of the house is 7.50x7.30meter including 70cm dry stone masonry wall. The house is

sub divided into three main parts. The first one is the living area, a place where the *medeb* ,used as sleeping and praying space for men, is found. It is also a grain grinding space a. The living area is also a transition space for both Women’s space and. The internal space partition of Ato Mehamud’s house is quite different from other houses in shonke Amba, the Women’s space is divided into four parts,, women’s bed, smoke bath, cooking and storage area. Women’s bed and *smoke bath* is separated with a wall from the cooking and storage area . Therefore the internal space of the house is sub divided in to three rather than two equal part to give more privacy to Women. Accordingly the cooking space area is 13.4 m², Women sleeping and smoke bath is 7.7 m² and the living area is 13.7 m².

In Shonke Amba the common orientation of the house is towards the direction the sun rises and sun set. This as discussed previously is for religious reasons. This is not always true due to site influence factors. For example, Ato Mehamud Mohamed’s *Derb bet* is built on the boundary line on the East and West side. On the East side there is a narrow service road and no front yard leading to the house. On the West side, the adjacent house is also built on the border line and no room for a door . Due to the site influence the only orientation of the house is towards the North side as it indicated on fig.4:155.

Furniture’s in each room:

a) Haja Medi (Living area)

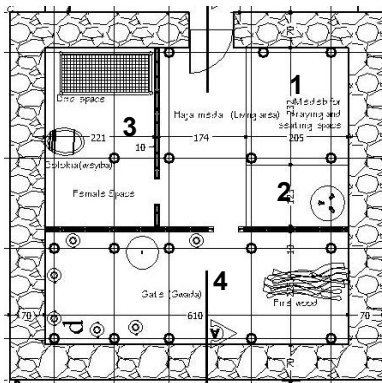
Medeb(sleeping and praying space),Sheep skin, Women’s hand craft , and grinding stone.

b) Women’s sleeping space

Women sleeping bed, smoke bath

c) Cooking space

Enjera Cooking space, pots, grain storage and other cooking utensils.



In the *house*, living space 1, is uses for praying and sleeping, space 2 is used for cooking. Space 3 is a separate women and children’s sleeping area. In the cooking space 4 is used for storage, to bake *Enjera* and as a storage of fire wood.

Fig.4:158 Plan of Ato Mehamud Mohamed Kemal’s *house*

Fig. 4.159 below shows space used by Ato Mehamud Mohamed Kemal’s family at settlement, compound and house level. From the interview conducted with two family members within the 48 hours, the family spent 67.29 % of their time with in the house and 31.87% outside of the compound.

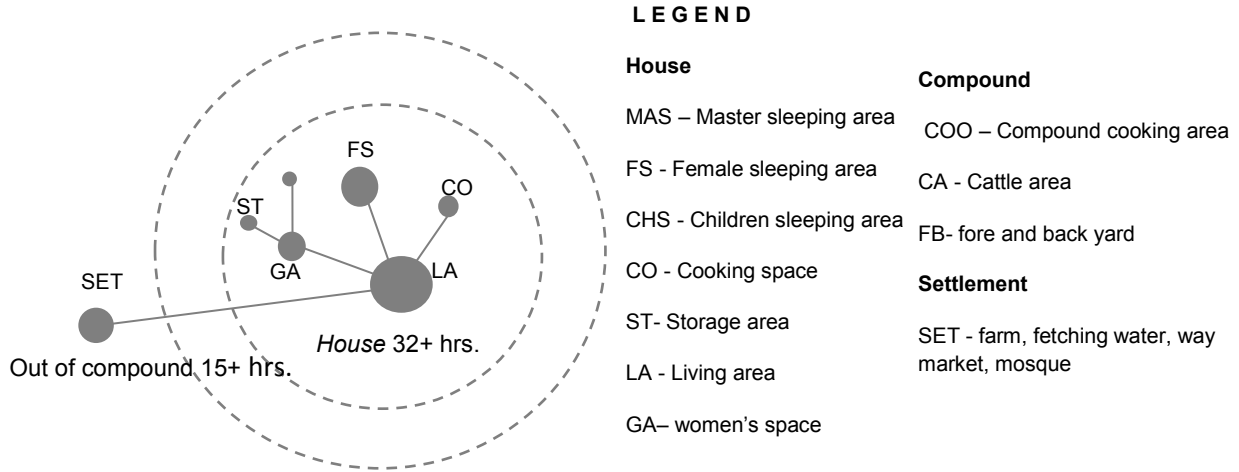


Fig. 4:159 J graph of Ato Mehamud Mohamed Kemalu’s house

The hidden line represents the dwelling and the compound.

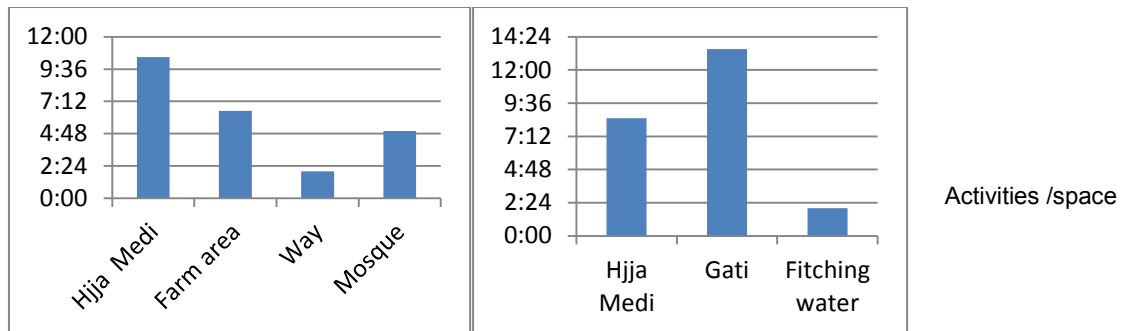


Fig. 4:160 Activity time graph of Ato Mehamud Mohamed Kemalu’s family

4.3.11 Ato Mohamed Mehamud Beshir’s Compound

The life story of W/ro Merema Osuman (resident)

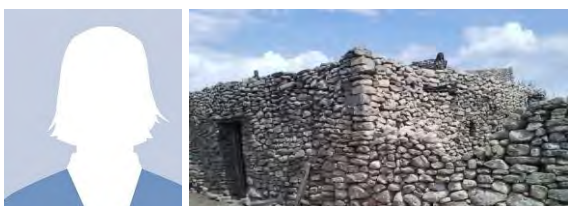


Fig. 4:161 W/ro Merema Osuman and her derb bet

W/ro Merema Osman is 55 years old. She works in Ato Mohamed Mehamud’s house as a house keeper and lives there free of charge. Ato Mohamed Mehamud lives with his family on a farm out of Shonke Amba. She was born Hejerota Kebele, a 30 minute walk from Shonke Amba. She came to Shonke Amba at the age of 13, and married Ato Yasin Habib. They divorced before their first year anniversary, due to unproportioned sexual relations. After the divorce she stayed with her parents for five years and got married again at the age of 18. After she married her second husband Ato Beshiru Mohamed Yasin she went back to Shonke Amba. She has three sons and two daughters with her husband. Ato Beshiru Mohammed passed away two years ago. Four of her children live in different places out of

Shonke Amba and one of her son lives in Shonke Amba and works on the farm he inherited from his father and supports his mother with the income he gets from it. Since he is above 18 years of age he does not live with his mother. W/ro Merema Osman was asked where she would see herself in five years. She replied “I know about today but not tomorrow!”

Table 4.24 Spaces –Time Diary of W/ro Merema Osman

S.No	Date	Activities (Daily)	Room /place	From/at	To
W/ro Merema Osman					
Daily activities					
1		Get dressed and pray	Living area	5:00	5:15
2		Cook breakfast	Women’s space	5:15	6:30
3		Eat breakfast	Living area	6:30	7:30
4		Fetch water	Chilata ater point	7:30	9:30
5		Look after the goats	The farm	9:30	12:00
6		Grind grains	Living Area	10:30	12:30
7		Cook lunch	Women’s space	12:30	13:00
8		Pray	Living area	13:00	13:15
9		Eat lunch	Living area	13:15	14:00
10		Rest & look after my son	Living area	14:00	17:00
11		Cook for dinner	Women’s space	17:00	20:00
		Pray	Living area	20:00	20:15
12		Eat dinner	Living area	20:15	21:00
13		Sleep	Living area	21:00	5:00
weekly and Monthly activities					
1		No weekly and monthly activity			

The Compound

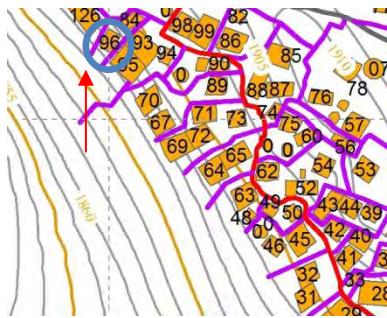


Fig. 4:162 Location of W/ro Merema Osman’s House

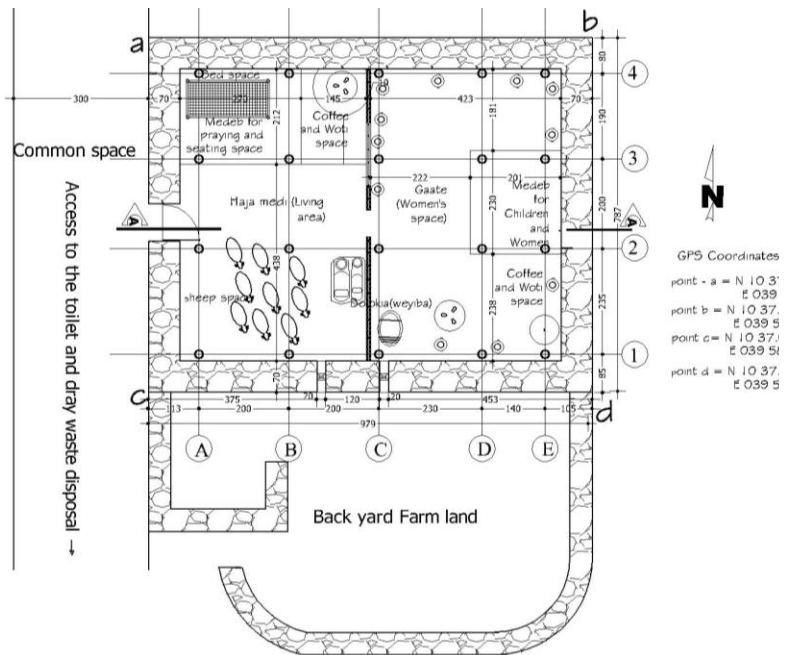


Fig.4:163 compound and floor plan of W/ro Merema Osuman’s house.

The geographical location of W/ro Merema Osman’s residence is a= N 10 37.085 E039 58.348, b= N 10 37.082 E 039 58.384, c= N 10 37.085 E 039 58.380 and d= n 10 37.080 E 039 58.381at altitude of 1912 above sea level. The total compound, including the back yard is 129.6 m².

The Front Yard:

W/ro Merema Osman’s residence has no front yard. The house is fully constructed on the boundary of access road; therefore the access road leads to the house.

The back yard:

W/ro Merema’s backyard is 51.11 m², the space is used as a temporary holding space for goats during the day time until they go grazing. During the rainy season goat manure is used as fertilizer to grow vegetables like cabbage, maize and potatoes planted in the back.

The House:

W/ro Merema lives in Ato Mohamed’s house without paying rent as it is the custom to reach the poor and because of the myth that an empty house easily gets old than a house that is inhabited. W/ro Merema’s house is a four row. The total foot print area of the house is 77.97m². It had 20 wooden posts with an average diameter of 20cm. The posts are arranged in a grid system about 200cm center to center except between axis D to F which is 140 cm. The biggest span is also observed between axis C-D and 1-2 which is 230 and 235cm respectively as indicated on fig.4:163. The internal space which is divided in to two equal parts the living area (27m²) and the women’s space 27.51 m². The living space is used for *medeb* which is used for sleeping, praying cooking, grinding and goat keeping space. The women’s space also accommodates *medeb* for women to sleep, cook, smoke bath and store different house furniture’s. The internal clear room height is 2.25 meter and the external is 3.00 meter.



Fig. 4:164 internal room height



Fig. 4:165 External height

Orientation of the House

The orientation of the house is towards the West side. West is the second preferable orientation for a house if it is not possible for a house to have the east orientation because of site conditions. W/ro Merema’s house and the adjacent house on the east side are constructed on the border line with double separated common walls, so it is impossible for W/ro merema’s house to face east. .

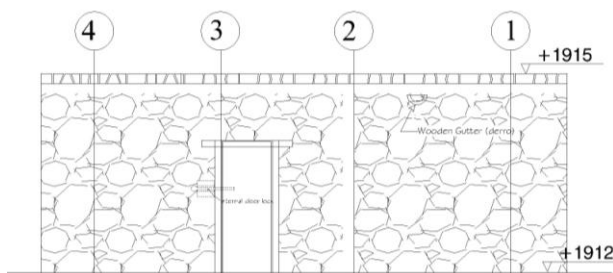


Fig. 4:166 West Elevation

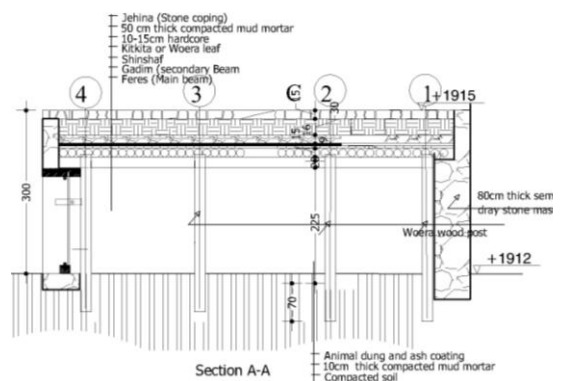


Fig. 4:167 Section of the *derb bet*

Furniture's in each room:

- a) Living area
- b) *Medeb*(sleeping and praying space) , sheep skin used as a bed sheet, *Women's handcraft* , cloth hanging (local name *Kosh*), shelf (local name *takat*) and grain store
- b) Women's space

smoke bath, Enjera baking space, *pots*, & *medeb*



Fig. 4:168 Medeb & cooking space in the living area



Fig. 4:169 Shelf



Fig. 4:170 Women's medeb in the women's

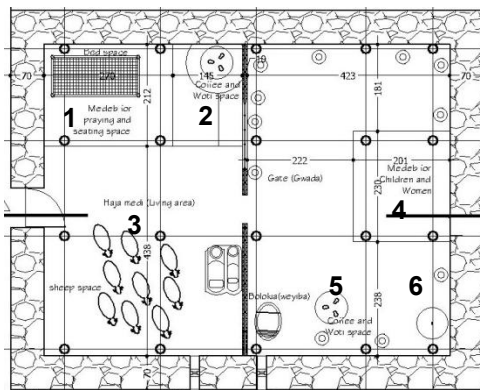
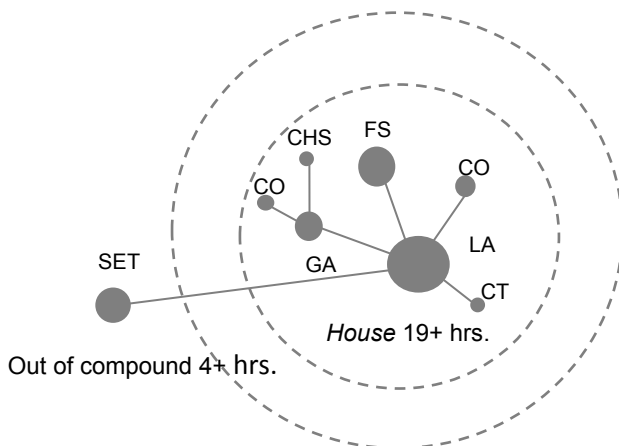


Fig.4:171 Ato Mohamed Mehamud Beshir's house plan

In the living area of the *house 1* has *medeb* which is a praying and sleeping area, 2, is used as a cooking space, 3 is animal domain's . Space 4 has *medeb* for children to sleep on, space 5 which is women's space is a smoke bath and cooking space and 6 is used as storage space.

Fig. 4.172 below shows space used by Ato Mohamed Mehamud Beshir's family at settlement, compound and house level. From the interview conducted with one family member within the 24 hours the family spent 80.41 % of their time with in the house and 17.91% outside of the compound.

LEGEND



House	Compound
MAS – Master sleeping area	CCO – Compound cooking area
FS - Femel's sleeping area	CT-Cattle area
CHS - Children sleeping area	FB- Fore and back yard
CO - Cooking space	Settlement
ST- Storage area	Set - Farm, fetching water, way market, mosque
LA - Living area	
WS – Women's space	

Fig. 4:172 J graph of Ato Mohamed Mehamud Beshir's house

The hidden line represents the dwelling and the compound.

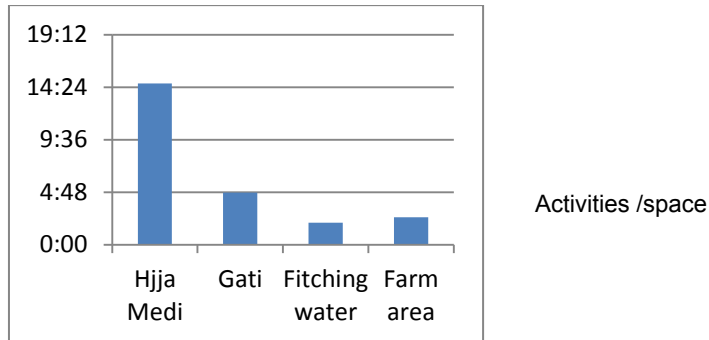


Fig. 4:173 Activity time graph of Ato Mohamed Mehamud Beshir's family

4.3.12 Ato Endiris Yasin Weliyu's Compound

The life story of Ato Endris Yasin Weliyu's Mother W/ro Fatuma Tahir)

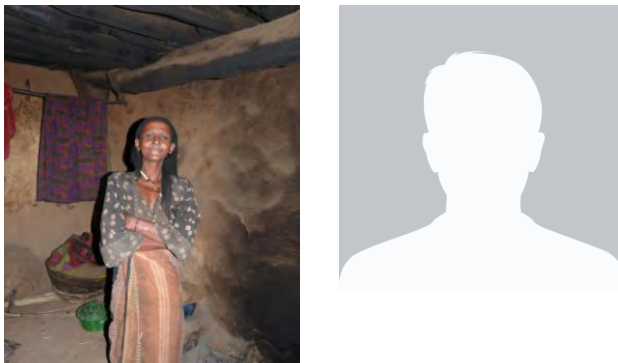


Fig.4:174 Ato Endiris Yasin Weliyu's Family

W/ro Fatuma Tahir is Endris Yasin's mother. In the Argobba tradition, even if she is the mother she has no right to inherit a house and a land if she has a son. The first inheritor is her son. Therefore, the house belongs to her son. W/ro Fatuma Tahir was born in 1965 at Megreja Argobba, a one hour and thirty minute walk from Shonke Amba. She got married at the age of 15 to her first husband Ato Ahimed Tahir. She divorced her husband a few months in to their marriage. The main reason for the divorce as she explained to the researcher was "disagreement" but she was not willing to go in to details. She stayed with her parents for three months and then married Ato Yasin Weliyu the father of Ato Endirs. In Argobba tradition divorced women have to wait for three consecutive menstrual cycles to check to rule out the possibility of a pregnancy. W/ro Fatuma Tahir came to Shonke Amba after she married her second Husband Ato Yasin Weliyu and gave birth to three children.

One of them is dead. Currently she lives with her son, Endris Yasin. Her daughter was married but her husband passed away 15 years ago. She has not remarried since .

Table 4.25 Spaces –Time Diary of W/ro Fatuma Tahir.

S.No	Date	Activities (Daily)	Room /place	From/at	To
W/ro Fatuma Tahir					
Daily activities					
1		Get dressed and pray	Living area	5:00	5:30
2		Cook breakfast	Living area	5:30	6:30
3		Eat breakfast	Living area	6:30	7:30
4		Grind grains	Living area	7:30	10:30
5		Sifet (Hand craft Works)	Living area	10:30	12:30
6		Pray	Living area	12:30	13:00
7		Cook lunch	Living area	13:00	14:00
8		Eat lunch	Living area	14:00	14:30
9		Sifet (Hand craft Works)	Living area	14:30	15:00
10		Fetch water	Chilata water point	15:00	17:00
11		Grind grains	Living area	17:00	18:00
12		Cook dinner	Living area	18:00	19:00
13		Pray	Living area	19:00	19:30
14		Eat dinner	Living area	19:30	20:30
15		Sleep	Living area	20:30	5:00
No weekly and monthly activity , daily activities are continued					

The life story of Ato Endris Yasin Weliyu

Endris Yasin weliyu is 20 years old. He was born in Shonke Amba. He grows sorghum and kcat on his father's land. He does not sleep at home where his mother lives but spends the night at a house (*Kelewa*) where his peers sleep in

Table 4.26 Spaces –Time Diary of W/ro Fatuma Tahir's Son.

S.No	Date	Activities (Daily)	Room /place	From/at	To
Son					
Daily activities					
1		Get dressed	Kelewa	8:00	8: 15
2		Eat breakfast	Living area	8:15	8:45
3		Go to the farm	On the road	8:45	7:15
4		Work on the farm	The farm	7:15	12:00
5		Go to home	On the way	12:00	12:30
6		Eat lunch	Living area	12:30	13:00
7		Go to the farm	On the road	13:00	13:30
8		Work at the farm	The farm	13:30	18:00
9		Go to the tea house	On the road	18:00	18:30
10		Stay at the tea house with friends	Tea house	18:30	19:00
11		Eat dinner	Living area	19:00	20:00
12		Go to Kelewa	On the road	20:00	20:10
13		Chat with friends	Kelewa	20:10	23:00
14		Sleeping	Kelewa	23:00	8:00
daily activities are continued					

Compound

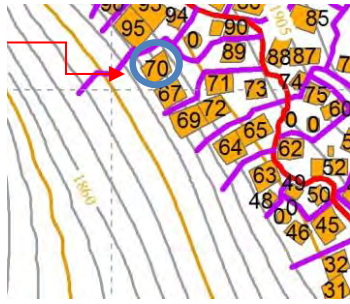


Fig. 4:175 Location of Ato Endris Yasin Weliyu's house

Fig. 4: 176 Compound of Ato Endris Yasin Weliyu's house

The geographical location of Ato Endris Yasin Weliyu's house is a= N 10 37.093 E 039 58.368, b= N10 37.097 E 039 37.367, c= N 10 37.094 E039 58.369, d= N 10 37.097 E 039 58.367, e= N 10 37.095 E 039 58.37, f= E10 37.098 E039 58.371, g= 10 37.098 E039 58.371 and h= E10 37.098 E039 58 371 at the altitude of 1907. The total compound area of Ato Endris Yasin Weliyu's compound is 101.4 m². The compound has narrow space without fence at South, North and west side which is 2.18, 1.13 and 1.90 meters respectively.

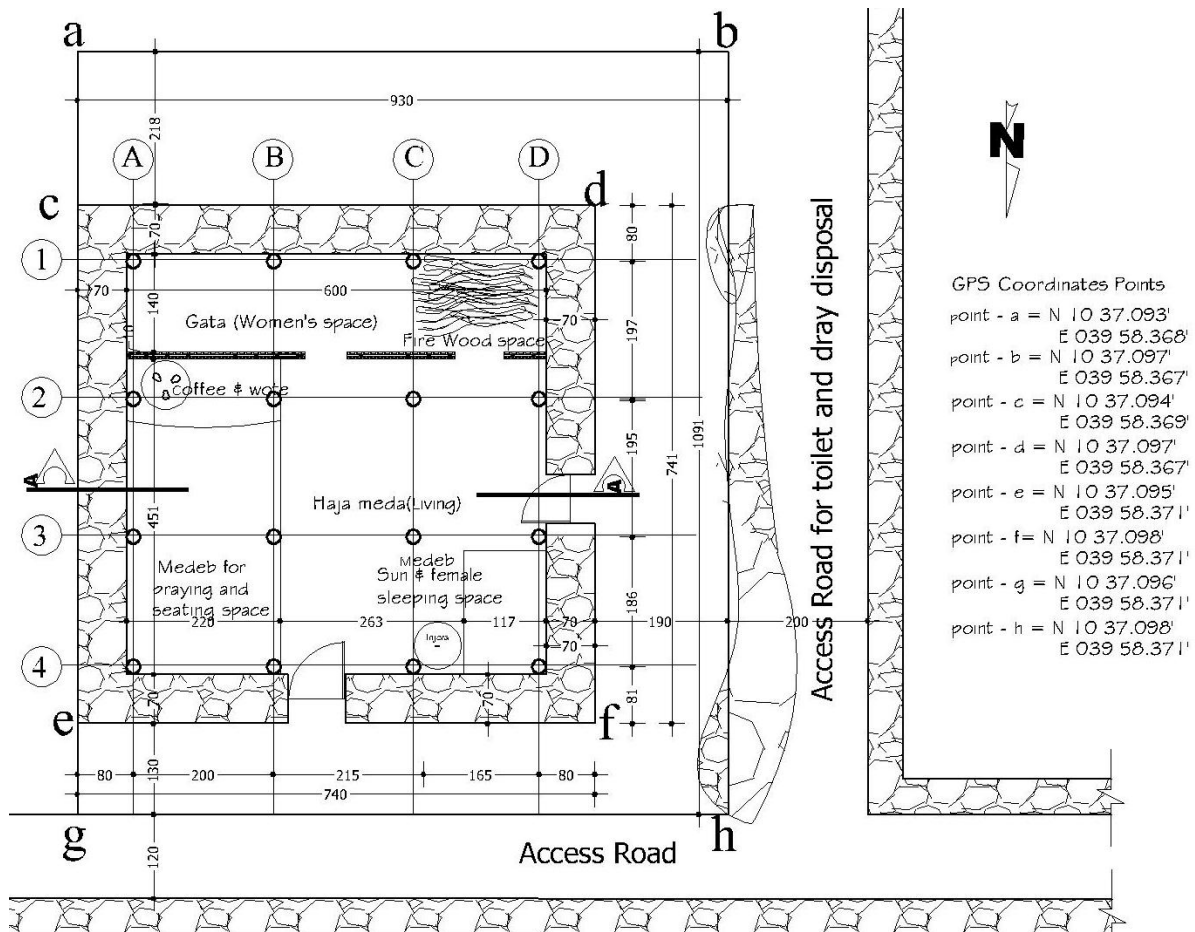


Fig. 4:177 Compound and Floor plan of Ato Endris Yasin Weliyu's house

The front Yard:

Ato Endris Yasin Weliy house has two front yards because it faces the road on two sides. The frontage is narrow in size, 1.30 meters north and 2.20 meters on the West side. The front yard; is not accessible to the road because of a pile of boulders which are elevated 2.50 meters.

The Back Yard:

The Back yard of the house is towards the cliff side of the mountain which is on the South side. The main advantage of the back yard being on the side of the cliff is that it makes the disposal of dry waste and toilets easy. Ato Endris's backyard is not used to plant vegetables because it is small in size and filled with boulders of stone retaining wall.

The House:

Ato Endris Yasin Weliy's house is a type tree row house. The total size of the house is 7.40x7.41 meter which is square in form. The house is mainly divided into two equal parts. The living area is 27.17m² in area and W/ro Fatuma's all activities take place here. The space is used for sleeping, praying, eating, grinding and resting. The living area which is 28.4m² in area is used for storage of fire wood only. In the Women's space smoke bath, which is a common space in every Argobba house, is not available. This is because there is an age limit for women to beautify themselves and because.

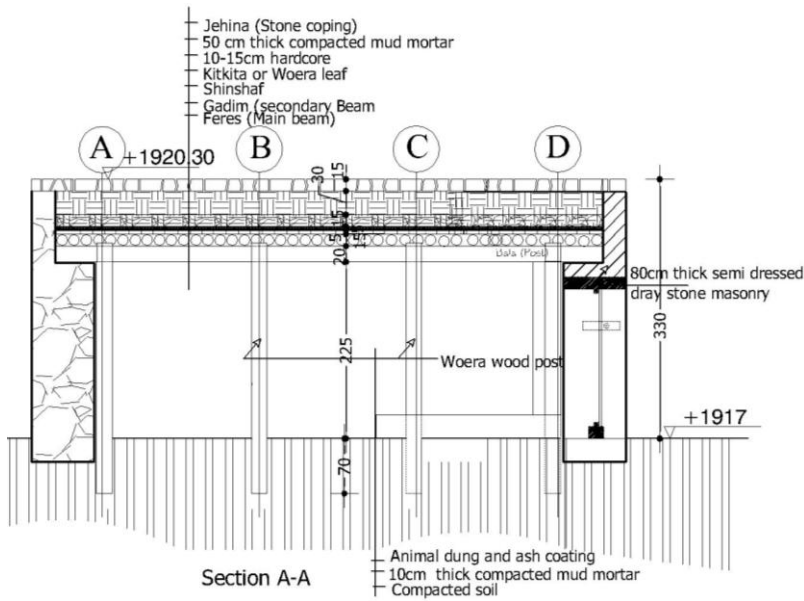
Orientation of the House:



Fig. 4:178 Orientation of the house

As it can be seen in the picture above the house is oriented in two directions due to lack of access to the preferable east direction. Since other adjacent houses are built in the East border line, it is not possible to make the house face East. Therefore the western side door orientation is for the search of the second preferable orientation in Argobba tradition and the

north is used to access the house from the main access road. Accessibility direct from the house to service road for waste disposal is impossible due to boulders and stone retaining wall.



4:180 Medeb & cooking space in the living area

Fig. 4:179 Section of the house

Furniture's in each room:

- a) Living area ; *Medeb* for sleeping and praying space ,sheep skin, grinding stone and *k*



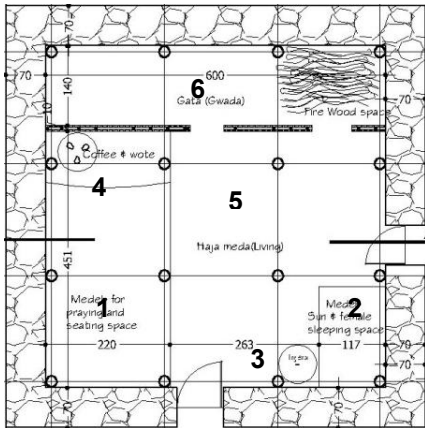
Fig. 4: 181 storage space at Women's space



Fig. 4:182 West elevation of the house



Fig. 4:183 Space for grinding



In the living area of the *house* 1 and 2 *medeb* space is used for praying and sleeping, 3 is used to bake Enjera, 4 is a cooking space and space 5 is used for living and doing activities like grinding grains. The Women's *space* which is space 5 is used for storage of fire wood and utensils.

Fig.4:184 Plan of Ato Endris yasin weliyu's house

Fig. 4.185 below shows the space used by Ato Endris yasin weliyu's family at settlement, compound and house level. From the interview conducted with two family members within the 48 hours. The family spent 50.00 % of their time with in the *house* and 50.00% outside of the compound.

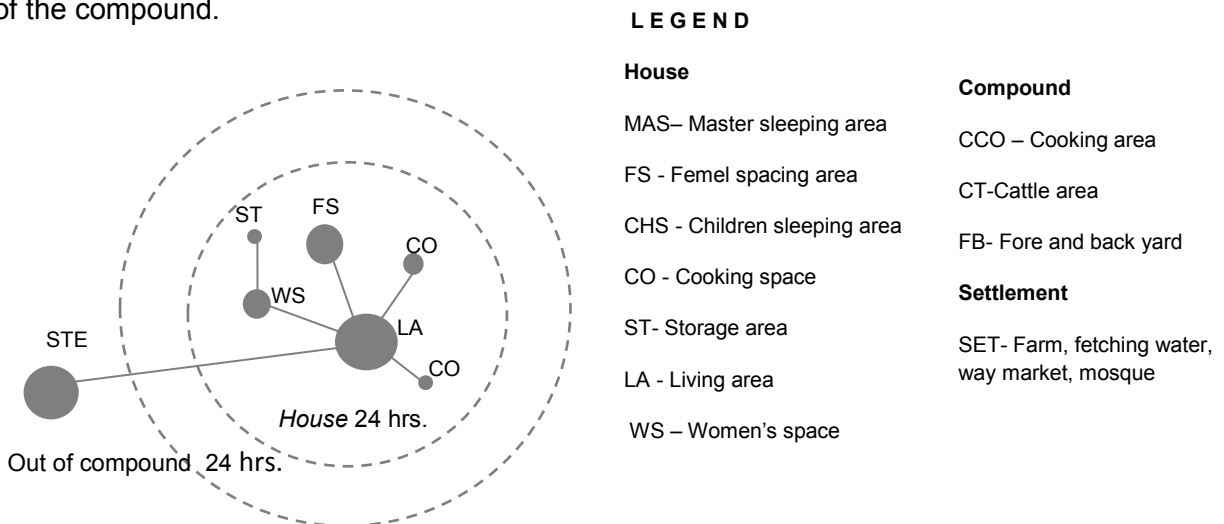


Fig. 4:185 J graph of Ato Endris yasin weliyu's house

The hidden line represents the dwelling and the compound.

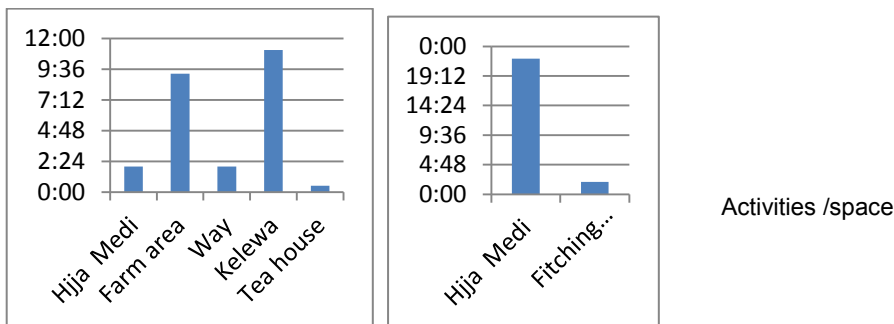


Fig. 4:186 Activity time graph of Ato Endris's family

4.3.13 Ato Mohamed Yasin Aba-bahir's Compound.

The life story of Ato Mohamed Yasin Aba-bahir



Fig.4:187 Ato Mohamed Yasin Aba-bahir's Family

Mohamed Yasin was born in Shonke Amba. He is 32 years old. He married his first wife at the age of 20, she was 12 years old at the time. They lived together for six years but they did not bear any children. They divorced because he could not afford to buy her a watch and a silver necklace. He married Aminat Mussa when he was 26, right after his divorce. His second wife was 12 also years old. As per the Argobban tradition to a man is expected to give a woman a watch and a necklace as dowry. How could he buy his second wife engagement gifts the same year he got divorced? This shows that the reason he gave for his first divorce was incorrect. Ato Mohamed Yasin continued telling his life story,

“My second wife did not give birth for five years because she was a teen ager haven't had her menstrual cycle. She gave birth to a baby boy two years ago and we are happy with our lives. I bought shoes, watch and silver necklaces because I had money” he said.

Ato Mohamed Yasin Ababahir is an uneducated farmer. He earns an annual income of about 34,200 birr from crops like *teff*, sorghum and *kchat*. He has 7 hens. He was also asked about his space usage, activities and the meaning each space has for him. For him the farm is a place where he works for a long time. He wants to work hard and earn a living. He also said “when I am on the *medeb* with my two year old son, it gives me a feeling of prosperity and I feel happy because I play with my son”.

Table 4.27 Spaces – Time Diary of Ato Mohamed Yasin Aba-bahir.

S.No	Date	Activities (Daily)	Room /place	From/at	To
Ato Mohamed yasin Aba-bahir					
Daily activities					
1		Get dressed and pray	Living area	6:00	6: 15
2		Take care of my son while my wife cooks	Living area	6:15	7:30
3		Eat my breakfast	Living area	7:30	8:30
4		Go to the farm	On the road	8:30	9:00
5		Work at the farm	The farm	9:00	12:30
6		Eat lunch	The farm	12:30	13:00
7		Work at the farm	The farm	13:00	18:00
8		Go home	On the road	18:00	18:30
9		Spend time with my son	Living area	18:30	20:00

10		pray	Living area	20:00	20:15
11		Eat dinner	Living area	20:15	21:00
12		Sleep	Living area	21:00	6:00

Daily activities are continued in the weekly and monthly activities

The life story of Ato Mohamed Yasin Ababahir’s wife

Aminat Musa was born in Shonke Amba. She married Ato Mohamed Yassin Aba-bahir at the age of 12. She is uneducated 20 years old wife. For her the Women’s space means a place of pleasure and work.

Table 4.28 Spaces –Time Diary of Ato Mohamed Yasin Aba-bahir’s Wife

S.No	Date	Activities (Daily)	Room /place	From/at	To
Wife					
Daily activities					
1		Get dressed and pray	Women’s space	5:00	5: 15
2		Cook breakfast	Women’s space	5:15	7:30
3		Eat breakfast	Living area	7:30	8:00
4		Fetch water	Chilata water point	8:00	9:00
5		Grind grains	Living area	9:00	10:00
6		Clean the house	Living area	10:00	10:30
7		Go to my mother’s house	On the road	10:30	10:45
8		Chat with my mother	Settlement	10:45	18:00
9		Go home	Way	18:00	18:15
10		Cook lunch for my son and for myself	Women’s space	18:15	19:00
11		Eat lunch	Living area	19:00	19:30
12		hand craft	Living area	19:30	20:00
13		Cook dinner	Women’s space	20:00	21:00
14		Eat dinner and serve coffee	Living area	21:00	21:30
15		Sleep	Women’s space	21:30	5:00

Daily activities are repeated in the weekly and monthly activities.

Compound :

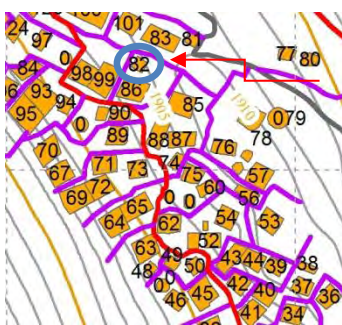


Fig.4:188 Ato Mohamed Aba-bahir’s location of the house

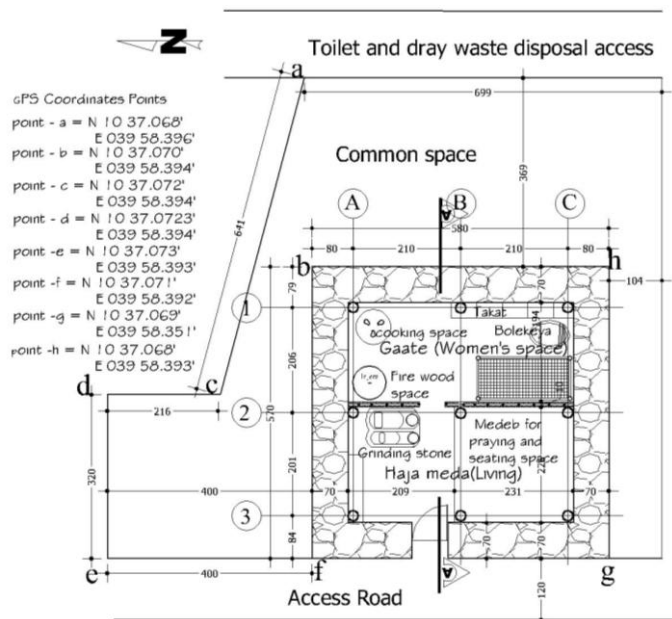


Fig.4:189 Compound and floor plan of Ato Mohamed Yasin Aba-bahir

The Geographical location of Ato Mohamed Aba-bahir's house is a= n 10 37.068 E039 58.396, b= N10 37.070 E039 58.394, c= N 10 37.072 E039 58.394, d= N10 37.072 E039 58.394, e= N 10 37.073 E 039 58.393, f= N10 37.070 E 039 58.393, g= N10 37.069 E 039 58.351 and h= N10 38.068 E039 58.393 at altitude of 1884 above sea level. The total area of the compound is 83.22m².

The front Yard:

Ato Mohammed Yasin Aba-bahir's compound has no front yard. The front yard is the main access road because the house is constructed on the border of the road. Therefore the main road also serves as a transition for the house.

The back yard:

The back yard space is connected to the service road which is used for waste disposal. The total area of the back yard is 37.28 m², which is used to plant vegetables during the rainy season. The back yard space cannot be directly accessed from the house. To the back yard is accessed through the main frontal road and the side spaces.

The House:

Ato Mohamed Yasin Aba-bahir's house is type- two row. The total area of the house is 32.83m² with 5.80x5.70 meters in size. The internal space of the house is sub divided into two parts. One is living area which accommodates *Medeb*, grinding stone, shelf and is also men's space. Women's space is used for cooking, sleeping and smoke bath.

Orientation of the House:

Due to the site condition the house faces the second preferable orientation in Argobba Shonke Amba settlement, which is the West . The east side is inaccessible to the house because of a difficult topography. The road which is used for dry waste and toilet disposal is inconvenient for the orientation of the house.

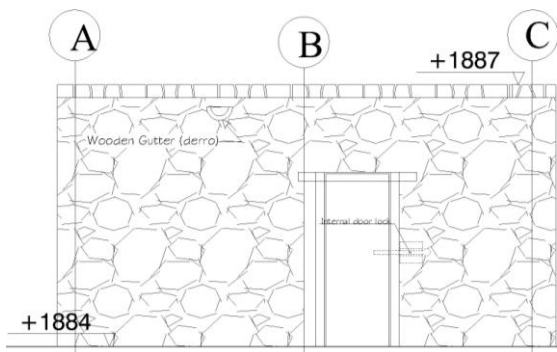


Fig.4:190 West Elevation

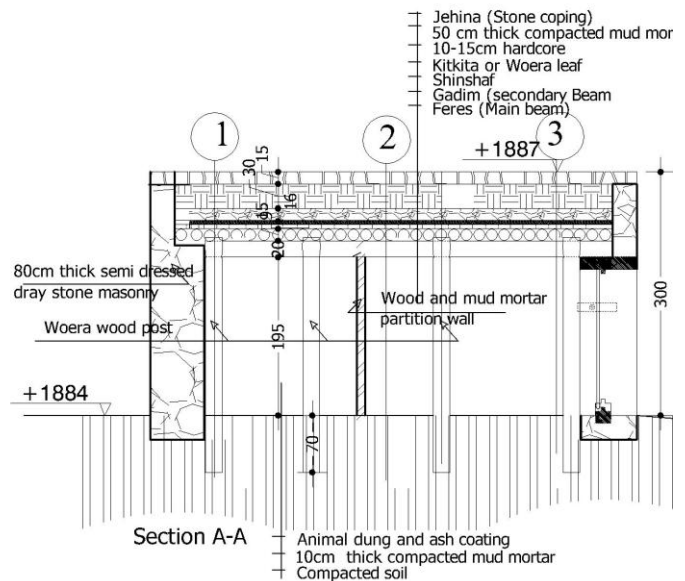


Fig.4:191 Section of the house

Furniture's in each room:

a) Living area

- *Medeb* sheep skin , *Plastic water tan* and *Shelf*



Fig. 4:192 *Medeb* & cooking space



Fig. 4:193 Working space in the living area

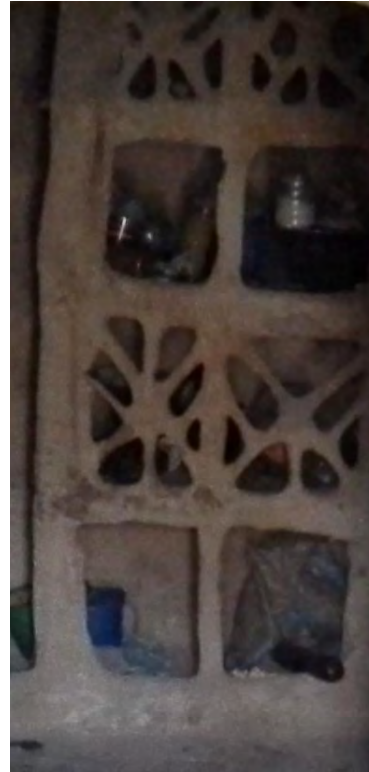
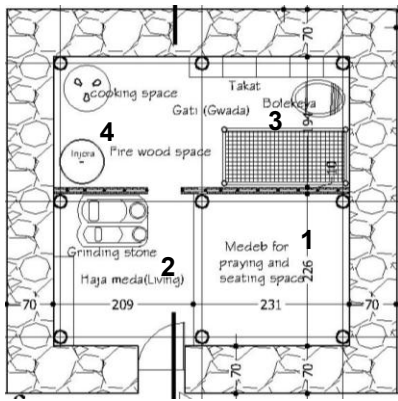


Fig. 4:194 *Shelf* (local name *Takat*)



Fig. 4:195 Ato Mohamed Yasin Ababahir's house.



In the living area of the *house*, space 1 is *medeb* space which is where men pray and sleep, space 2 is used for living and doing activities like grinding of grains. In the Women's space, space 3 is used as women's sleeping and smoke bath area. Space 5 is used for baking Enjera and cooking food .

Fig.4:196 Plan of Ato Mohamed Yasin Aba-bahir's *house* Plan

Fig. 4.197 below shows space used by Ato Mohamed Yasin Aba-bahir's family at settlement, compound and house level. From the interview conducted with two family members within the 48 hours. The family spent 62.81 % of their time with in the *house* and 36.35% outside of the compound.

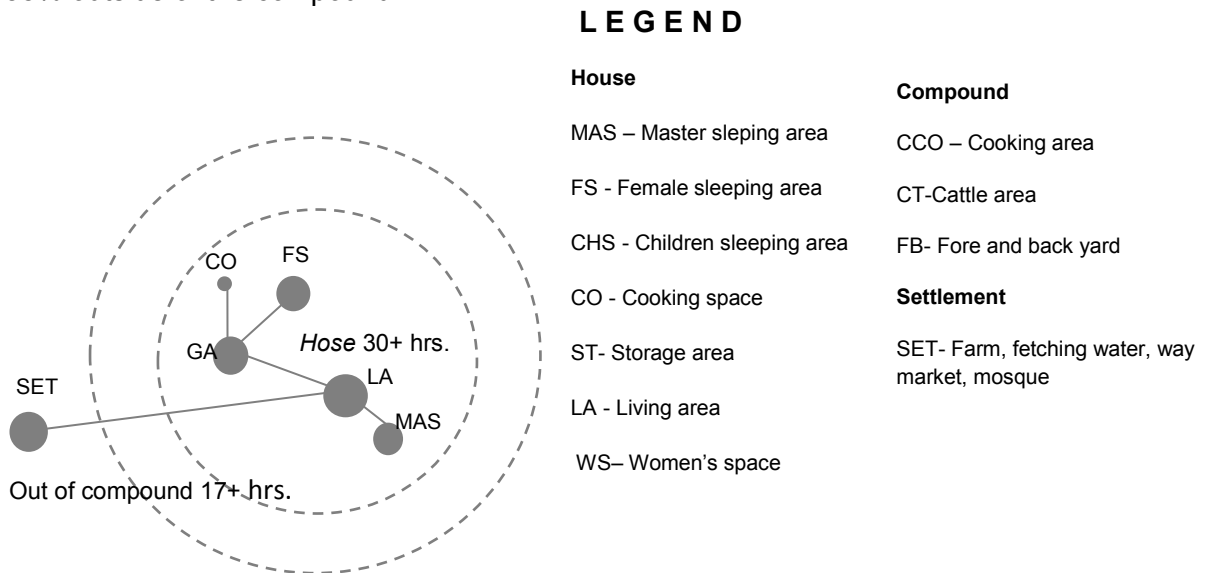


Fig. 4:197 J graph of Ato Mohamed Yasin Aba-bahir's house

The hidden line represents the dwelling and the compound.

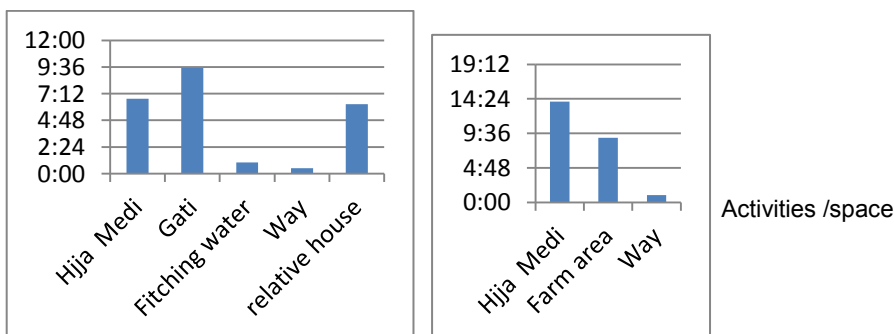


Fig. 4:198 Activity time graph of Ato Mohamed Yasin Aba-bahir's family

4.3.14 Ato Mehamud Mohamed Seid's Compound

The life story of Ato Mehamud Mohamed Seid



Fig.4:199 Ato Mehamud Mohamed Seid's family

Ato Mehamud Mohamed Seid was born in 1964 in Shonke Amba. He is 50 years old. His mother passed away when he was one. so he was raised by his step mother. He can read and write as he attended education up to the fourth grade. He married his first wife Merema Mohamed when he was 25 and she was 12 years old. He divorced her two years later because her father wanted her to live at her parents' house with her family. Ato Mehamud Mohamed Seid is a well-known artisan. He tells his life story as follows.

“My second wife was called Merema Nure. I married her at the age of 12 after I divorced my first wife. We lived together for only two months then I divorced her because of her laziness. Then I married my third wife who is also a divorcee like me. She is good at cooking and house management, but she has bad behavior so I divorced her a month later. My fourth wife and the mother of my five children is called Misku Mohamed. Her first husband failed to fulfill his duties as husband and couldn't deflower her. She stayed with him for and then divorced him and went back to her family. She was a beautiful young girl. After she stayed with her parents for six months, I married her. I deflowered her and she bore me nine children but three of them passed away 10 days after they were born”.

Ato Mehamud Mohamed Seid is a well-known artisan in Argobba traditional house. He learned the art from Shemsu Abdrahman and Mohamed Beshir. He worked with both of them constructing a house in a group called *Debo*. After working with these artisans for a long period of time Ato Mehamud Mohamed Seid became capable to work independently. He says he has constructed 40 houses as a leading artisan and 6 houses individually by being contracted by owners of the *Derb bet*. When builds a house by himself he is paid 2500-3500 birr per house. In addition to being an artisan he is a farmer. Ato Mehamud Mohamed Seid is asked about his space usage, activities and the meaning each place give during the interview. Farming is his main activity. To him the farm is a place of hard work hard and his effort become low in return. So, he doesn't like it. To him building houses within the settlement is erecting monuments because house will be passed down from generation to generation and this makes him happy.

Table 4.29 Spaces –Time Diary of Ato Mehamud Mohamed Seid.

S.No	Date	Activities (Daily)	Room /place	From/at	To
Ato Mehamud Mohamed Seid					
Daily activities					
1		Get dressed and pray	Living area	5:00	5: 15
2		Go to the farm	On the road	5:15	5:40
3		Work on the farm	The farm	5:40	9:00
4		Go back home	On the road	9:00	9:30
5		Eat breakfast	Living area	9:30	10:30
6		Go to the farm	on the road	10:30	11:00
7		Work on the farm	The farm	11:00	12:30
8		Go home	On the road	12:30	13:00
9		Pray	Living area	13:00	13:30
10		Eat lunch	Living area	13:30	14:00
11		Go to the farm	On the road	14:00	14:30
12		Work on the farm	The farm area	14:30	17:00
13		Pray	The farm area	17:00	17:15
14		Go home	On the road	17:15	17:45
15		Rest at home	Living area	17:45	19:00
16		Pray	Living area	19:00	19:15
17		Rest at home	Living area	19:15	20:00
18		Eat dinner	Living area	20:00	21:00
19		Sleep	Living area	21:00	5:00
Daily activities are repeated in the weekly and monthly activities and schedules					
Yearly activities					
		Getting dressed and pray	Living area	5:00	5:15
		Back to sleep	Living area	5:15	6:30
		Eating breakfast	Living area	6:30	7:00
		Way to work place	On the road	7:00	7:15
		Masonry work for Derb Bet	Settlement	7:15	12:30
		Eating lunch, resting and chewing kchat	Settlement	12:30	13:30
		Work at Derb Bet construction	Settlement	13:30	17:00
		Praying	Settlement	17:00	17:15
		Way to home	Living area	17:15	17:30
		Praying	Living area	17:30	17:45
		Resting	Living area	17:45	20:00
		Eating dinner	Living area	20:00	21:00
		Sleeping	Living area	21:00	5:00

The life story of Ato Mehamud Mohamed Seid's Wife

“My name is Shemshu Mohamed, I am 45 years old. I was born in Shonke Amba. I married Ato Endris Mohamed at the age of 15. He is very handsome; however I lived with him for only six months, he failed to satisfy me so I divorced him and went back to my parent's home. After I divorced my first husband, I stayed with my parents for about six months and married Ato Mehamud Mohamed Said and gave birth to six children. I am not educated”.

At Shemshu's house, the most used space is the Women's space. Women's space is a place where she works, rests, gets children and uses smoke bath. Therefore it is a place of happiness and she feels love when she is at Women's space.

Table 4.30 Spaces –Time Diary of Ato Mehamud Mohamed Seid's wife

S.No	Date	Activities (Daily)	Room /place	From /at	To
W/ro Shemshu Mohammed					
Daily activities					
1		Get dressed and pray	Women's space	5:00	5: 15
2		Cook breakfast	Women's space	5:15	7:00
3		Eat breakfast	Living area	7:00	7:30
4		Fetch water	Chilata water point	7:30	8:30
5		Clean the house	Living area	8:30	9:00
6		Make and drink coffee with my neighbors	Living area	9:00	12:00
7		Cook lunch	Women's space	12:00	13:00
8		Eat lunch	Living area	13:00	13:30
9		Prepare for the coming day cooking	Women's space	13:00	14:30
10		Rest	Living area	14:30	18:00
11		Cook dinner	Women's space	18:00	20:00
12		Eat dinner	Living area	20:00	21:00
13		Sleep	Women's space	21:00	5:00
Weekly activity					
1		Daily activities are repeated in the weekly activites.			
Monthly activity					
1		Daily activities are repeated			

The life story of Ato Mehamud Mohamed Seid's daughter



Fig.4:200 Misku Mehamud Seid

Misku Mehamud Seid was born in 2004, She is 12 years old and a 6th grade student at Abbila primary school which is a 30 minute' walk from Shonke Amba. She helps her mother by fetching water from Chilata carrying 15 liters of water. She also takes care of her young brother. For lucky girls, who grew in Kemise town 25 km from Shonke Amba, marriage at this age is unthinkable they only know to play as much as they can. But Misku has no time to play. She was engaged to a man who was 23 years old. Her dowry which is a watch and

a necklace cost him 1,750 birr only. This gives him permission to marry her while she is still 12. He can come and take her to his home any time, because this is the tradition of Argobba people in Shonke Amba, that dates back to 834 years.. The civil law and child right of the Ethiopian constitution cannot protect her. When the interview was conducted she was caring her younger brother on her back, while her twin Mohamed Mehamud played in the compound. There is no work pressure on boys of Shonke Amba unlike girls.

Table 4.31 Spaces –Time Diary of Ato Mehamud Mohamed Seid’s daughter and son.

S.No	Date	Activity (Daily	Room /place	From/at	To
Daughter (Misku Mehamud Seid)					
Daily activity					
1		Getting dressed and fetching water	Chilata water point	5:00	6: 00
2		Second round fetching water	Chilata water point	6:00	7:00
3		Eating breakfast	Living area	7:00	7:30
4		Cleaning the house	Living area	7:30	8:00
5		Take care of my young brother	Living area	8:00	11:00
6		Way to the school	On the road	11:00	11:30
7		Playing with my friends	School	11:30	12:00
8		Learning	School	12:00	17:00
9		Way to home	On the road	17:00	17:30
10		Eating my lunch	Living area	17:30	18:00
11		Fetching water	Chilata water point	18:00	19:00
12		Helping my mother to cook	Women’s space	19:00	20:00
13		Eating dinner	Living area	20:00	21:00
14		Sleeping	Women’s space	21:00	5:00
No Weekly and monthly activity daily activity continued					

Son (Mohamed Mehamud Mohamed Sied)					
1		Getting dressed and eating breakfast	Living area	6:00	7:00
2		Way to school	On the road	7:00	7:30
3		Playing	School	7:30	8:00
4		Learning	Abila school	8:00	12:00
5		Way to Home	On the road	12:00	12:30
6		Eating lunch	Living area	12:30	13:00
7		Way to Farm	On the road	13:00	13:30
8		Collecting fire wood	Farm land	13:30	16:00
9		Way to Home by carrying fire wood	On the road	16:00	16:30
10		Playing	Compound	16:30	19:00
11		Eating dinner	Living area	19:00	20:00
12		Sleeping	Living area	20:00	6:00
No Weekly and monthly activity daily activity continued					

Compound

The geographical location of Ato Mehamud Mohamed Seid compound is a= N10 37.108 E 039 58.374, b= E10 37.106 E039 58.375, c= N10 37.107 E039 58.375, d= E 10 37.104 N 039 58.379, e= N 10 37.104 E 039 58.379, f= N10 37.101 E039 58.378, g= N10 37.102 E 039 58.374, h= N 10 37.105 E 039 58.371 and i= N10 37.105 E039 58.373 at altitude of 1898 mt. above sea level. The total area of the compound is 129.42m²

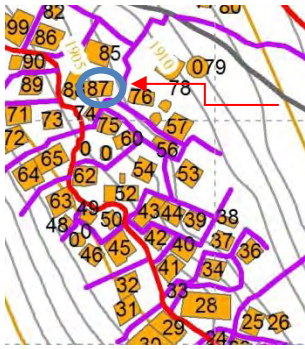


Fig.4:201 Location of Ato Mehamud Mohamed Seid house.

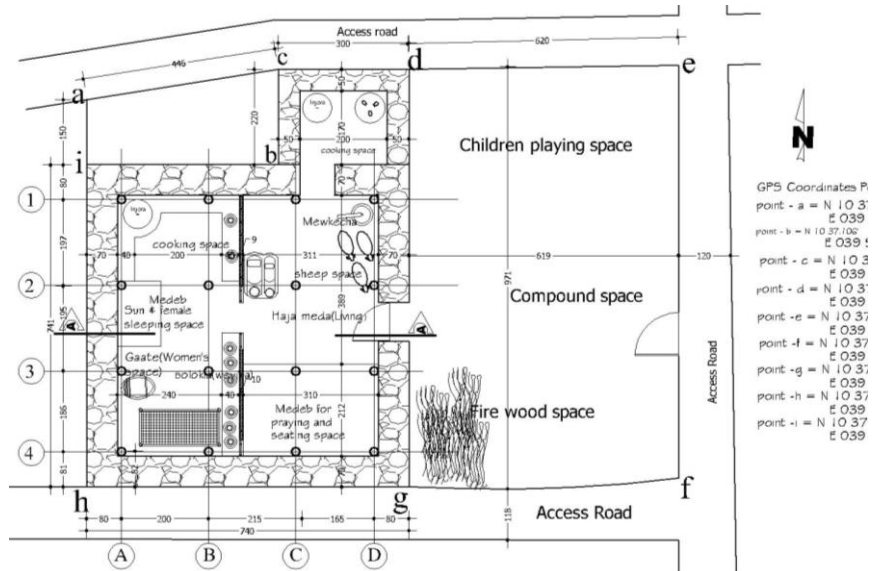


Fig.4:202 Compound and floor plan of Ato Mehamud Mohamed house

The front yard:

The front yard of Ato Mehamud Mohamed House space is 59.64m² which is big in area. The space is bounded in road in three sides and used as transition space to the house, washing, children's playing, animal feeding and storage for fire wood.



Fig.4:203 The front yard space of Ato Mehamud Mohamed Seid.

The back yard:

The back yard space which is located at the northern part of the compound is not directly accessible from the compound or from the house. There is a 150cm high stone masonry wall for open Weret or fire space which separates the space. The space is 8m² used for urinal and dry west disposal space.

The house:

The house of Ato Mehamud Mohamed Seid is type three row house. The foot area of the house is 54.89m². There is a space for cooking called which is attached to the house without a roof and it is directly accessible through a door on the north side. The house is sub divided into living area in which *medeb* space for sleeping and praying is found. In addition to this the *medeb* is also serve as eating space. At living area the sheep's have also space during night time. The women's space which accommodates cooking space while the rainy season and also used for coffee making, sleeping space for women, children's and smoke bath .

Orientation of the house:

There is no forcing condition to make the orientation of the house from the preferable East direction. The house is bounded in three direction with road, due to this the orientation of the house towards the East direction.



Fig.4:204 View of the East Elevation

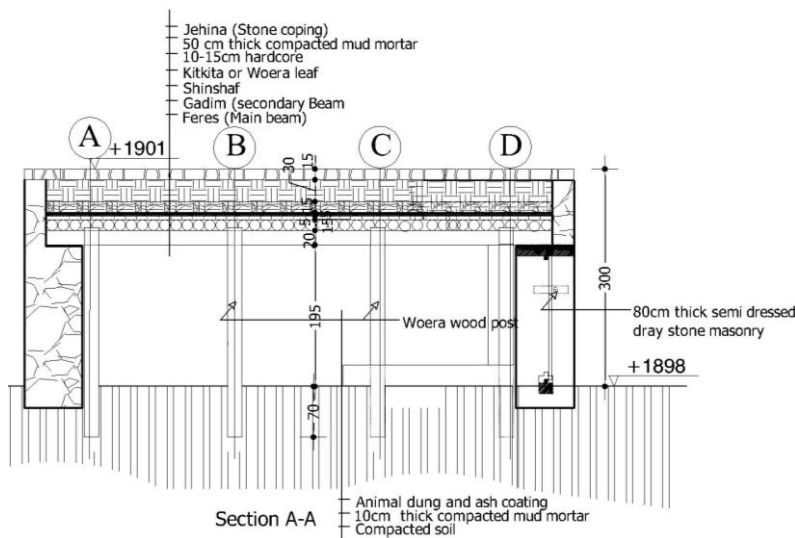


Fig.4:205 Section of the house



Fig. 4:206 Grinding stone



Fig. 4:207 Medeb space in the living area

Furniture's in each room:

- Living area *Medeb* (sleeping and praying space)

In the living area of the *house 1 medeb* space is used as a prayer and sleeping area for men, 2 is used for living and activities like grinding of grains. At women's space, 3 is used as women's sleeping space and of smoke bath, 4 is used as children's sleeping space. Space 5 is used for baking Enjera and other food items. In the compound, space 6 is used as an open cooking space and 7 is used as children's playing ground.

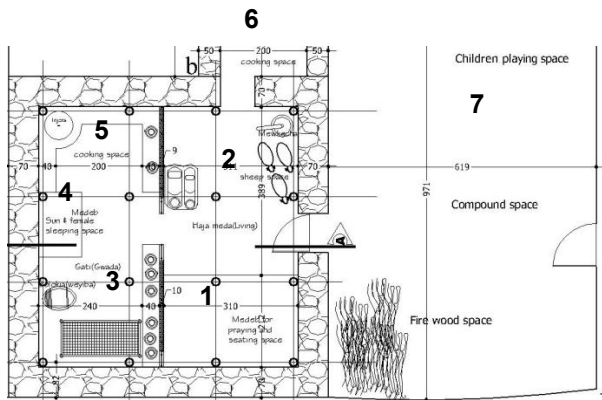
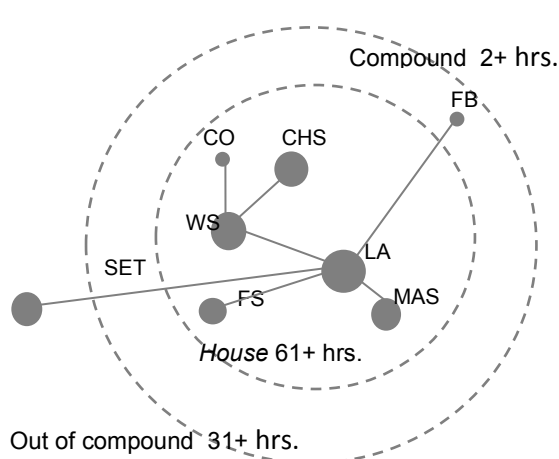


Fig.4:208 Ato Mehamud Mohamed Seid's house

Fig. 4.209 below shows the space used by Ato Mehamud Mohamed seid's family at settlement, compound and house level. From the interview conducted with four family members within the 96 hours. The family spent 63.85 % of their time with in the *house 2.39* in the compound and 32.60% outside of the compound.

LEGEND



House

- MAS– Master sleeping area
- FS - Female sleeping area
- CHS - Children sleeping area
- CO - Cooking space
- ST- Storage area
- La - Living area
- WS – Women's space

Compound

- CCO – Compound cooking area
- CT- Cattle area
- FB- Fore and back yard

Settlement

- SET - Farm, fetching water, way market, mosque

Fig. 4:209 J graph of Ato Mehamud Mohamed house

The hidden line represents the dwelling and the compound.

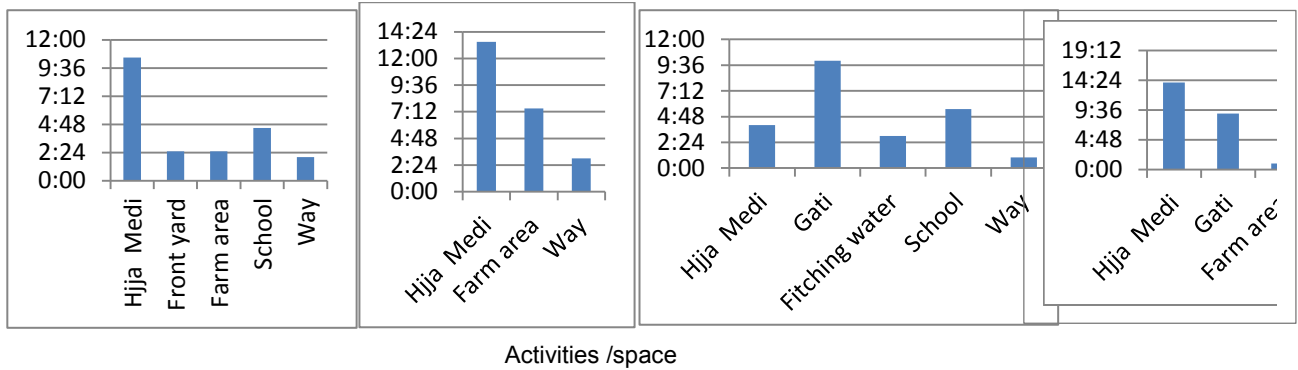


Fig. 4:210 Activity time graph of Ato Mehamud Mohamed Seid's family

4.3.15 Ato Harun Mohamed Nur's Compound

The life story of Ato Harun Mohamednur Esmail



Fig.4:211 Ato Harun Mohamednur Esmail and his house

Ato Mohamednur Esmail is 20 years old single. He was born in Shonke Amba in 1996. He was educated at Abilla primary school which is a 30 minute walk from Shonke Amba but he cannot read and write properly in either Amharic or Oromiffa. He can only write his name in Amharic. He complained that the medium of instruction was Oromiffa but the Argobba should learn in Amharic. Due to this he quit his school and became a framer.

Harun Mohamed was constructing a new house. During the researcher stay at Shonke Amba, he captured different flat roof construction methods that were discussed in the methods of construction part. Harun Mohamednur Esmail is also asked where he wished to see himself during the coming five years. "I will quite this farming activity and become a merchant. I will marry and have children". Until Harun Mohamednur will be married his new Derb bet will be serving as a *Kelewa* for him and his young friends. *Kelewa* is a place where above 18 years old youths sleep together. At this age they have a lot of private discussion together, since they are young and are searching for girls they love and marry. They chat about everything. They also use Kchat. *Kelewa* is also a place where youngsters who do not want to work on farm areas meet and sit together and chew kchat daily. Sometimes it is also a place during night time to have a sex with divorced young girls. Therefore *Kelewa* is the meeting place for youngsters at Shonke Amba.

Table 4.32 Spaces –Time Diary of Harun Mohamednur Esmail.

S.No	Date	Activity (Daily	Room /place	From/at	To
Harun Mohamednur Esmail					
Daily activity					
1		Getting dressed and pray	Kelewa	6:00	6: 15
2		Way to the farm	Way	6:15	6:30
3		Harvesting Kchat	Farm area	6:30	8:30
4		Way to Abila Market to selling Kchat	Market	8:30	9:00
5		Way to home	On the road	9:00	9:30
6		Eating breakfast	Living area	9:30	10:00
7		Way to farm	On the road	10:00	10:15
8		Working on farm	Farm area	10:15	12:30
9		Way to Home	On the road	12:30	12:45
10		Praying	Living area	12:45	13:00
11		Eating dinner	Living area	13:00	13:30
12		Relaxing at tea House	Settlement	13:30	14:30
13		Way to farm	On the road	14:30	14:45
14		Working on farm	Farm area	14:45	17:00
15		Praying	Farm area	17:00	17:15
16		Way to home & relaxing	On the road	17:15	18:00
17		Resting at home	Living area	18:00	19:00
18		Eating dinner	Living area	19:00	20:00
19		Reading Quran	Living area	20:00	21:00
20		Way to Kelewa &			

Compound:

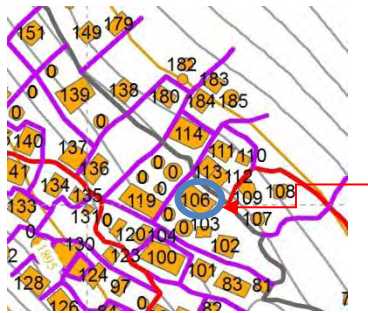


Fig.4:212 Location of Ato Harun

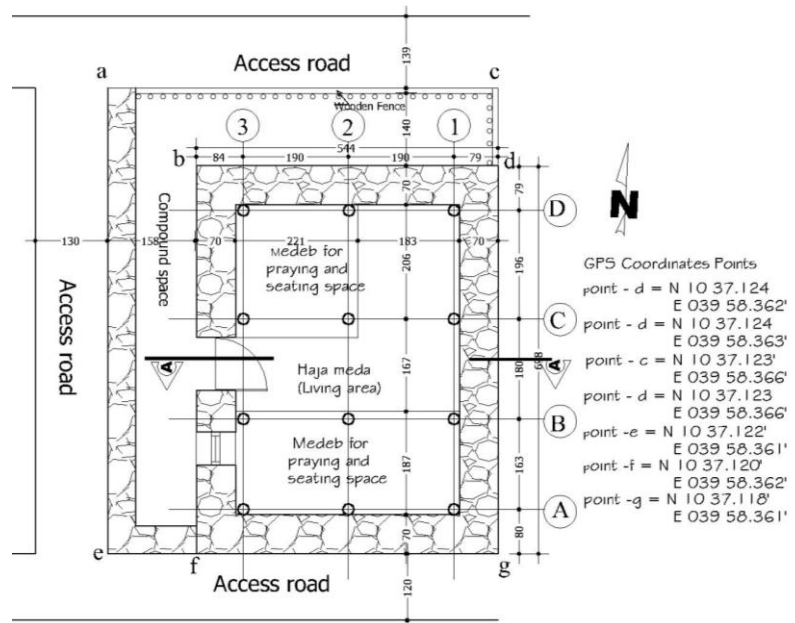


Fig.4:213 Compound and floor plan of Ato Harun Mohamednur Esmail's house.

Mohamednur Esmail's house

The geographical location of Ato Harun Mohamednur Esmail's house is a= N10 37.124 E 039 58.362, b= N 10 37.124 E 039 58.363, c= N10 37.123 E039 58.366, d= N 10 37.123 E 039 58.366, e= N 10 37.122 E 039 58.361, f= N 10 37.120 E 039 58.362 and g= N10 37.118 E 039.58.361 at the altitude of 1889 above sea level. The total area of the compound is 59m².

The front yard:

The front yard of Ato Harun Mohamednur Esmail's house is very small. It is bounded by access road on three sides. The distance from this front fence up to the house is 1.58 meter. This space is used only as transition space to the house. No other activity takes place on the front yard, which is only 8m².

The back Yard:

Ato Harun Mohamednur Esmail's house has no backyard space. The house is constructed on border line of the boundary at the back side sharing independent wall with both sides with neighbor.

The House:

Ato Harun Mohamednur Esmail's house is type two row *t* with nine columns. The total foot print area of the house is 37.91m². The internal space is not yet sub divided into two parts living area and women's space. Because he is not married, a space for women's privacy is not created. In addition to this the most important space at Women's space, medeb and smoke bath is also not in place. The smoke bath is the most frequently used by the new married Women's in Argobba tradition. The construction of smoke bath is usually ceremonial. After the bride has arrived at home, they have a honeymoon time for months. On her third day a minimum of ten neighborhood married females come to the bride home with wood and soil. They mix the soil with water and ramming with their hands. Finally they mold the smoke bath in place by reinforcing it with wood. For faster cure they use ash as admixture frequently. Within Four to six hours the smoke bath space will be cured. After the completion of the smoke bath the women's eat the local food *genfo*, drink *habish* and kchat with the bride at Women's space. Finally, they light the smoke bath wood with fire and put it on the bride for minimum of one hour and then the Women's go to their homes. From that moment the bride is uses smoke bath consistently every day.

Orientation of the house

The house is oriented towards the West direction the second preferable orientation in Shonke Amba. The reason behind to this is that East side, the first preferable orientation is used by Ato Harun Mohamednur to construct the rear side of the house on the border line.

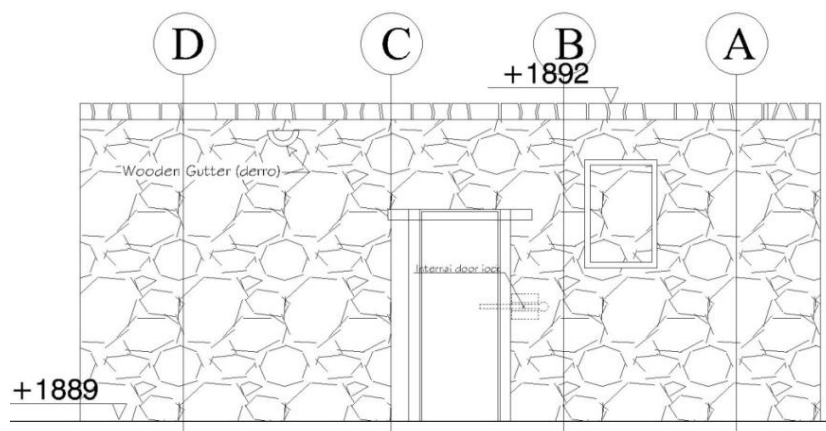


Fig.4:214 West Elevation

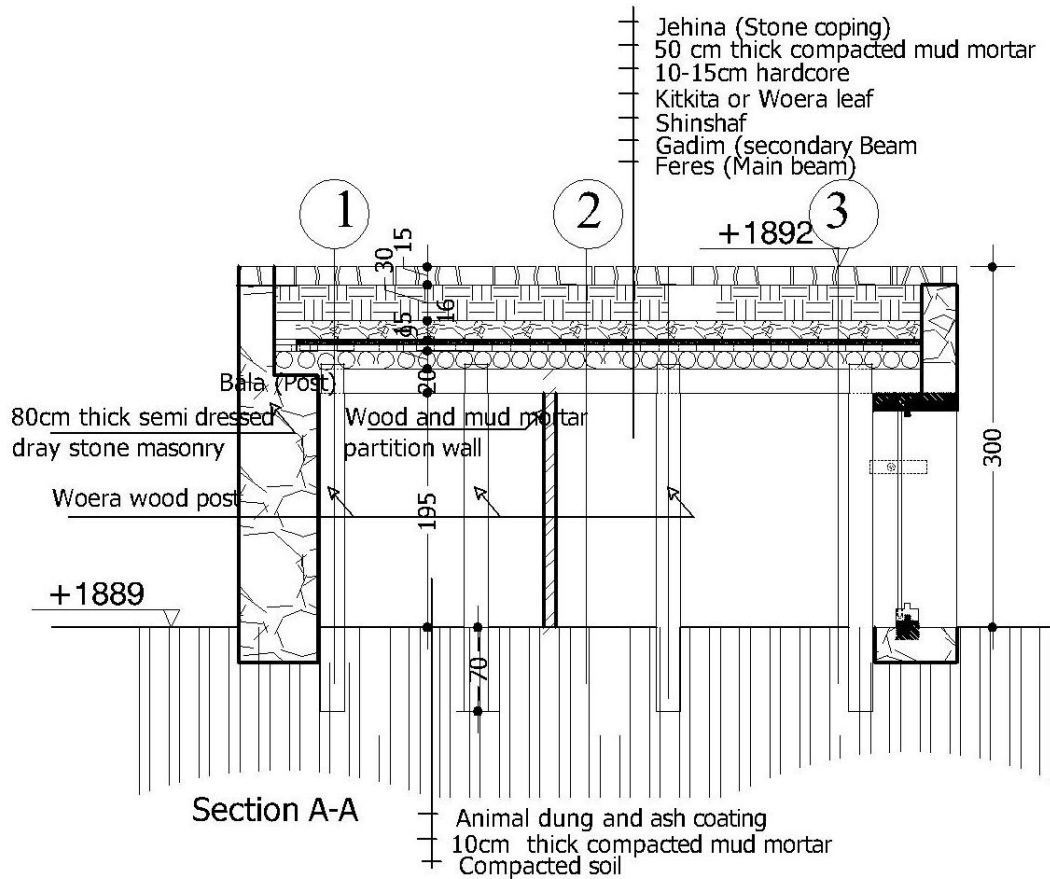


Fig.4:215 Section of the *derb bet*

Construction steps:

1. Levelling of the site
2. Layout (for example if the dwelling type is *sosit self* or *jemb* the layout is 6x6 excluding the 80cm thick masonry wall on both side.
3. Constructing 80cm thick dry dressed stone wall by placing dry soil between the internal and external masonry wall. The main use of the soil is for bondage the external and internal masonry wall and to prevent access for any living things such as insects and animals between the dry masonry walls at the minimum height of 195cm from the natural ground level.
4. Erection of columns.
5. Placing of main wooden beams.
6. Placing of secondary beam.
7. Placing of sliced wooden elements perpendicular to secondary beam by connected to each other.
8. Placing of olive tree leaf branch.
9. placing hard-core on the top olive tree leaf.
10. Fill with 50cm thick soil on top of the hard core.



Fig.4:216, 50 cm thick soil fills on top of the flat roof.

11. Mixing the soil with water and ramming with foot until the soil is converted to thick mud mortar.



Fig.4:217 mixing of soil with water & ramming with foot.

12. Compacting with wooden post when the mud mortar is half curing time is reached by adding 2-3 cm gravel.



Fig.4:218 adding of 2-3cm thick gravel to the rammed roof slab.

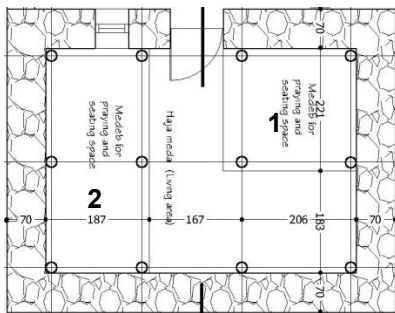


Fig.4:219 Compaction of gravel on flat roof with wooden.

13. Placing internal wooden partitions.

14. Plastering internal wall part15.

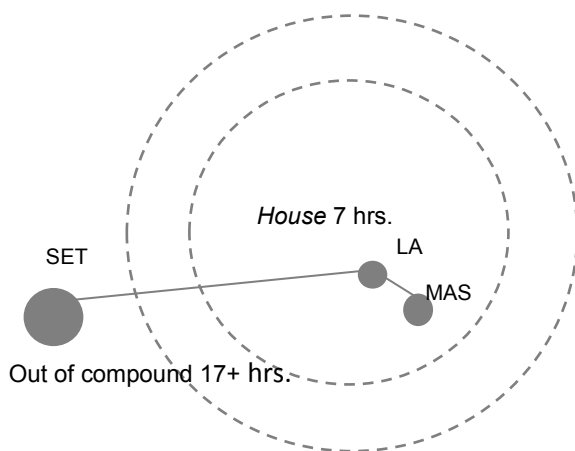
Applying final plastering to internal walls by the mixing ash, animal dung and water at a ratio of 1:1:1 .



Ato Harun Mohamednur Esmail's living area and Women's space space is not separated with partition, he is unmarried young person. During the interview he explained that he would make a partition wall as soon as he marries. Due to this the house has two *medeb* as it indicated on 1 and 2 which is used as sleeping space for young age group to serve as *kelewa*.

Fig.4:220 Plan of Ato Harun Mohamednur Esmail's house

Fig. 4.221 below shows that space used by Ato Harun Mohamednur Esmail at settlement, compound and house level. From the interview conducted for one family member within the 24 hours. He spent 29.165 % of their time with in the house and 70.80% out of compound.



LEGEND

House

- MAS- Master sleeping area
- FS - Female sleeping area
- CHS - Children sleeping area
- CO - Cooking space
- ST- Storage area
- La - Living area

Compound

- CCO – Compound cooking area
- CT- Cattle area
- FB- Fore and back yard

Settlement

- SET - Farm, fetching water, way market, mosque

Fig. 4:221 J graph of Ato Harun Mohamednur Esmail's house

The hidden line represents the dwelling and the compound.

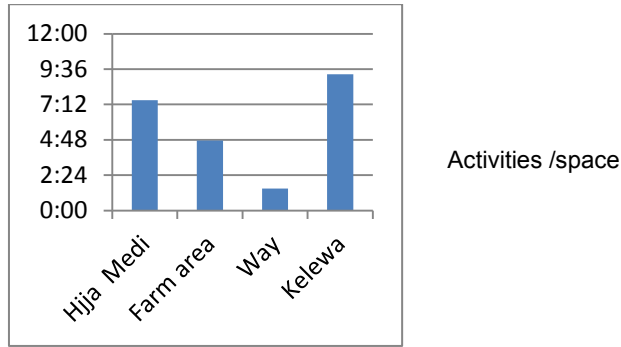


Fig. 4:222 Activity time graph of Ato Harun Mohamednur Esmail's family

4.3.16 W/ro Merema Beshir Ahimed's Compound

Life story of W/ro Merema Beshir Ahimed



Fig.4:223 W/ro Merema Beshir Ahimed's family

“Merema Besir was born in 1966 at Shonke Amba. She is 50 years old. She married her first husband, Ato Ebrahim Aleyin when she was 14years old. After our marriage he failed the war against Eritrean Liberation Front (EPLF). I waited for him for five years. Finally I heard that he had passed away in the fight. We have no children together and I become a widow because of his death. My second husband was Mohamed Mehamednur. We have borne five sons and three daughters, but one of our sons passed away. My husband also passed away”.

While the interview was conducted, two of her sons and one of her daughter were living with her, and the rest were married. Mohamedawel Mohamednur Beshir was on farm work away from Shonke Amba and so the researcher did not get a chance to interview him. but, two of her children were interviewed. W/ro Merema Beshir Ahimed has one cow, one ox, two sheep and three hens. The family has a monthly income of about 19,500 Birr.

Table 4.33 Spaces –Time Diary of W/ro Merema Beshir Ahimed’s family.

S.No	Date	Activity (Daily	Room /place	From/at	To
W/ro Merema Beshir Ahimed					
Daily activity					
1		Get dressed & pray	Women’s space	5:00	5: 15
2		Cook breakfast	Women’s space	5:15	7:30
3		Eat breakfast	Living area	7:30	8:00
4		hand craft	Living area	8:00	12:00
5		Cook lunch	Women’s space	12:00	13:00
6		Eat lunch	Living area	13:00	14:00
7		Pray	Living area	14:00	14:15
8		hand craft	Living area	14:15	17:00
9		Pray	Living area	17:00	17:15
10		Cook for dinner	Women’s space	17:15	20:00
11		Eat dinner	Living area	20:00	21:00
12		Sleep	Women’s space	21:00	5:00
No Weekly and monthly activity daily activity continued					

Life story of Merema beshir Ahimed’s daughter.

Fatuma Mohamednur was born at Shonke Amba in 1999. She is 17 years old. She attended primary school up to grade 8. She married at the age of 15. She divorced after one year. She explained that she married out of her own interest and did not become pregnant when we lived together, “...so I divorced him. After my divorce the messengers of new husband sent women to ask me for marital. I refused to marry him because his home village was far from Shonke Amba. I am working handcraft when I have time I can get 200 Birr per month by selling the handcraft works”.

Table 4.34 Spaces –Time Diary of Wro Merema beshir Ahimed’s daughter and son.

S.No	Date	Activity (Daily	Room /place	From/at	To
Daughter(Fatuma Mehamednur)					
Daily activity					
1		Get dressed and pray	Women’s space	5:30	5:45
2		Fetch water	<i>Chilata</i> water point	5:45	6:45
3		Eating breakfast	Living area	6:45	8:00
4		Clean	Living area	8:00	12:00
5		Sifet (hand craft	Women’s space	12:00	13:00
6		Pray	Living area	13:00	13:15
7		Eat lunch and have coffee	Living area	13:15	15:00
8		Sifet (hand craft)	Living area	15:00	17:00
9		Pray	Living area	17:00	17:15
10		Fetch water	<i>Chilata</i> water point	17:15	18:15
11		Pray	Living area	18:15	18:30
12		Rest	Living area	18:30	19:00
13		Cookdinner	Women’s space	19:00	20:00
14		Eat dinner	Living area	20:00	21:00
15		Sleep	Women’s space	21:00	5:30
No Weekly and monthly activity daily activity continued					

Son (Mussa Mohamednur)					
1		Get dressed and Eat breakfast	Living area	7:00	7:30
2		Go to farm with Cattle	On the road	7:30	8:00
3		Look after castles	Farm area	8:80	13:00
4		Go to home	On the road	13:00	13:30
5		Eat lunch	Living area	13:30	14:00
6		Go to farm	On the road	14:00	14:30
7		Look after castles	Farm land	14:30	18:00
8		Go to home	On the road	18:00	18:30
9		Help to milk cow	Compound	18:30	19:00
10		Rest	Living area	19:00	20:00
11		Eat dinner	Living area	20:00	21:00
12		Sleep	Living area	21:00	7:00
No Weekly and monthly activity daily activity continued					

Mussa mehamednur is 14 Years old. He is completed grade 8. But there is no secondary school at Shonke Amba .due to this he was forced to quit his education and became a farmer by helping his parent by looking after the Cattle.

Compound:

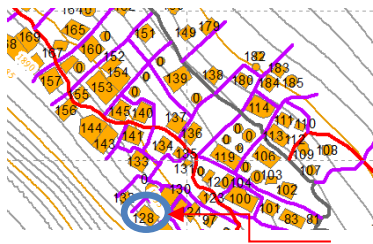


Fig.4:224 Location of W/ro Merema Beshir Ahimed house

The geographical location of W/ro Merema Beshir Ahimed House is at a= N10 37.116 E 039 58.354, b= N 10 37.121 E039 58.349, c= N 10 37.116 E 039.58.354, d= N10 37.114 E 03958.355, e= N 10 37.113 E 039 58.352, f= N10 37.113 E 039 58.351 and g= N 10 37.119 E 039 58.346 at altitude of 1906. The total compound area is120m² including the half area of the common space.

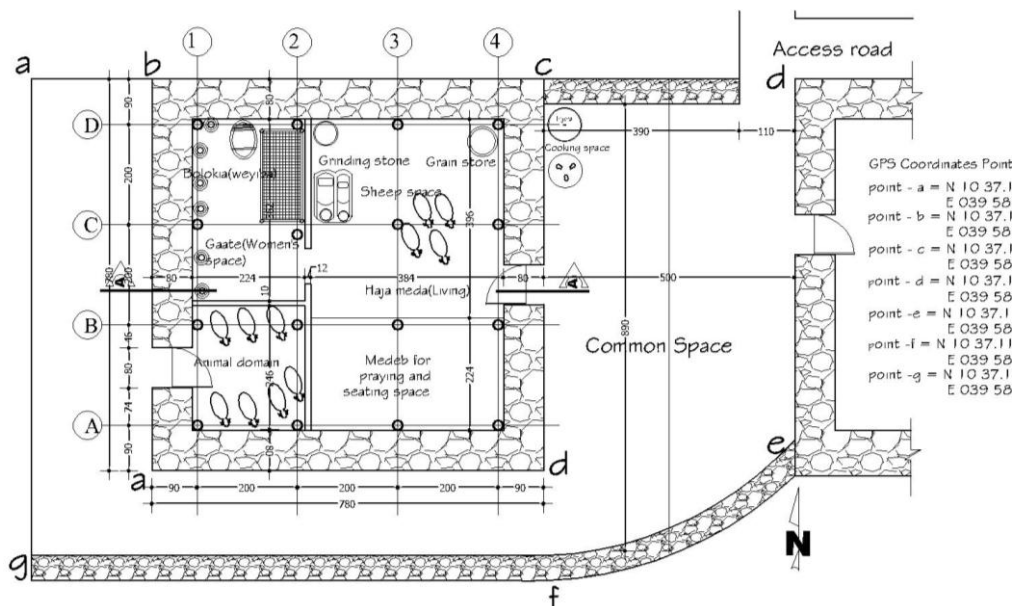


Fig.4:225 Compound and floor plan of W/ro Merema Beshir house.

The front Yard:

The front yard space of W/ro Merema Beshir is a common space which is shared with Ato Sani Mohamed. The space is used to milk cow, feeding and a transition space for men and animals to the house and the animal domains. The open space is women's chatting space. The total front yard space of the common is 40.79m². W/ro Merema Beshir is using the right side of the entrance gate space for cooking space.

The back yard:

The back yard space of W/ro Merema Beshir Ahimed is accessible from the front yard common space. Therefore the back yard space is allocated for animal domain and is also used for dry waste and toilet disposal towards the cliff side of the mountain. The total area of the back yard space is 22.80m².

The House:

The house of W/ro Merema Beshir Ahimed is tree row type with 16 wooden columns with total area of 60.84m². The house is sub divided into three main parts. First the living area which has *medeb* is used as sleeping, praying, grinding, and space for sheep's. The second space is Women's space, which is subdivided into two. The women's sleeping and smoke bath spaces. The third space is a space which is reduced from gat, earlier used as a cooking space but currently used as animal domain. The space is accessed from the back yard.

Orientation of the House:

W/ro Merema Beshir Ahimed house orientation is towards the East.

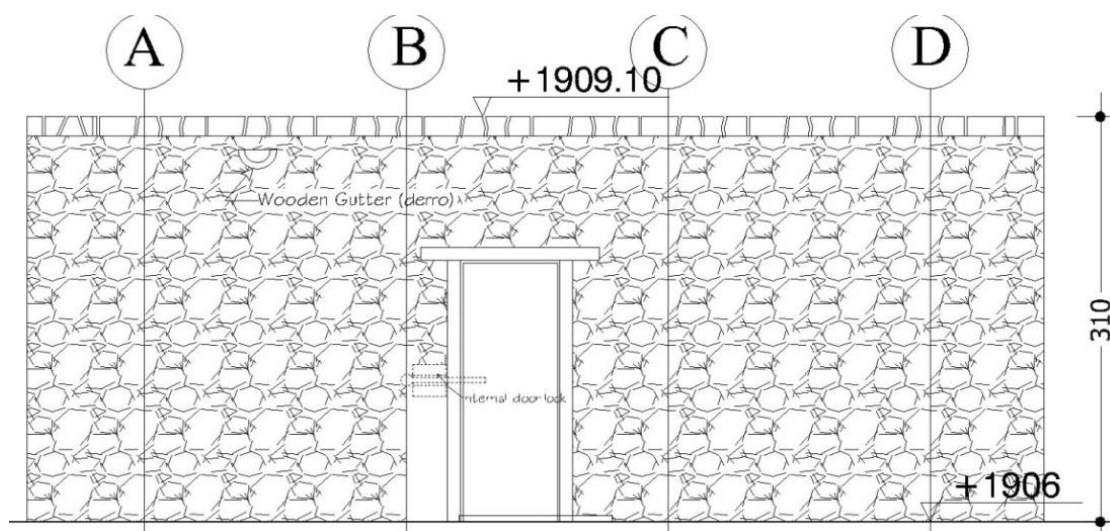


Fig.4:226 East Elevation

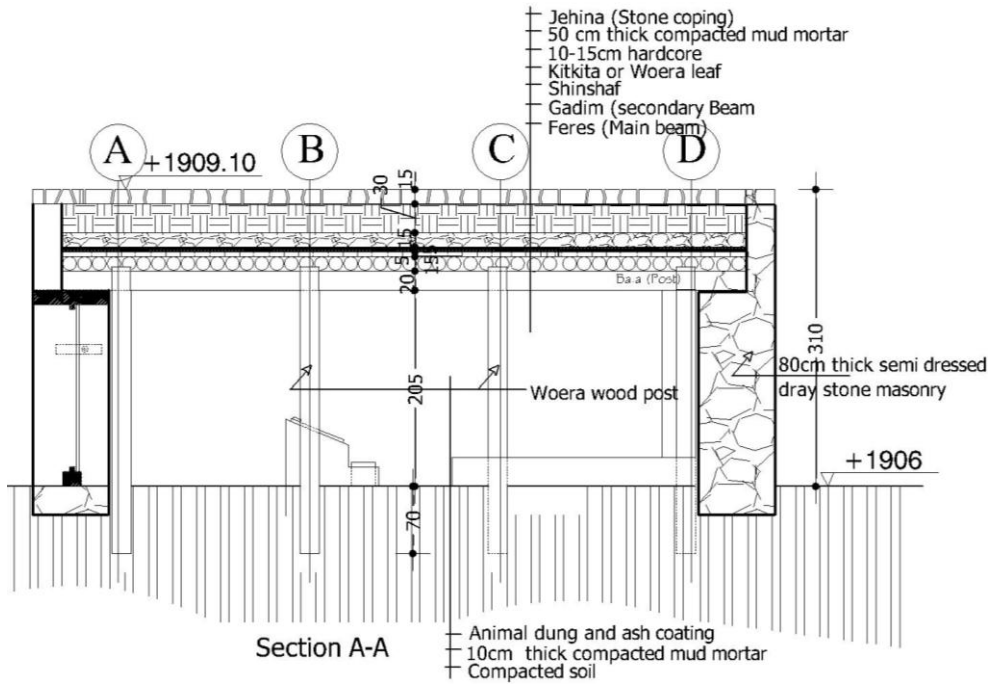


Fig.4:227 Section of the house

Furniture's in each room:

- a) Living area
- b) *Medeb* space, *pots* , shelf and grinding stone



Fig. 4:228 *Medeb* & shelf



Fig.4:229 grinding stone and animals' domain living

- a) *Gati* (Gwada)
- Zalo, Mede, Alga, Zalo and Bolekeya*



Fig. 4:230 Women's sleeping space



Fig. 4:231 smoke bath



Fig. 4:232 Fatuma using smoke bath



Fig. 4:233 Fatuma using smoke bath



Fig. 4:234 Women's space being used storage space



Fig. 4:235 Grain store

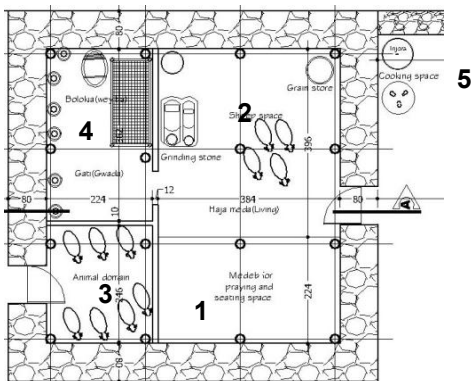


Fig.4:236 Plan of W/ro Merema Beshir Ahmed's house

W/ro Merema Beshir Ahmed's living area space 1 is used for sleeping and praying and space 2 is used for grinding . In the Women's space, space 4 is women's sleeping and smoke bath or steam bath space. Space 3 which is accessed from the back yard is used as animals domain. Space 5 which is located in the compound is an open space used for cooking.

Fig. 4.237 below shows the space used by W/ro Merema Beshir Ahmed's family at settlement, compound and house level. From the interview conducted with three family members within the 72 hours. The family spent 80.55 % of their time with in the house, 1.38% at compound and 18.05% outside of compound.

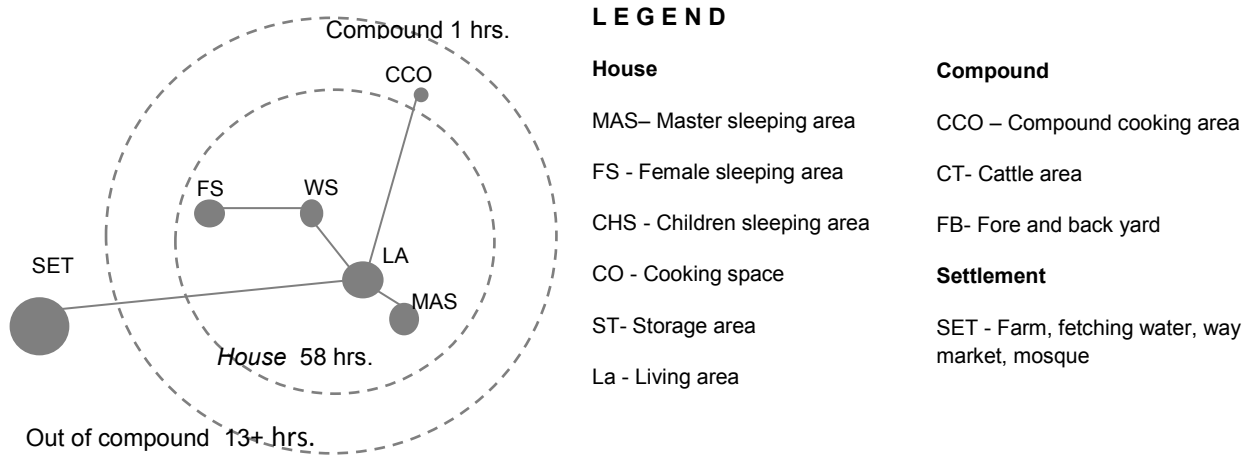


Fig. 4:237 J graph of W/ro Merema Beshir Ahimed’s house

The hidden line represents the *derb bet* (dwelling) and the compound.

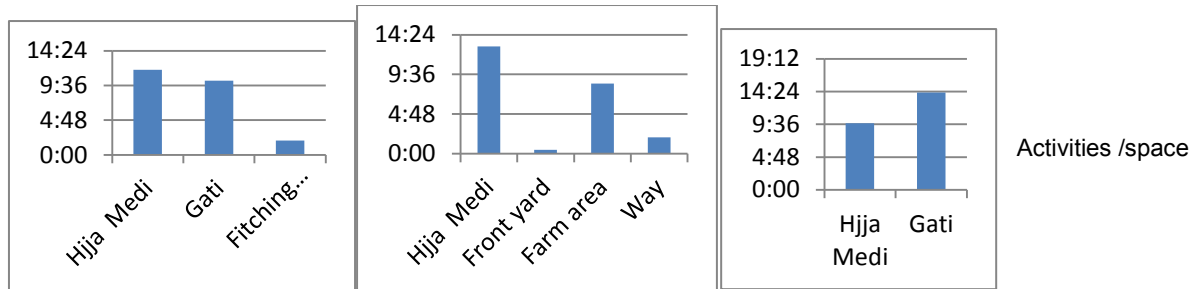


Fig. 4:238 Activity time graph of W/ro Merema Beshir Ahimed’s family

4.3.17 Ato Mohamednur Esmail’s Compound

The life story of Ato Mohamednur esmaiel



Fig.4:239 Ato Mohamednur Esmail’s Family.

Ato Mohamednur Esmail was born in 1951 in Shonke Amba. He is a farmer and has never attended formal education. He married W/ro Fatuma Tahir when he was 25 and she was 12. They gave birth to 10 children, but three of them have passed away.

The cause of their death is unknown. Ato Mohamednur Esmael is economically categorized as a wealthy farmer. At the women's space a lot of grain storage observed. During the interview Ato Mohamed explained that he earns about 50, 000 Birr per year from the kchat farm, 1 milk cow, 4 oxen, 1goat, 2 donkeys and 4 hens.

Table 4.35 Spaces –Time Dairy of Ato Mohamednur Esmael's family.

S.No	Date	Activities (Daily)	Room /place	From/at	To
Ato Mohamednur Esmael					
Daily activities					
1		Get dressed and pray	Living area	5:00	5:15
2		Go to the farm	On the road	5:15	5:45
3		The farm	Harvest kchat	5:45	7:30
4		Go to Abila market	On the road	7:30	8:00
5		Sell kchat in Abila market	Market	8:00	8:30
6		Go home	On the road	8:30	9:00
7		Eat breakfast	Living area	9:00	9:15
8		Go to the farm	On the road	9:15	9:45
9		Work on the farm	The farm	9:45	13:00
10		Go home	On the road	13:00	13:30
11		Pray	Living area	13:30	13:45
12		Eat lunch	Living area	13:45	14:00
13		Go to the farm	On the road	14:00	14:30
14		Work on the farm	The farm	14:30	18:00
15		Go home	On the road	18:00	18:30
16		Rest at home	Living area	18:30	19:30
17		Go to the mosque and pray	Mosque	19:30	20:00
18		Eat dinner	Living area	20:00	21:00
19		Sleep	Living area	21:00	5:00
Daily activities are repeated in Weekly and monthly activities,					

The life story of Ato Mohamednur Esmael's Wife (W/ro Fatuma Tahir)

W/ro Fatuma Tahir was born in Jerota Kebele, which is a 2 hour walk from Shonke Amba. She is 40 years old and has given birth to 10 children. Four of her children died when they were just infants.

She married Ato Mohamednur Esmael when she was 12 and strongly complains about early marriage that girls are forced in to

“When I got married there were no breasts on my chest and I never knew what the menstrual cycle was. During our sexual relation, there was a big problem. I kept going back to my parents as the pain was more than I could bear but my parents always forced me to return to my husband.. After so many problems and difficulties I gave birth to my first daughter who is now married and has children. There is also circumcision for girls in Argoba Shonke Amba”.

Table 4.36 Spaces –Time Dairy of Ato Mohamednur Esmael's Wife.

S.No	Date	Activities (Daily)	Room /place	From/at	To
Wife (Fatuma Tahir)					

Daily activities					
1		Get dressed and pray	Women's space	5:00	5:15
2		Cook breakfast	Fire place	5:15	7:30
3		Eat breakfast	Living area	7:30	8:30
4		Clear the house	Living area	8:30	9:00
5		Collect fire wood	Farm area	9:00	10:30
6		Cook lunch	Fire place	10:30	12:30
7		Pray	Women's space	12:30	12:45
8		Eat lunch	Living area	12:45	13:15
9		Hand craft work	Living area	13:15	17:00
10		Pray	Women's space	17:00	17:15
11		Cook Dinner	Fire place	17:15	20:00
12		Eat Dinner	Living area	20:00	20:30
13		Prepare breakfast for the next day	Women's space	20:30	21:00
14		Sleep	Women's space	21:00	5:00
Daily activities are continued in the weekly and monthly activities,					

The life story of Ato Mohamednur Esmael's daughter.

Halima Mohamednur was born in 2006, she is 6th grade student. She is a top student; she always goes to school out of her shift time to study what she has missed, from four thirty to eleven she plays during the brake time only. She does not want to marry. She wishes to continue her education up to university level.

As Halim Mohamednur explained , When her handwriting is compared with students who have completed the 8th grade it is much readable and nice. what she has achieved is the result of extra learning and studying time at home and school. However the big question is, can she go to Kemise town 25 km from Shonke Amba to continue her high school education? Can she escape from the traditional Argoba marriage? Who has the responsibility to save such as enthusiastic and brilliant girl?

Table 4.37 Spaces –Time Dairy of Ato Mohamednur Esmael's Daughter.

S.No	Date	Activities (Daily)	Room /place	From/at	To
Daughter (Halima Mehamednur)					
Daily activiieest					
1		Get dressed and pray	Women's space	6:00	6:15
2		Fetch water	Chilat water point	6:15	7:15
3		Fetch water for the second time	Chilat water point	7:15	8:15
4		Clean the compound	Front yard	8:15	9:15
5		Eat my breakfast	Living area	9:15	9:30
6		Rest	Living area	9:30	10:00
7		Go to school	On the road	10:00	10:30
8		Learn	School	10:30	17:00
9		Go home	On the road	17:00	17:30
		Eat lunch	Living area	17:30	17:45
10		Fetch water	Chilat water point	17:45	18:45
11		Pray	Living area	18:45	19:00
12		Study	Living area	19:00	20:00
13		Eat dinner	Living area	20:00	21:00
14		Sleep	Women's space	21:00	5:00
No Weekly and monthly activity, daily activity continued					

Compound:

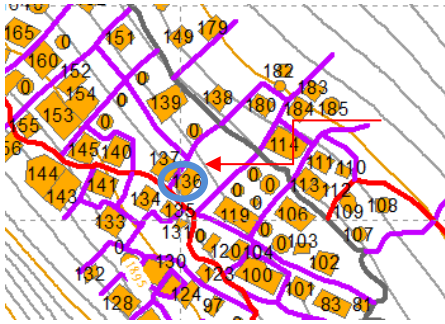


Fig.4:240 Location of Ato Mohamednur Esmail House

The geographical location of Ato Mohamednur Esamel is at a= N10 37.137 E039 58.344, b= N 10 37 136 E 039 58.349, c= N10 37.131 E039 58.352, d= N10 37.131 E 039 58.350, e= N 10 37.132 E039 58.349 and f= N10 37.133 e039 58.342 at altitude of 1897mt above sea level. The total area of the compound is 122.24m².

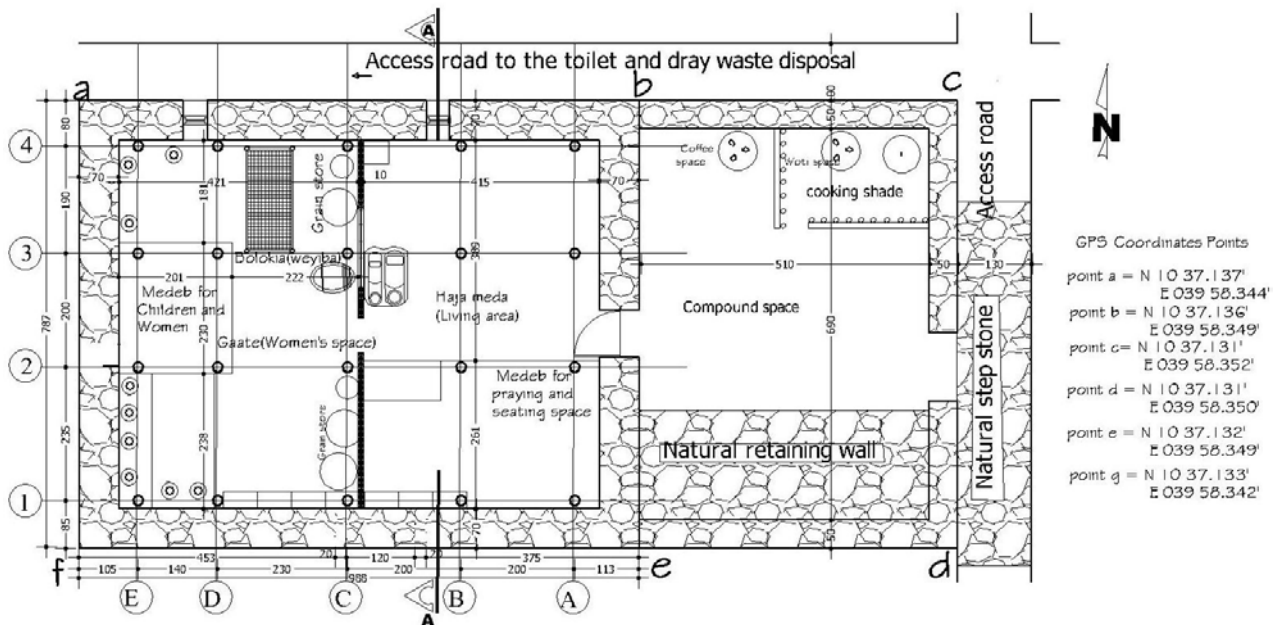


Fig.4:241 compound of Ato Mohamed Nur Esmail.

The Front Yard:

The front yard of Ato Mohamednur Esmail's house is accessed from the main access road that leads to Timbuhamba open space. The main, secondary and service roads in Shonke Amba are difficult for easy access due to irregular rises of bolder stone, and stone stapes. This irregular rises of stones create difficulties for old and sick people. The front access road of Ato Mehamednur Esmael is a ramp which is formed naturally with piles of stone which makes the access to the front yard difficult.



Fig.4:242 the front side of Ato Mohamednur Esmael's *derb bet*

The front side of Ato Mohamednur Esmael compound is used for cooking, coffee ceremony, sitting, fire wood storage and stone masonry retain wall which occupies 13.72m² out of the total front yard area which is 24m².



Fig.4:243 coffee spaces at front yard



Fig.4:244 cooking space

The Back Yard:

Ato Mohamednur Esmael's house fully lies on the border line of the back side. The house is also bounded by a dry waste disposal and a service road near the toilet. Because of this his house does not have a back yard.

The House:

His house is a four row type house, it has 20 wooden column with an average diameter of 25 centimeter. The total area of the house is 77.97m². The *Derb bet* is mainly divided into two main parts the living area, the first front part which accommodates space for *medeb*, praying, sleeping and grinding. The Women's space, which is mainly built for women, cooking, and smoke bath. The Women's space also has *medeb* where children sleep, women pray and grains are stored. The Women's space is more compacted with furniture than the living area. At 27.02 and 27.51m² respectively the Living area and Women's space allocation is equal. The internal clear height below of the main beam is 225cm.

Orientation of the House:

The house is oriented towards the East, which is the most preferable orientation with Argobba Shonke Amba residents.

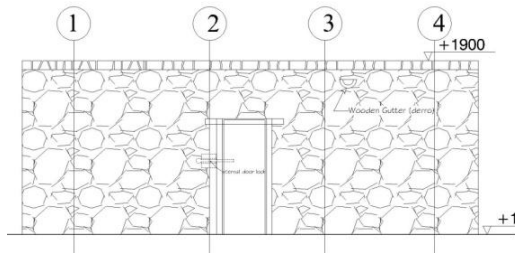
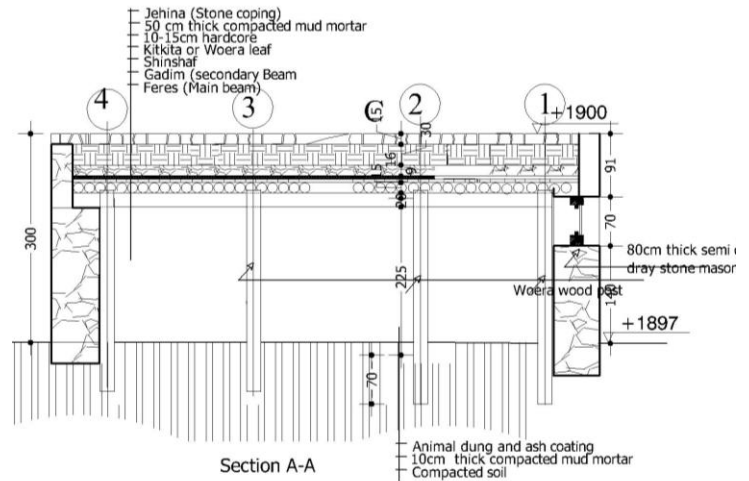


Fig.4:245 East Elevation



Furniture's in each room:

a) Living area : *Medeb*(sleeping and praying space), *shelf* , *grain store* and grinding stone



Fig. 4:247 *Medeb* & shelf on wall and column

Fig. 4:246 Section of house



Fig. 4:248 *Grinding stone*

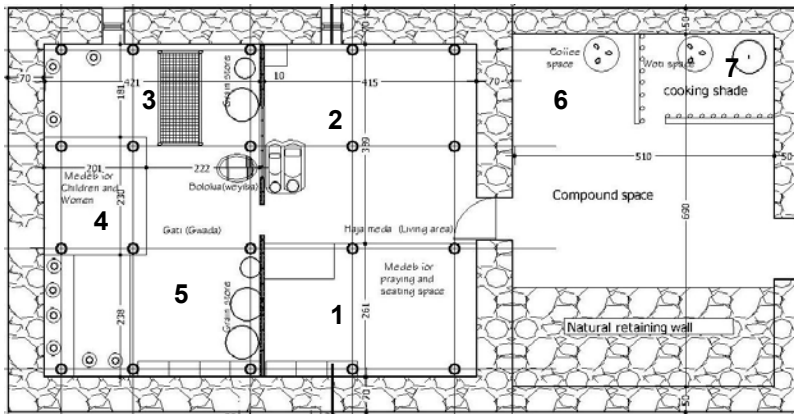
b) Women's space) *bed*, *grain store*, *medeb*, cloth hanging space and smoke bath



Fig. 4:249 *Grain store*



Fig. 4:250 *Cloths hanging space*



In Ato Mohamednur's house living area space 1 is used for sleeping and praying and 2 is used as a grinding space. At Women's space, 3 is women's sleeping space and smoke bath space, 4 is children's sleeping space and space 5 is used for storage. In the compound, space 6 is for coffee ceremony and 7 is used as a cooking shade.

Fig.4:251 Plan of Ato Mohamednur Esmael's house

Fig. 4.252 below shows the space used by Ato Mohamednur's family at settlement, compound and house level. From the interview conducted for three family members within the 72 hours. The family spent 54.16 % of their time with in the house, 11.11% in the compound and 34.72% outside of the compound.

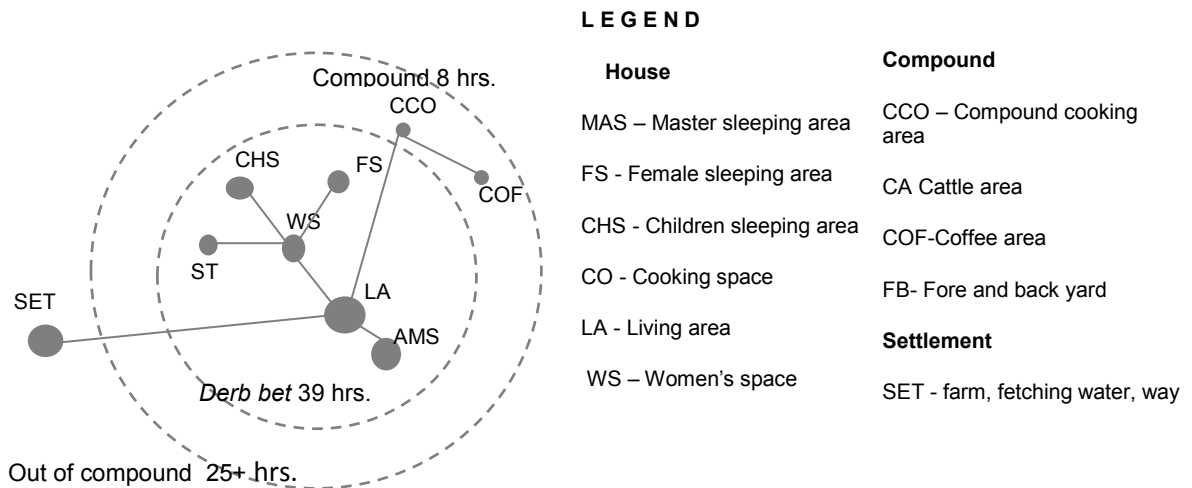


Fig. 4:252 J graph of Ato Mohamednur Esmael's house

The hidden line represents the dwelling and the compound.

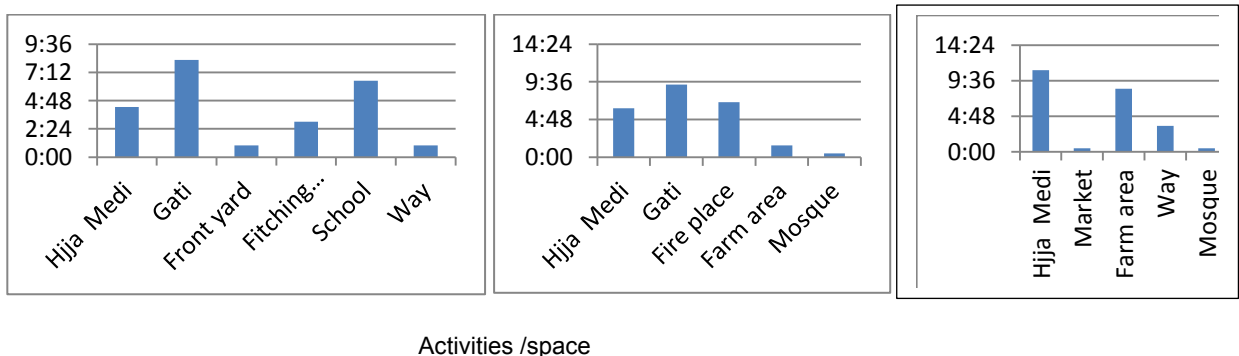


Fig. 4:253 Activity time graph of Ato Mohamednur Esmael's family

4.3.18 W/ro Sofiya Aliyu's Compound

The life story of W/ro Sofiya Aliyu



Fig.4:254 W/ro Sofiya Aliyu's family

W/ro Sofiya Aliyu was born in Shonke Amba in 1961. She is 55 years old. She married Sheikh Beshir Shonke when she was 15 and gave birth to two children but one passed away an infant. Her surviving child, Fatuma Beshir, is 30 years old and married. Sofiya divorced her husband, because she did not like him. She has no farmland and has no income for her livelihood. The Derb house in which W/ro Sofiya lives in constructed and donated to her by the residents of the Shonke Amba. W/ro Sofiya Aliyu is uneducated; she was unwilling to have her picture taken during the interview.

Table 4.38 Spaces –Time Dairy of W/ro Sofiya Aliyu.

S.No	Date	Activities (Daily)	Room /place	From/at	To
W/ro Sofiya Aliyu					
Daily activities					
1		Get dressed and pray	Living area	5:00	5:20
2		Go back to sleep	Living area	5:20	8:00
3		Go to search for breakfast	On the road	8:00	8:15
4		Eat breakfast	Settlement	8:15	9:00
5		Fetch water	Chilata water point	9:00	10:00
6		Go to search for lunch	Settlement	10:00	13:00
7		Pray	Settlement	13:00	13:15
8		Collect fire wood	Settlement	13:15	17:00
9		Go home and pray	Living area	17:00	17:15
10		Go search for dinner	Settlement	17:15	20:30
10		sleep	Living area	20:30	5:00
Daily activities are continued in the weekly and monthly activities					

Compound:

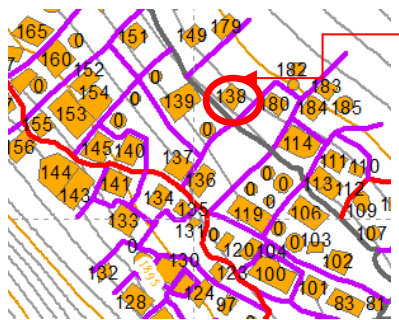


Fig.4:255 Location of

W/ro Sofiya Aliyu House.

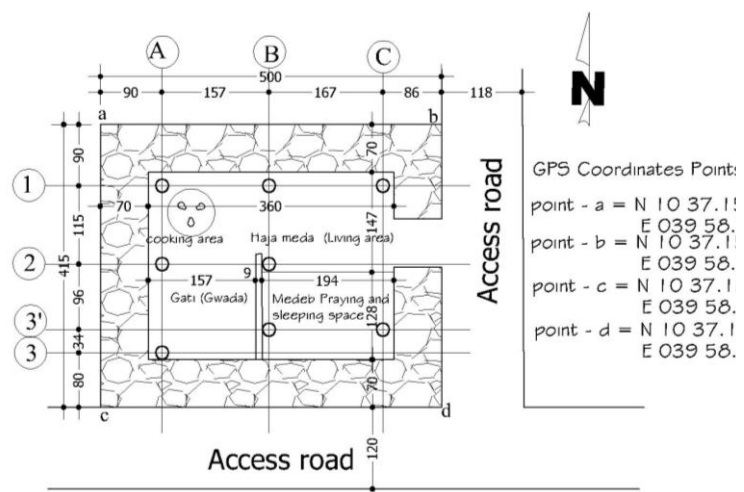


Fig.4:256 Floor plan of W/ro Sofiya Aliyu derb

The geographical location of w/ro Sofiya Aliyu house is a= N 10 37.1514 E 039 58.358, b= N 10 37.151 E 039 58.359 c= N10 37.152 E 039 58.357 and d= 10 37.149 E 039 58.358 at the altitude of 1890 above sea level. The total area of the house is 20.76m².

The Front Yard:

W/ro Sofiya's house does not have a front yard. It is constructed on the border of the access road on front (East) and left side (South).



Fig.4:257 Front view of the house.

The Back Yard:

W/ro Sofiya does not have a backyard. The space at the back of her house is open, inaccessible and not part of the compound.

The House:

W/ro Sofiya's house is two row type. The total area of the house including the 70cm masonry wall is 20.76m² with 8 diameter 20cm columns. The internal space is sub divided into two equal parts, the Living area and the Women's space. The Hajja medi space accommodates 9.13m² used for *medeb* and sleeping and praying. The Women's space is a cooking space. The internal of the house and the overall height of the house is 2.35 and 1.30meter respectively. Moreover the entrance gate of the house is also 1.35 meter. The height of the house is different and below the standard of a Shonke Amba house this is because the columns donated by individuals during the construction time are very short.

Orientation of the House:

The orientation of W/ro Sofiya's house faces the East. Direction as it is the most preferable orientation at Shonke Amba.

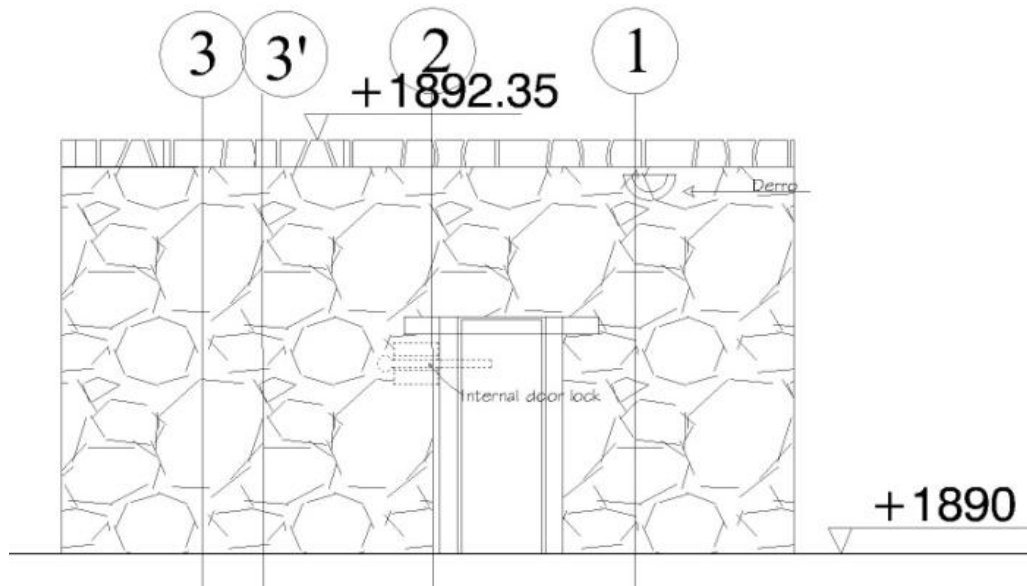


Fig.4:258 Front Elevation of the house

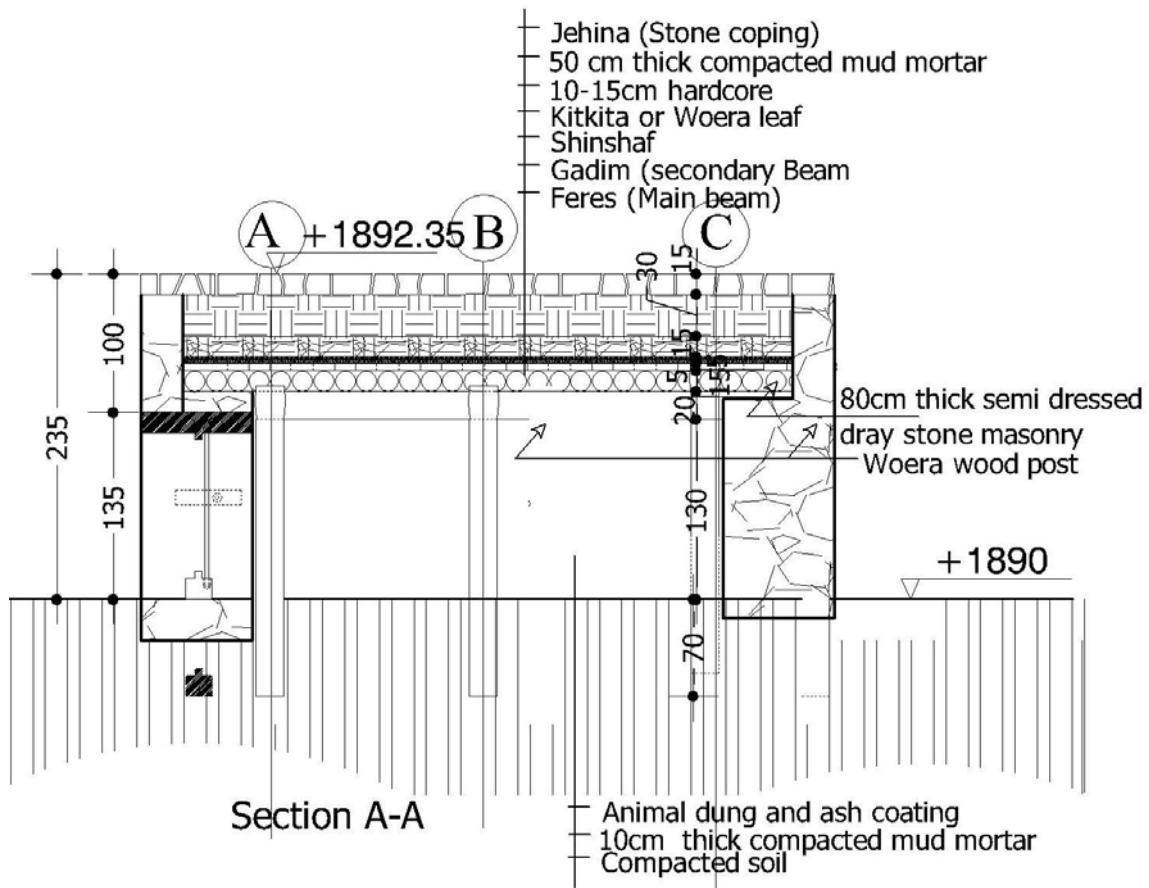


Fig.4:259 Section of house.

Furniture's in each room:

- a) Living area
 - Medeb*, sheep skin and bed

b) Women's

- Plastic water tank
- Grinding stone
- Cooking space



Fig. 4:260 Women's space



Fig. 4:261 sleeping bed made of animal skin and wood

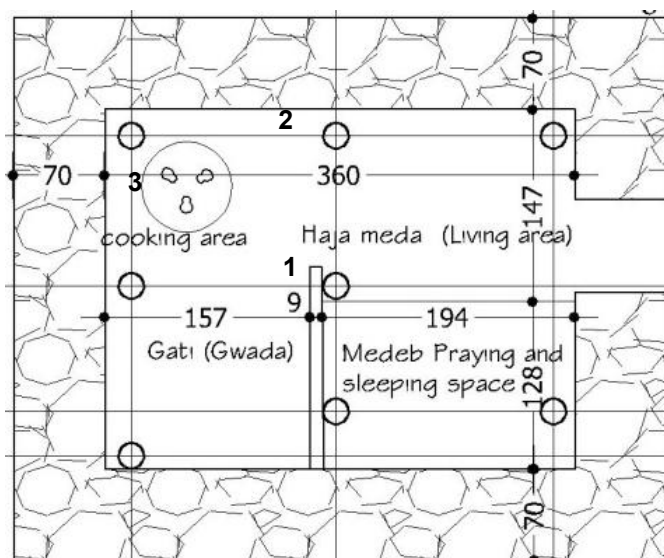


Fig.4:262 Plan of Wro Sofiya Aliyu's house

At Wro Sofiya Aliyu's living area space, 1 is used for sleeping and praying area and space 2 is used for living. At Women's space 3 is used for cooking and storage space.

Fig. 4.263 below shows the space used by Wro Sofiya's family at settlement, compound and house level. From the interview conducted with one family member within the 24 hours the family spent 47.08 % of their time with in the house and 51.25% outside of the compound.

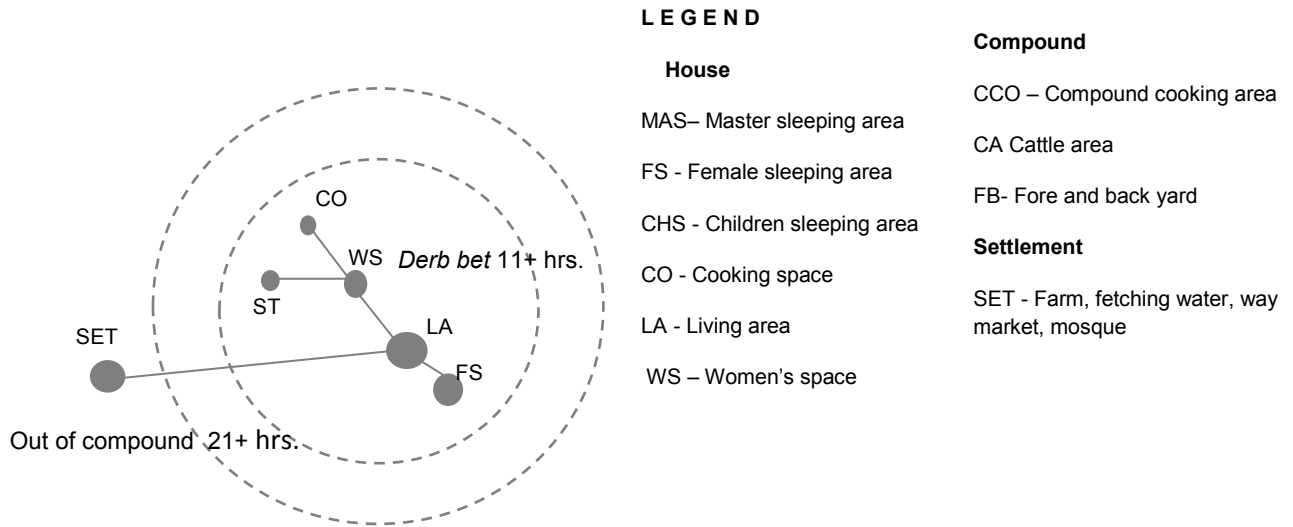


Fig. 4:263 J graph of Wro Sofiya Aliyu's house

The hidden line represents the dwelling and the compound.

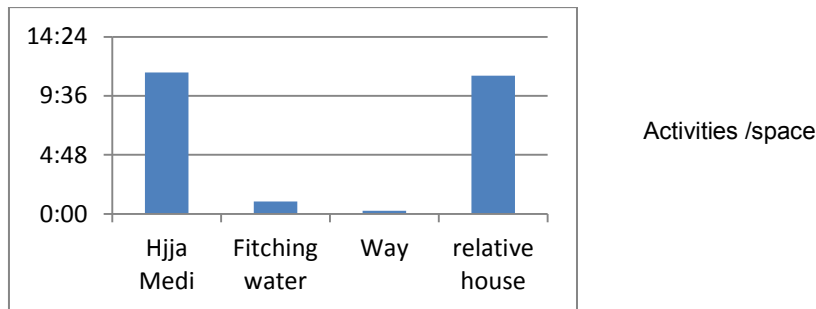


Fig. 4:264 Activity time graph of Wro Sofiya Aliyu's family

4.3.19 Ato Ahimed Hasen Yesuf's compound



Fig.4:265 Ato Ahimed Hasen Yesuf's family

The life History, Activity and Services of Ato Ahmed Hasen Yesuf

Ato Ahimed Hasen Yesuf was born in 1961 in Shonke Amba. He is 55 years old. He is an uneducated farmer. He married his uncle's daughter Merema Mohamed when he was 25 years old and she was 12. They divorced four months later as she had serious problems with the sexual relation. Because of this even after 43 years, he and his uncle's family do not have any contact. His current wife, W/ro Harsuma Mohammed had also the same problem with her first husband and she divorced him and lived with her parents before she married Ato Ahmed at the age of 16. Ato Ahmed and his wife gave birth to 8 children but two of them passed away. Four of his children are married and the rest are living with him. Ato Ahmed has a farm land he inherited from his father. Ato Ahimed family's annual income is about 29,200 birr. He has 2 oxen, 2 sheep 3 goats and 2 milk cows. His farm is a 2 hour walk from the settlement.

Table 4.39 Spaces –Time Dairy of Ato Ahimed Hasen Yesuf's Family.

S.No	Date	Activities (Daily)	Room /place	From/at	To
Ato Ahimed Hasen Yesuf					
Daily activities					
1		Get dressed and pray	Living area	5:00	5:15
2		Go the farm	On the road	5:15	7:00
3		Work at the farm	Farm area	7:00	9:00
4		Eat breakfast	Farm area	9:00	9:15
5		Work at the farm	Farm area	9:15	13:00
6		Pray	Farm area	13:00	13:15
7		Rest	Farm area	13:15	14:00
8		Work at the farm	Farm area	14:00	17:00
9		Go home	On the road	17:00	19:00
10		Rest	Living area	19:00	20:00
11		Eat diner	Living area	20:00	21:00
12		Sleep	Living area	21:00	5:00
Daily activities are continued in the weekly and monthly activities					

The life History, Activity and Services of Ato Ahimed's wife

W/ro Harsuma Mohammed was born in 1971 in Shonke Amba. She is 45 years old and uneducated. She married Ato Mohamed Sheku when she was 12 he was 25 years old. She narrated her life story as follows:

"I lived with my first husband for only a year. For me it was the most difficult time. We had unbalanced sexual relationship. I went back to my parents several times, but they always forced me to go back to my husband. Finally, I refused to go back and divorced him. After spending two years with my parents, I remarried Ato Ahimed. We have been married for 33 years and have 8 children; two of them have passed away,".

Table 4.40 Spaces –Time Dairy of Ato Ahimed Hasen Yesuf s Wife.

S.No	Date	Activities (Daily)	Room /place	From/at	To
Wife					
Daily activities					
1		Get dressed and pray	Women's space	5:00	5:15
2		Cook breakfast	Fire place	5:15	8:00

3		Eat breakfast	Living area	8:00	8:15
4		Grind grains	Living area	8:15	11:00
5		Cook for lunch	Fire place	11:00	12:30
6		Pray	Women's space	12:30	12:45
7		Eat lunch	Living area	12:45	14:00
8		<i>Hand craft work</i>	Living area	14:00	17:00
9		Pray	Women's space	17:00	17:15
10		Cook dinner	Fire place	17:15	20:00
11		Eat dinner	Living area	20:00	21:00
12		Sleep	Women's space	21:00	5:00
Daily activities are continued in the weekly and monthly activities daily activity continued					

The life History, Activity and Services of Ato Ahimed's daughter

Ansha Ahmed is 16 years old. She attended school till the 8th grade at Abbila primary school a 30 minute walk from Shonke Amba. She married Ato Mohamed Ahmed when she was 15 and got divorced three months later. She told the researcher that she had a divorce because she could not get along with her husband. She tells her life story follows :

“Ato Mohamed Ahmed lives out of Shonke Amba. He has a wife but we started having an affair. Within a short time he married me out of his wife's knowledge. When his wife found out that he had married in Shonke Amba , she told elders to tell him to choose one of us or she would divorce him. Finally he agreed to divorce me”.

Ato Mohamed Ahmed is a local militia in possession of a Klashnkove rifle. He is feared. Even if he has officially divorced Anshia , he still has an affair with her. She was also observed and taken a picture while she was taking smoke bath. As the informant told the researcher it is unusual for divorced young girl's to take smoke bath early in the morning at 9:00. (See Fig. 4:329 below)

Table 4.41 Spaces –Time Dairy of Ato Ahimed Hasen Yesuf's daughter.

S.No	Date	Activities (Daily)	Room /place	From/at	To
Daughter					
Daily activities					
1		Get dressed and pray	Women's space	5:00	5:15
2		Fetch water	Chilata water point	5:15	6:15
3		Fetch water for the second time	Chilata water point	6:15	7:15
4		Eat breakfast	Living area	7:15	7:30
5		Hand craft work	Living area	7:30	13:00
6		Pray	Women's space	13:00	13:15
7		Eat lunch	Living area	13:15	14:00
8		Hand craft work	Living area	14:00	17:00
9		Fetch water	Chilata water point	17:00	18:00
10		Pray	Living area	18:00	18:15
11		Rest	Living area	18:15	20:00
		Eat dinner	Living area	20:00	21:00
12		Sleep	Women's space	21:00	5:00
Weekly activities					
1		Daily activities are continued in the weekly			

		activities			
Monthly activities					
1		Daily activities are continued in the monthly activities			

Compound:

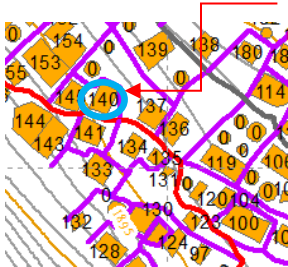


Fig.4:266 Location of Ato Ahimed Hasen Yesuf's house.

The geographical location of Ato Ahimed Hasen Yesuf's house is at a= N 10 37.140 E 039 58.347, b= N10 37.138 E 39 58.349, c= N 10 37.137 E 039 58 352, d= N10 37.136 E039 58.354, e= N 10 37.136 E 039 58.334, f= N 10 37.135 E 039 58.353, g= N 10 37.136 E039 58.348 and h= N 10 37 138 E 039 58.344 at the altitude of 1889mt above sea level. The total area of the compound is 104m².

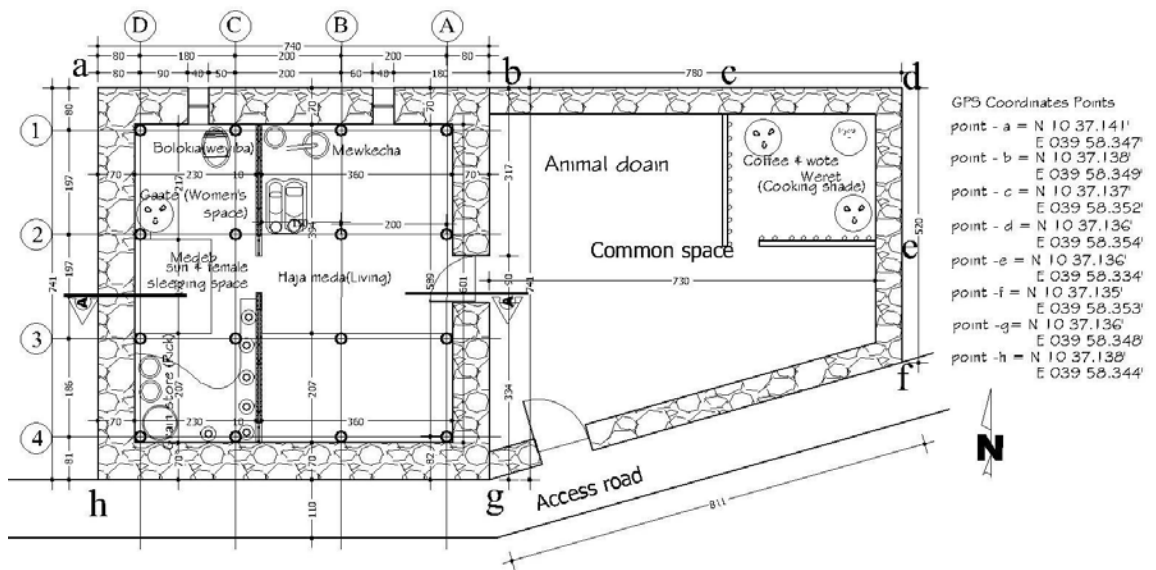


Fig.4:267 Compound and floor plan of Ato Ahimed Hasen Yesuf.

The Front Yard

Space of Ato Ahmed's front yard is accessed from the road located at the south side of the house. The front area is 49.17m². The space is used as a cooking place. The cooking space is sub categorized as Enjera, and coffee making spaces. The animal domain is located between the cooking space and the house. The compound space is used for milking and feeding the animals, during the morning and the evening.

The back yard

Ato Ahmed's compound does not have a backyard because the *house* was constructed on the boundary line of the property.

The House

Ato Ahmed's house is three row house type. The total area of the house is 54.83m². It has 16 wooden columns with a diameter of 20 centimeters. The internal clear room height below the main beam is 1.85 meter and the overall height of the external house is 2.90 meter.

The internal house space is sub divided into two parts. The first space that is found when entering the house is the *living area*. The living area which is 31.63m² contains *medeb* which is a sleeping and praying space. The other space is for grinding stone and sitting. The Women's space accommodates *medeb* for women to pray and sleep. There is also a bed for a wife and a husband share at night. The Women's space also has space for smoke bath, grain storage, and cooking.

Orientation of the House

The orientation of the house is towards the East.

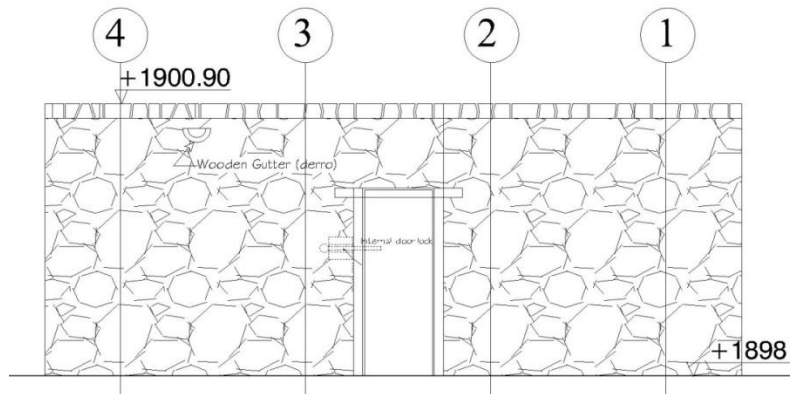


Fig.4:268 East Elevation

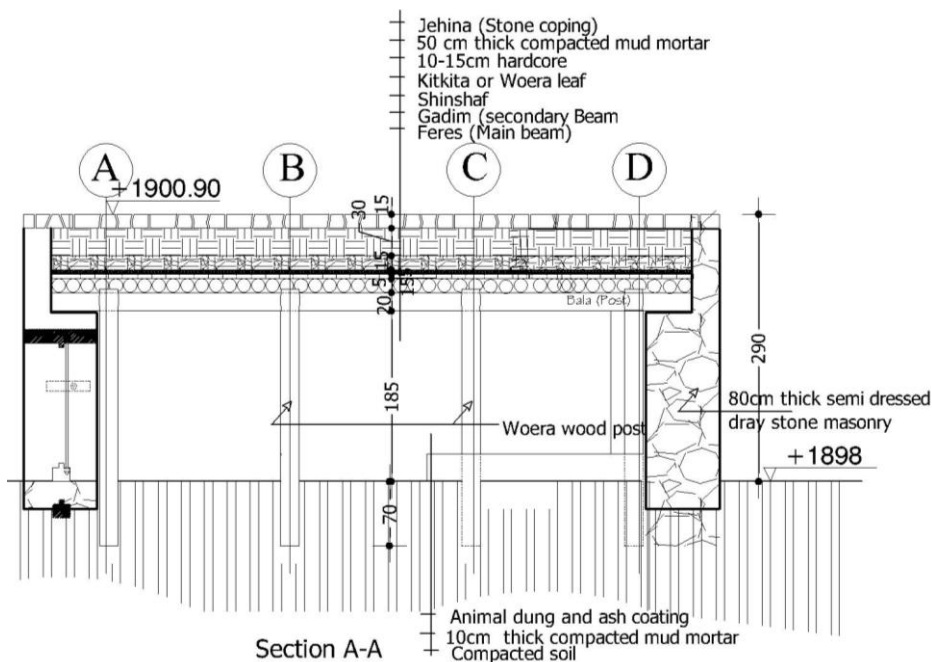


Fig.4:269 Section of the house

Furniture's in each room:

- a) Living area: *medeb* ,sheep skin as sitting sheet , hand crafts , shelf and grinding stone



Fig. 4:270 *Medeb* & shelf



Fig. 4:271 *Medeb*



Fig. 4:272 Animal feeding space at *living*



Fig. 4:273 Animal feeding space at living area

- b) Women's space

Cooking space, hand craft , *medeb*, bed , pots and smoke bath



Fig. 4:274 Ansha, while using smoke bath



Fig. 4:275 Women sleeping space



Fig. 4:276 Cloth hanging system



Fig. 4:277 Women's *medeb*



Fig. 4:278 Storage space



Fig. 4:279 Grain store

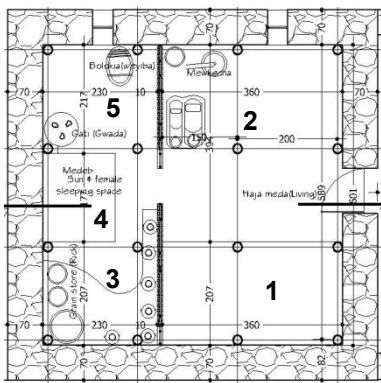
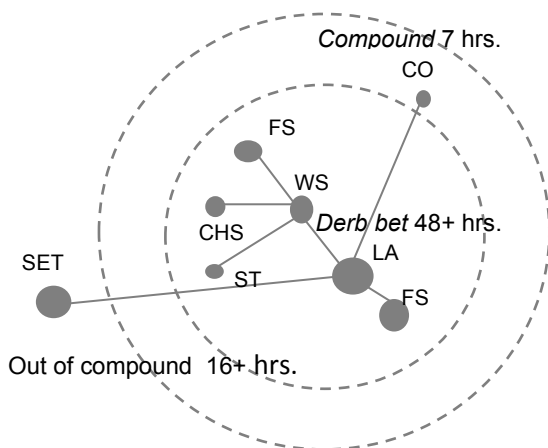


Fig.4:280 Plan of Ato Ahmed Hasen Yesuf's house

- 6 At Ato Ahimed's living area , space 1 is a sleeping and praying, space 2 is a living and sheep feeding space. In the women's, space, 3 is used for storage, 4 is women and children's sleeping space, 5 is used for cooking. In the compound, space 6 is used as outside cooking shade.

Fig. 4.281 below shows the space used by Ato Ahimed Hasen Yesuf's family at settlement, compound and house level. From the interview conducted with three family members within the 72 hours the family spent 66.87 % of their time with in the house, 9.72 % at compound and 22.80 % outside of the compound.



LEGEND

House

- MAS – Master sleeping area
- FS - Female sleeping area
- CHS - Children sleeping area
- CO - Cooking space
- LA - Living area
- WS – Women's space

Compound

- CCO – Compound cooking area
- CA Cattle area
- FB- Fore and back yard

Settlement

- SET - Farm, fetching water, way market, mosque

Fig. 4:281 J graph of Ato Ahimed Hasen Yesuf's house

The hidden line represents the house and the compound.

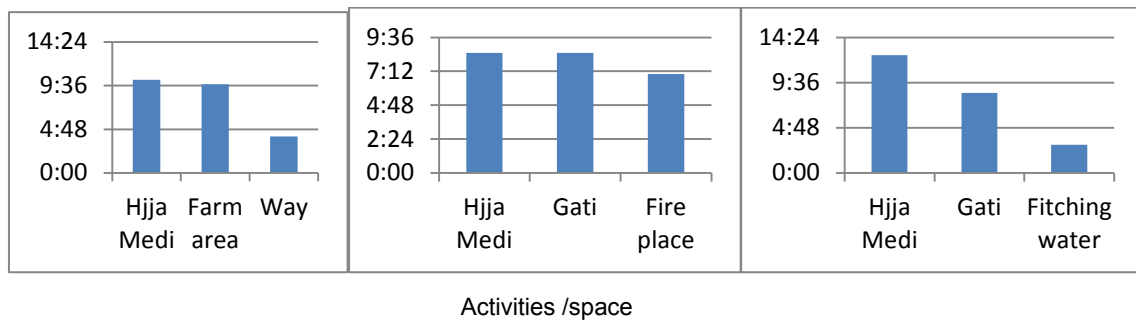


Fig. 4:282 Activity time graph of Ato Ahimed Hasen Yesuf's family

4.3.20 W/ro Fatuma Mohamed Nuru's compound



Fig.4:283 W/ro Fatuma Mohamed Nuru's family

The life History, Activity and Services of W/ro Fatuma Mohamed nuru

Fatuma Mehamed Nuru was born in Shonke Amba in1961. She is 55 years old. She married Ato Ahimed Mohamed when she was 13. After she married him, she moved to Yifat with him and stayed there for one year. She explained her life history as follows:

“When I was in Yifat with him, he abused me in a way that is hard to explain made a lot of abuses which are very difficult to explain. I faced a lot of problems as a teenager. I totally refused to live with him. Finally he sent me back to my parents' home in Shonke Amba with his representative and I divorced him. After I divorced him I, stayed with my parents for one year and married Ato Endris Muhe. We have four children, two sons and two daughters. We lived together for 40 years before he passed away”.

Table 4.42 Spaces –Time Dairy of W/ro Fatuma Mohamed Nuru.

S.No	Date	Activities (Daily)	Room /place	From/at	To
W/ro Fatuma Mohamed Nuru					
Daily activities					
1		Get dressed and pray	Women's space	5:00	5:15
2		Cook breakfast	Women's space	5:15	8:00
3		Eat breakfast	Living area	8:00	9:00

4		Fetch water	Chilata water point	9:00	10:00
5		handcraft work	Living area	10:00	12:00
6		Cook for lunch	Women's space	12:00	13:00
7		Pray	Living area	13:00	13:15
8		Eat lunch and have coffee	Living area	13:15	15:00
9		Rest	Living area	15:00	20:00
10		Cook dinner	Women's space	20:00	21:00
11		Sleep	Women's space	21:00	5:00
Daily activities are repeated in the weekly and monthly activities					

The life History, Activities and Services of W/ro Fatuma's daughter

"My name is Merema Endris, I was born in Shonke Amba in 1988. I am 28 years old; I married my first husband at the age of 9, he was 25. I had no idea about marriage. The marriage was arranged by our families. Every day I spent with him was a nightmare for me, so I kept going to my parents' house but they kept sent me back to him. After three months of being married to him, I divorced him. I stayed with my parents for a year until they decided my second marriage at the age of 10 again. My second marriage was also the same as my first one. After bearing so many difficulties and staying with him for a year I divorced him and went back to my parents' home and lived in peace for three years. I was 13 at the time. My third husband was Ahmed Kadi. We lived together for 13 years and gave birth to 2 children. His had a bad behavior and we always fight. I came back three months ago. I have not yet decided to divorce him. Merema Indris was asked what she wishes for herself in the coming five years. She answered that she fell down while walking on the hilly and uncomfortable walk way in Shonke Amba and her front tooth was broken so she needs to replace them with gold tooth".

Table 4.43 Spaces –Time Dairy of W/ro Fatuma Mohamed Nuru' Daughter.

S.No	Date	Activities (Daily)	Room /place	From/at	To
Daughter					
Daily activities					
1		Get dressed and pray	Women's space	5:00	5:15
2		Go back to my bed and sleep	Women's space	5:15	6:00
3		Fetch water	Chilata water point	6:00	7:00
4		Cook Enjera	Women's space	7:00	8:30
5		Eat breakfast	Living area	8:30	9:00
6		Make hand craft	Living area	9:00	13:00
7		Eat lunch and have coffee	Living area	13:00	14:00
8		Make hand craft	Living area	14:00	17:00
9		Pray	Living area	17:00	17:15
10		Cook dinner	Women's space	17:15	20:00
11		Eat dinner	Living area	20:00	20:30
12		Sleep	Women's space	20:30	5:00
daily activities are continued in the weekly and monthly activities					

The life History, Activity and Services of W/ro Fatuma Mohamed Nuru’s Son.

Mohamed Endris Muhe is 18 years old. He is the son of Ato Endris Muhe. He is the inheritor of his father’s house. He is uneducated. He said his father’s farm land was taken away from him by a person who has power. “I have no farm land. I work as a farmer for a person who has land, seed and oxen. I contribute my labor by farming and share the produce of the farm land. Every year I get about 10 quintal of sorghum I also get some amount of kchat. I have an annual income of about 17,000 Birr”.

Table 4.44 Spaces –Time Dairy of W/ro Fatuma Mohamed Nuru’s Son .

S.No	Date	Activities (Daily)	Room /place	From/at	To
Daughter					
Daily activities					
1		Get dressed and pray	Living area	5:00	5:15
2		Go back to bed and sleep	Living area	5:15	6:00
3		Eat breakfast	Living area	6:00	6:30
4		Go to the farm	On the road	6:30	8:00
5		Work at the farm	Farm area	8:00	12:00
6		Eat at the farm land & rest	Farm area	12:00	14:00
7		Work at the farm	Farm area	14:00	17:00
8		Go home	On the road	17:00	18:30
9		Rest at home	Living area	18:30	20:00
10		Eat dinner	Living area	20:00	20:30
11		Sleep	Living area	20:30	5:00
Daily activities are repeated in the weekly and monthly activities					

Compound:

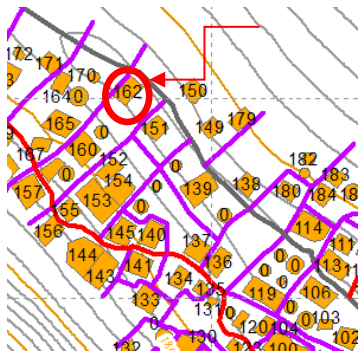


Fig.4:284 Location of W/ro Fatuma Mohamed Nuru’s house.

The geographical location of W/ro Fatuma Mohamed Nuru compound is at, a= N 10 37.154 E 039 58.342, b= N10 37.150 E 039 58.345, c= N 10 37.150 E039 58.347, d= N10 37.149 E 039 58.344, e= N 10 37.149 E039 58.344, f= N10 37.147 E 039 58.344, g= N 10 37.149 E 039 58.341and h= N10 37.153 E039 58.339 at the altitude of 1889. The total area of the compound is 84.47m²

The Front Yard

W/ro Fatuma's front yard is categorized in to three parts. These are animal domain, fire wood storage and sitting space to make hand crafts. The total area of the front yard is 22.43m².



Fig.4:285 Front yard space of W/ro Fatuma Mohamed Nuru.

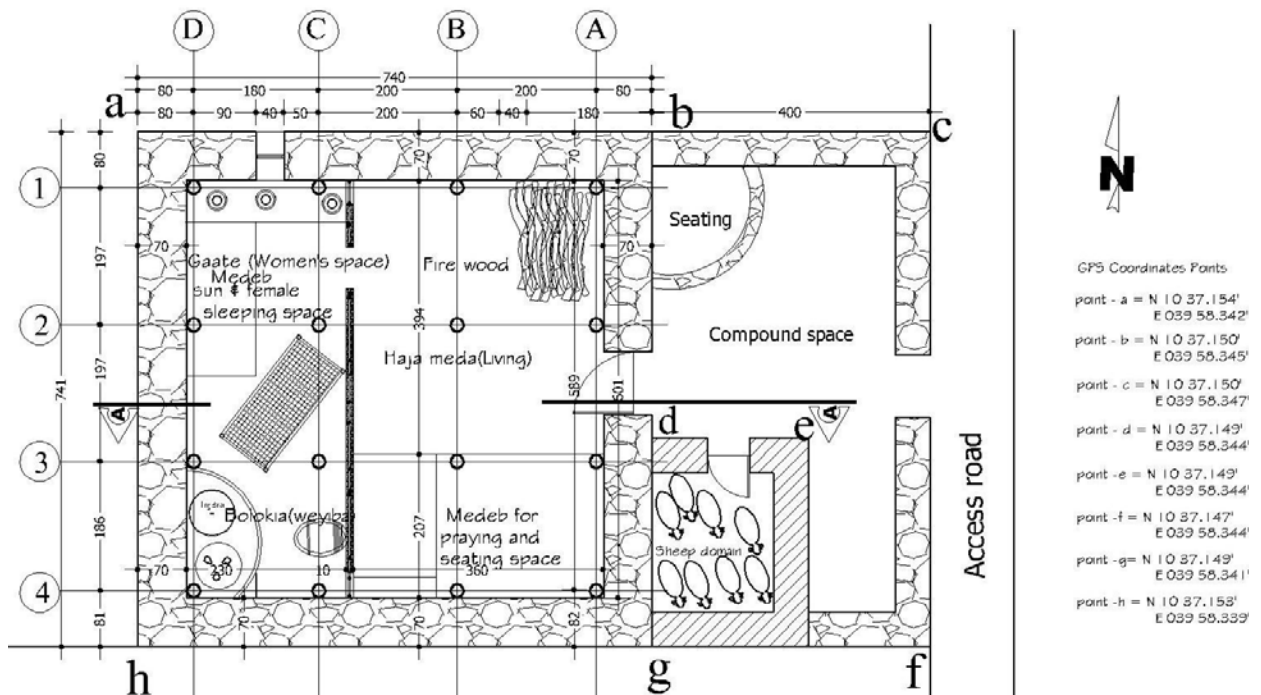


Fig.4:286 Compound and floor plan of W/ro Fatuma Mohamed Nuru.

The Back Yard

W/ro Fatuma's compound does not have a back yard because the house is constructed on the border line on the three sides.

The House

W/ro Fatima's house is a three row house. The foot print area of the house is 54.83 m², it has 16 wood columns which defines the internal spaces. The columns are placed within a distance of 180 and 200 centimeter. The house is sub divided into two main parts the living area and the Women's space. The living space accommodates the *medeb* in which praying and sleeping takes place. The remaining space is used for sitting, making hand craft, storing fire wood and grinding. The *medeb* in the Women's space is used for sleeping and praying *b*, there is also a cooking and food and furniture storage space. The clear height of the internal space from floor to main wooden beam is 1.85 meter.

Orientation of the House

W/ro Fatuma's house orientation is towards the East.

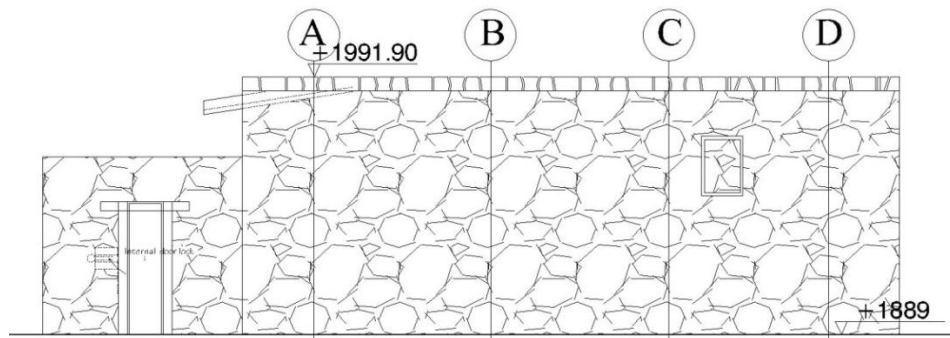


Fig.4:287 North Elevation

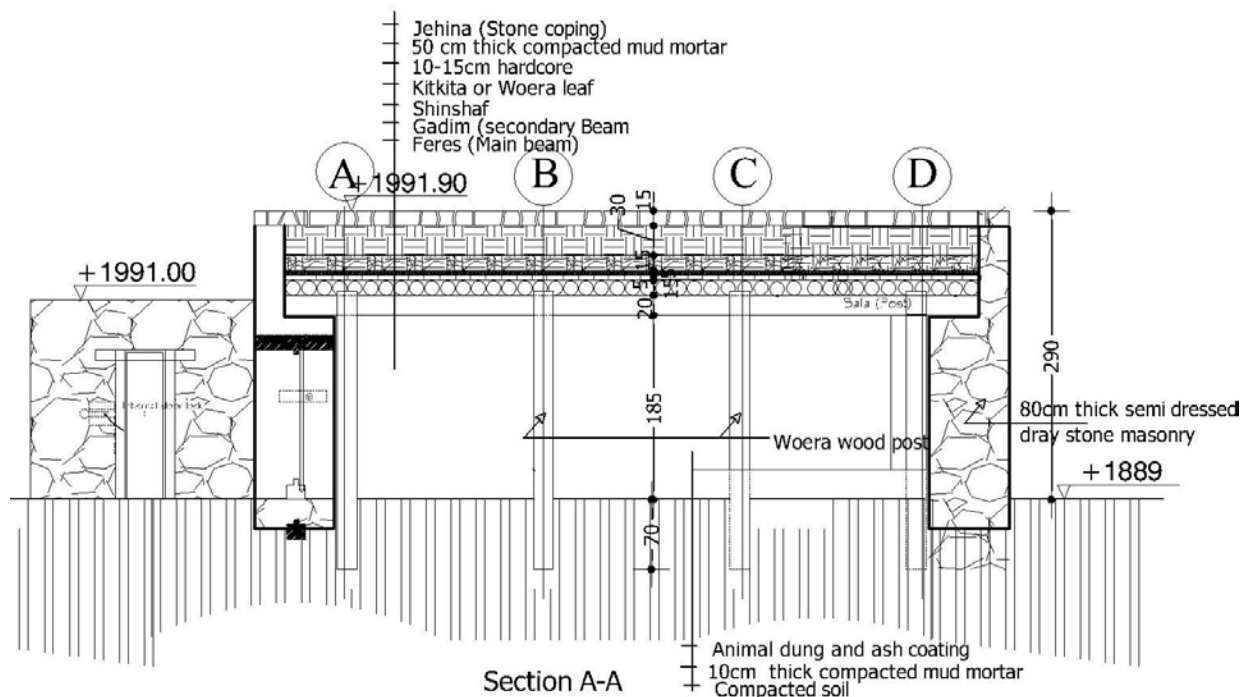


Fig.4:288 Section of the house

Furniture's in each room:

a) Living area: *medeb*, sheep skin, handcraft, shelf, and grinding stone.



Fig. 4:289 *Medeb* & shelf



Fig. 4:290 *medeb*



Fig. 4:291 hand craft working area



Fig. 4:292 Fire wood storage space

b) Women's space

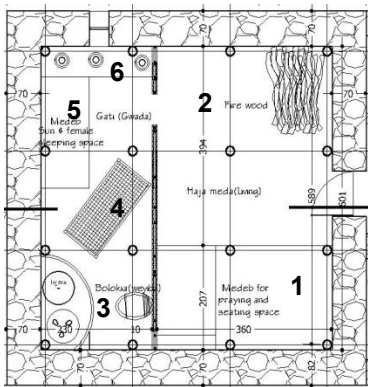
pots, smoke bath, cooking space, *medeb* and bed



Fig. 4:293 Cloth hanging system



Fig. 4:294 Cooking space



In W/ro Fatuma Mohamednur's living area, space 1 is used for sleeping and praying, space 2 is used for living and making hand crafts. In the women's space, 3 is used for cooking and smoke bath , 4 is women's sleeping space , 5 is *medeb* for children sleeping space and 6 is used for storage.

Fig.4:295 Plan of W/ro Fatuma Mohamednur's house

Fig. 4.296 below shows the space used by W/ro Fatuma's family at settlement, compound and house level. From the interview conducted with three family members within the 72 hours. The family spent 80.5 % of their time with in the house and 19.44 % outside of the compound.

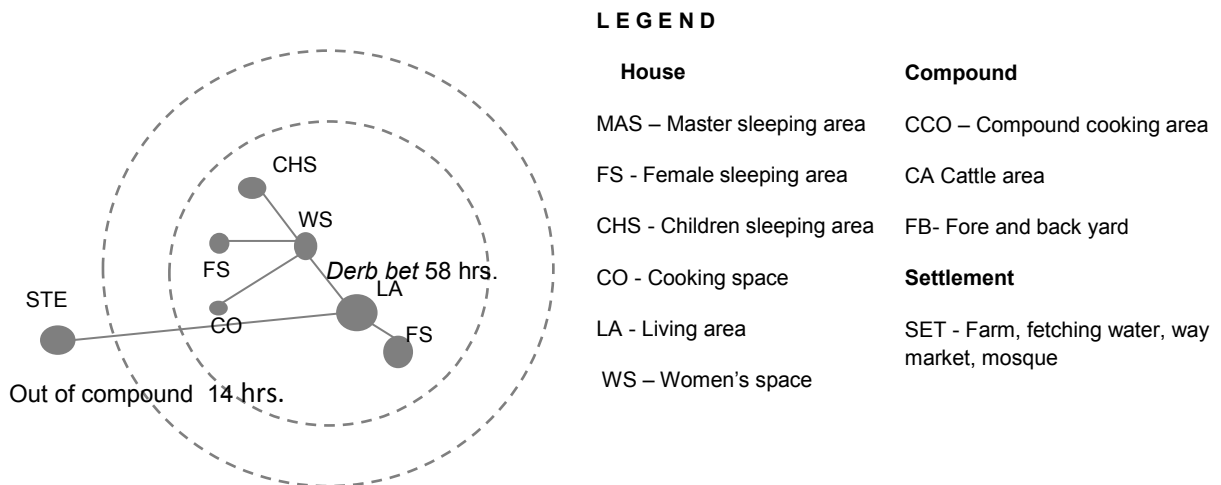


Fig. 4:296 J graph of W/ro Fatuma Mohamednur's house

The hidden line represents the dwelling and the compound.

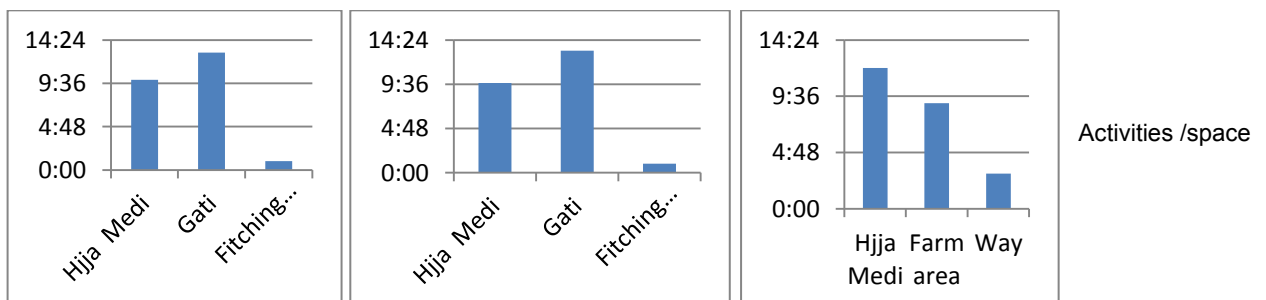


Fig. 4:297 Activity time graph of W/ro Fatuma Mohamednur's family

4.3.21 Sheikh Mohamed Kasim Yasin's compound

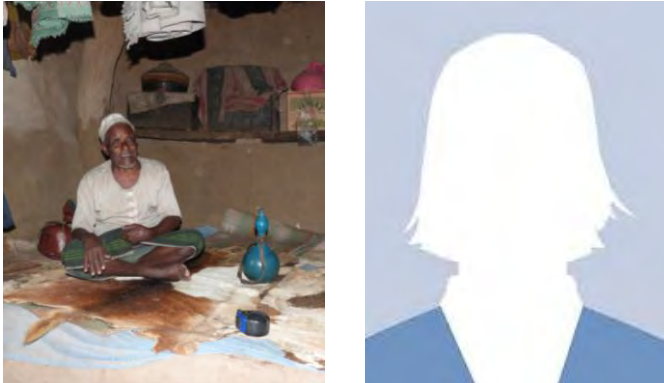


Fig.4:298 Sheikh Mohamed Yasin Kasim's family

The lifeHistory, Activity and Services of Sheikh Mohamed Kasim Yasin

Sheikh Mohamed Yasin Kasim was born in Shonke Amba in 1936. He is 80 years old. He studied the Koran at the age of 10 and completed *Haddis* at the age of 26. He married two wives and both of them passed away before they bore him children. He married his third wife, W/ro Kemer Mohammed at the age of 26 and they gave birth to 12 children-five daughters and seven sons. All are married except the youngest daughter, Shemshu Kasim. She is 15 years old and an 8th grade student at Abbila primary school which is a 30 minute walk from Shonke Amba. His wife Kemer Mohammed was not willing to be interviewed and to have her pictures taken. The reason for her not to have her picture taken is because it is considered a taboo (local word *haram*). Her daughter, Shemshu Kasim was also not willing to have her picture taken. Sheikh Mohamed Yasin Kasim has a farm land which is cultivated by his sons. He has coffee, *kchat*, 1 milk cow, 2 oxen, 8 goats and 3 hens. Sheikh Mohamed Yasin Kasim's vision is failed to see, but he is a *Muazin* (a person who is leading pray at mosque) of *Terefo Genda* mosque. Every morning at 5:00 he goes to the mosque. Sheikh Mohamed Yasin Kasim was asked where he sees himself in the coming five years. He replied "I want to finish the Koran recitation. I have recited more than half of the 30 parts, (local name *jekuzin's*) of the holy Koran I want to finish to recite all of the 30".

Table 4.45 Spaces –Time Dairy of Sheikh Mohamed Kasim Yasin's Family .

S.No	Date	Activities (Daily)	Room /place	From/at	To
Sheikh Mohamed Kasim Yasin					
Daily activities					
1		Get dressed and rest at home	Living area	3:00	4:00
2		Go to <i>Terefo genda</i> mosque	On the road	4:00	4:20
3		Pray at <i>Terefo genda</i> mosque	Mosque	4:20	5:00
4		Recite the Quran	Mosque	5:00	5:45
5		Go home	On the road	5:45	6:00
6		Recite the Quran	Living area	6:00	8:00
7		Eat breakfast	Living area	8:00	8:30
8		Pray	Living area	8:30	9:00
9		Recite the Quran	Living area	9:00	12:30
10		Go to the mosque	On the road	12:30	13:00

11		Pray at <i>Terefo genda</i> mosque	Mosque	13:00	13:30
12		Recite the Quran	Mosque	13:30	20:00
13		Make azzan at <i>Terefo genda</i> mosque	Mosque	20:00	20:20
14		Go Home	The road	20:20	20:45
15		Eat Diner	Living area	20:45	21:00
16		Sleep	Living area	21:00	3:00
Weekly activities					
1		Daily activities are repeated in the weekly activities			
Monthly activities					
1		Daily activities are repeated in the monthly activities			
Daughter					
1		Get dressed and pray	Living area	5:00	5:30
2		Fetch water	Chilata water point	5:30	6:30
3		Fetch water for the second time.	Chilata water paint	6:30	7:30
4		Eat breakfast	Living area	7:30	8:00
5		Hand craft work	Living area	8:00	10:00
6		Collect fire wood	The Farm	10:00	11:00
7		Eat lunch	Living area	11:00	11:30
8		Go to School	On the road	11:30	12:00
9		Learn	Abila primary schhol	12:00	17:00
10		Go home	On the road	17:00	17:30
11		Pray	Living area	17:30	17:45
12		Rest	Living area	17:45	20:00
13		Eat Dinner	Living area	20:00	21:00
14		Sleep	Living area	21:00	5:00
Weekly activities					
1		Daily activities are continued in the weekly activities			
Monthly activities					
1		Daily activities are continued in the monthly activities			

Compound:

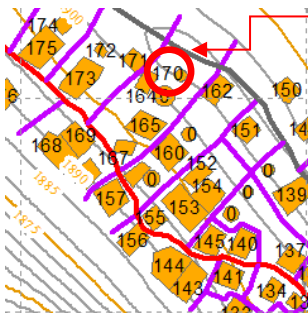


Fig.4:299 Location of Sheikh Mohamed Yasin's house

The geographical location of Sheikh Mohamed Yasin Kasim's house is at a= N 10 37.169 E039 58.308, b= N 10 37.167 E 039 58.300, c= N 10 37.164 E039 58.337, d= 10 37.164 e039 58.333, e= N 10 37.167 E 039 58.329, f= N 10 37.167 E 039 58.326 and g= N 10 37.167 E 039 58.326 at the altitude of 1898m above sea level. The total area of the compound is 208.80m². Sheikh Mohamed's compound has four structures, this is the traditional dwelling of Argobba's type three row house, the thatched roof which is adopted from the surrounding Oromo nationality and Kelewa house type constructed out of mud and

wooden elements. The compound has also a dry latrine toilet space because it is far away from the cliff side of the mountain.

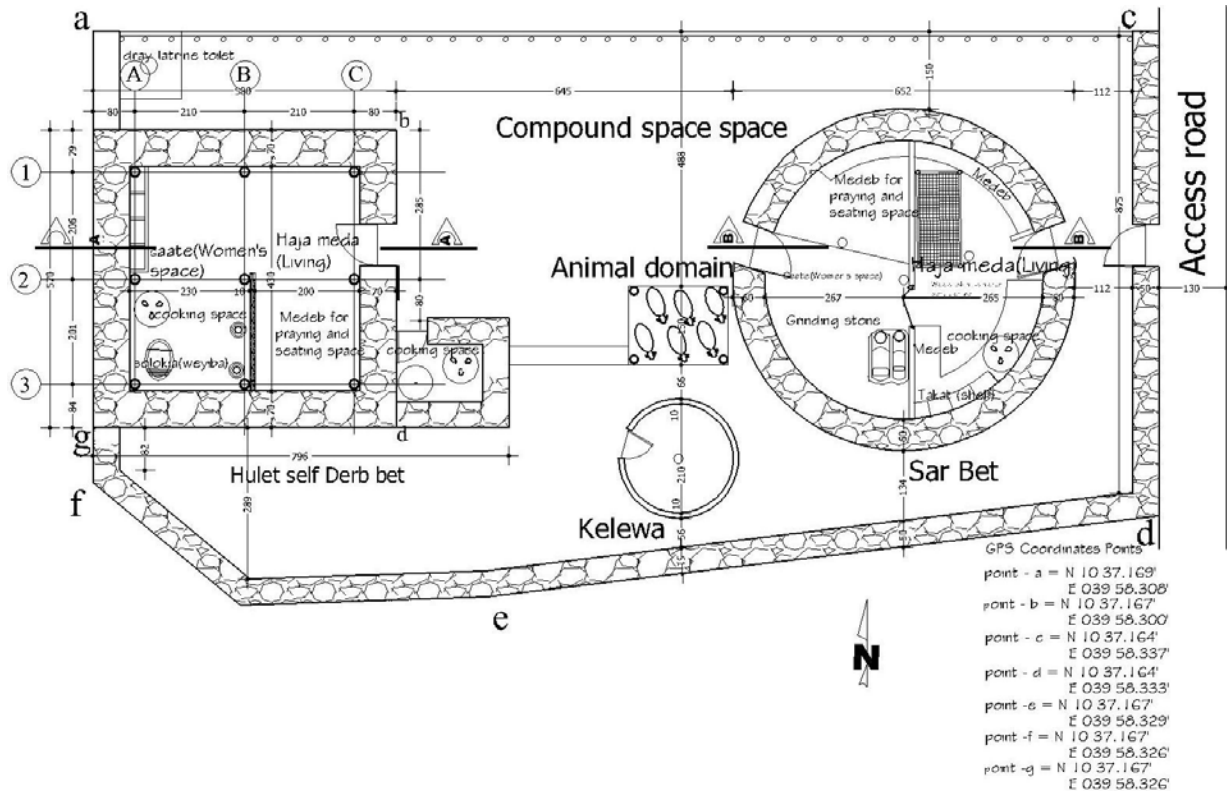


Fig.4:300 compound lay out of Sheikh Mohamed Yasin.

The Front Yard

The front yard of the compound is occupied by the thatched roof house which is circular in form with a diameter of 6.52 meter including 70cm thick dry masonry wall. The front yard is directly accessed from the service road which is 1.30 meter wide.

The back yard

The back yard of the compound space is occupied with the flat roof house which is all in all built on the boundary line. The space on the right side of the house is used for dry latrine and the left side is used as *kelewa* and vegetable growing space during the rainy season.

The house

The house in Sheikh Mohamed's compound is categorized into three types. The first type is the flat roof house. It is a two row type of house. The total area of the house is 33m² with six wooden columns. The space is divided into two main parts the living area and the Women's space. The living space accommodates *medeb* for praying and sleeping. The women's space does not contain *medeb* but it has smoke bath and cooking space. The second type of house is the thatched roof house type. It is circular in form and the wall is 70 cm thick dry masonry wall with a total area of 33.27m². The thatched roof house is women's space. The space is sub divided into two parts the living area and women's space. The living space has *medeb* for sleeping and praying and to keep grinding stones s. The Women's space also has bed, *medeb* for praying and sleeping. The third type of house is

called *Kelewa*, which is a space for young boys above 18 years of age. It is made of thatched, wood roofing and wall. The wall thickness is 10 centimeters. The other space which is found in Sheikh Mohamed's compound is animal's domain. The space is covered with a flat roof, supported with 4 *wooden columns* and open around the four sides.

Orientation of the House

Sheikh Mohamed's flat roof house, the thatched roof house and the *kelewa* are facing East direction. The 80 year old Sheikh Mohamed Yasin Kasim explains that it is for religious factors. Our Holly Koran reads "The '*Sherk*' the front entrance of the house is to be east and the '*Gerb*' which means the back side door has to face the West direction.

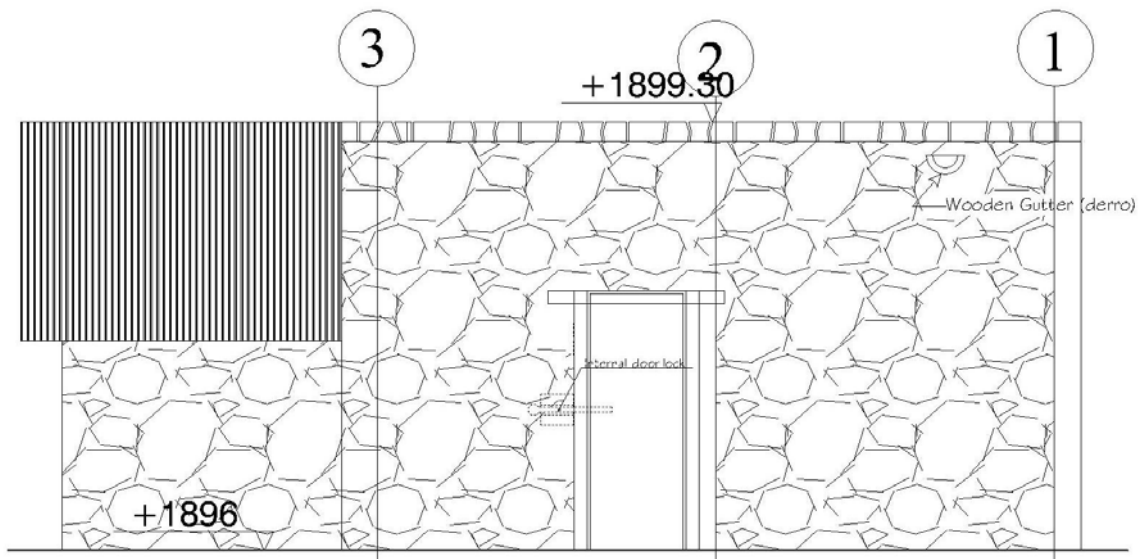


Fig.4:301 East Elevation

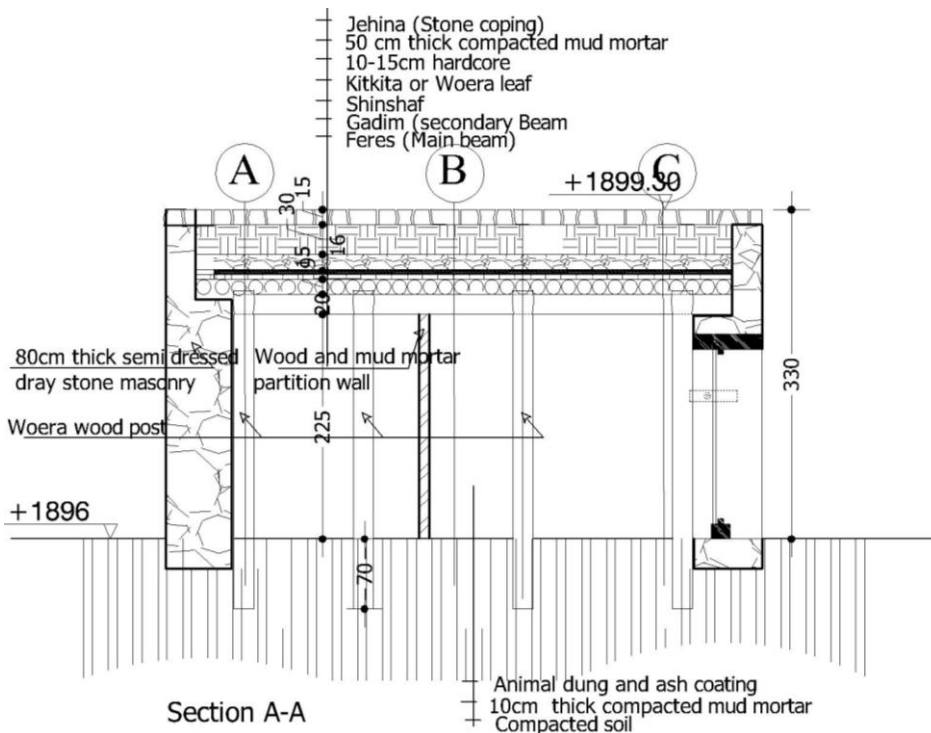


Fig. 4:302 Section of *flat roof house*

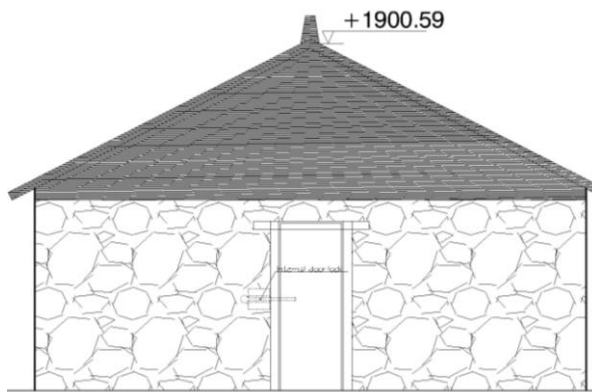


Fig.4:303 East Elevation of the *thatched roof house*

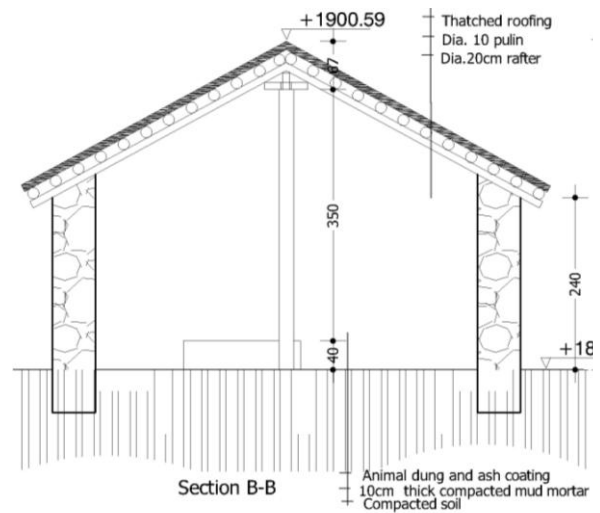


Fig.4:304 Section of the *thatched roof*



Fig.4:305 internal roof detail of thatched roof house



Fig.4:306 West Elevation of *Thatched roof*

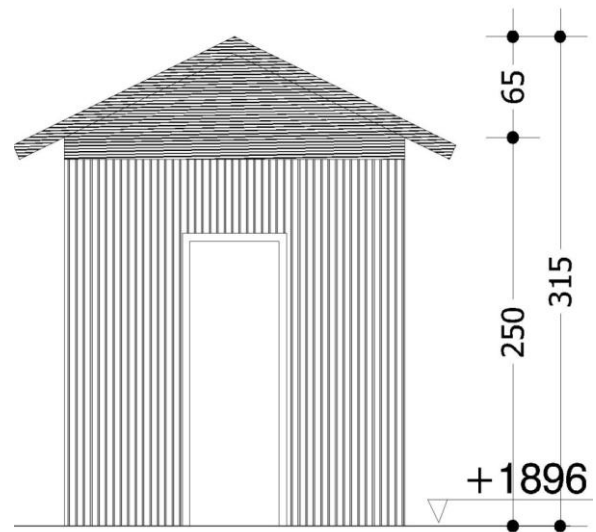


Fig.4:307 West Elevation of *Kelewa*

Furniture's in each room:

- a) *Haja* Living area medeb sleeping and praying space), sheep skin, handcraft, shelf, and grinding stone.



Fig. 4:308 Medeb at living area



Fig. 4:309 Women's space



Fig. 4:310 grinding stone at thatched roof house



Fig. 4:311 Shelf at thatched roof house

- b) Women's space at thatched roof house

- *Potso*, *Smoke bath*, *hand craft*, *medeb* and *bed*



Fig. 4:314 Shelf & fire space at thatched roof house.



Fig. 4:315 Women sleeping space at thatched roof house



Fig. 4: 316 Women space at thatched roof house



Fig. 4:317 Pots at thatched roof house



Fig. 4:318 Smoke bath at thatched roof house



Fig. 4:319 Shelf at thatched roof house

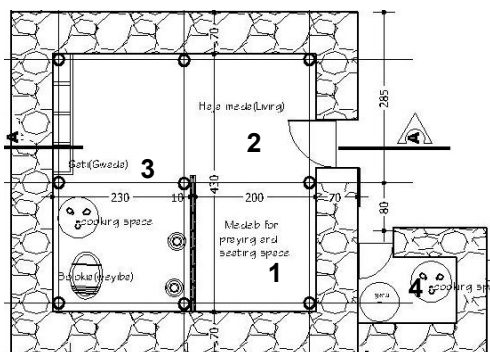


Fig.4:320 Plan of Sheikh Mohamed Yasin Kemal's *derb bet*

In Sheikh Mohamed Yasin Kemal's living area, space 1 is used for sleeping, praying and reciting of the Holly Quran. Space 2 is used for living. In the women's space, 3 is used for cooking, smoke bath and storage. Space 4 is used for cooking which is accessed separately outside of the house.

Fig. 4.321 below shows the space used by Sheikh Mohamed's family at settlement, compound and house level. From the interview conducted with two family members within the 48 hours. The family spent 65.00 % of their time with in the house and 35.00 % outside of compound.

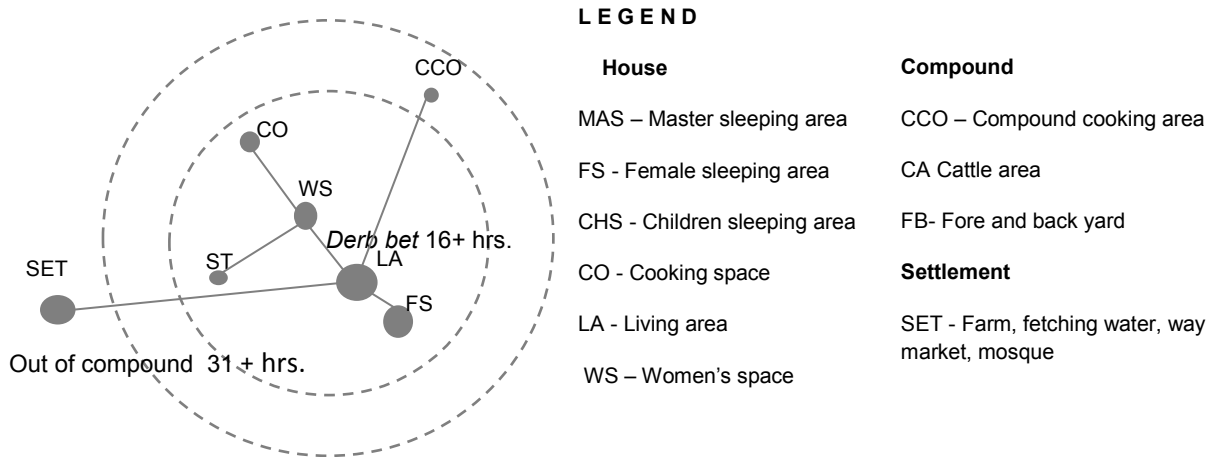


Fig. 4:321 J graph of Sheikh Mohamed Yasin Kemal's house

The hidden line represents the dwelling and the compound.

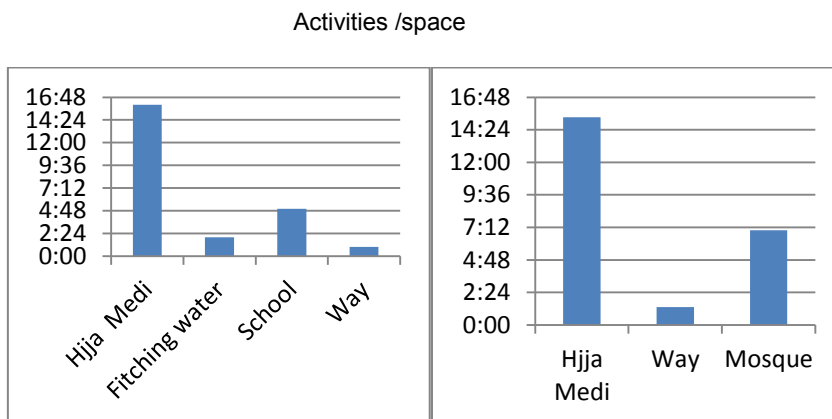


Fig. 4:322 Activity time graph of Sheikh Mohamed Yasin Kemal's family

4.4.1 Space claim and activity at settlement level.

Table 4.46 Average spatial mapping of all saplings within the settlement

sample No.	Hija Medi	Gati	Fire place	Cattle area	Back yard	Front yard	Market	Fetching water	Farm area	Sch ool	Way	Mosque	Kelewa	Borkena River	relative house	Tea house
Average	10:11	5:14	0:36	0:01	0:02	0:08	0:04	0:48	2:34	0:46	0:56	0:20	1:16	0:05	0:32	0:06

The average time diary records; activities and space-use are as they actually happen and based on the settlement level sampling. (See table A-2) However, what spaces each individual associates with or claims is an important aspect in the structuring of space within the home, compound and settlement level which can be hierarchical depending on age and gender as the above table 4.67 shows

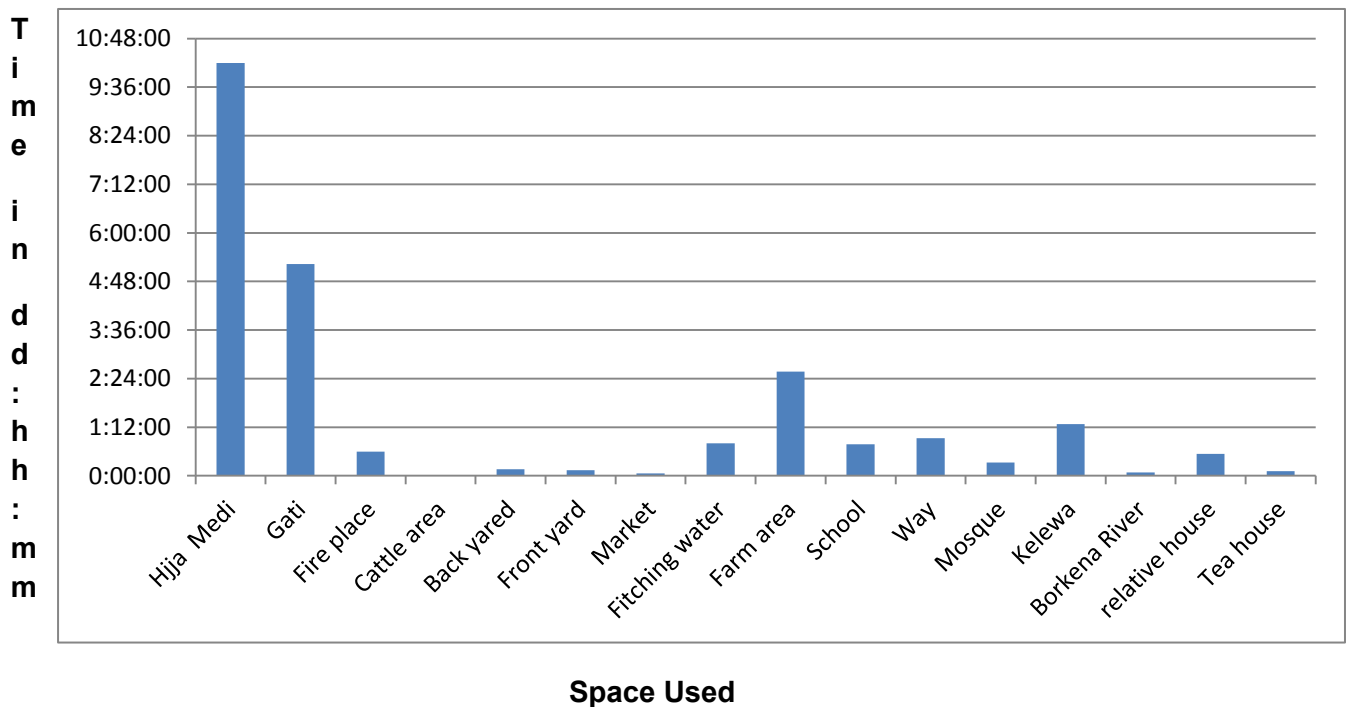


Fig. 4:323 Average activity and space used for the 21 selected case study sampling (48 individuals).

The most spaces used by residents of Shonke Amba at settlement; at homestead level is the living area, women’s space and fire place which are used for 10, 5 and half an hour respectively. At compound level, cattle area, back and front yard spaces are less frequently used space, less than an hour. At settlement level the most frequently used space is the Farm which is two hours and a half. Young unmarried men that do not have a job or do not work at farm spend their time at *kelewa* by chatting amongst themselves chewing kchat and relaxing at tea houses for an hour and sixteen minutes. Water points, the road, school, relative’s houses and mosques are the third most used spaces by the residents of Shonke Amba. The other spaces like; the Borkena River where residents wash their cloths and the market, are the least activities and spaces claimed by the residents of the settlement.

Table 4.47 Percentage of space used at dwelling, compound and out of compound

Space used	Total hour	Average
Dwelling	740:15:00	65.06262
Compound	37:35:00	3.303303
out of compound	23:55	31.63407

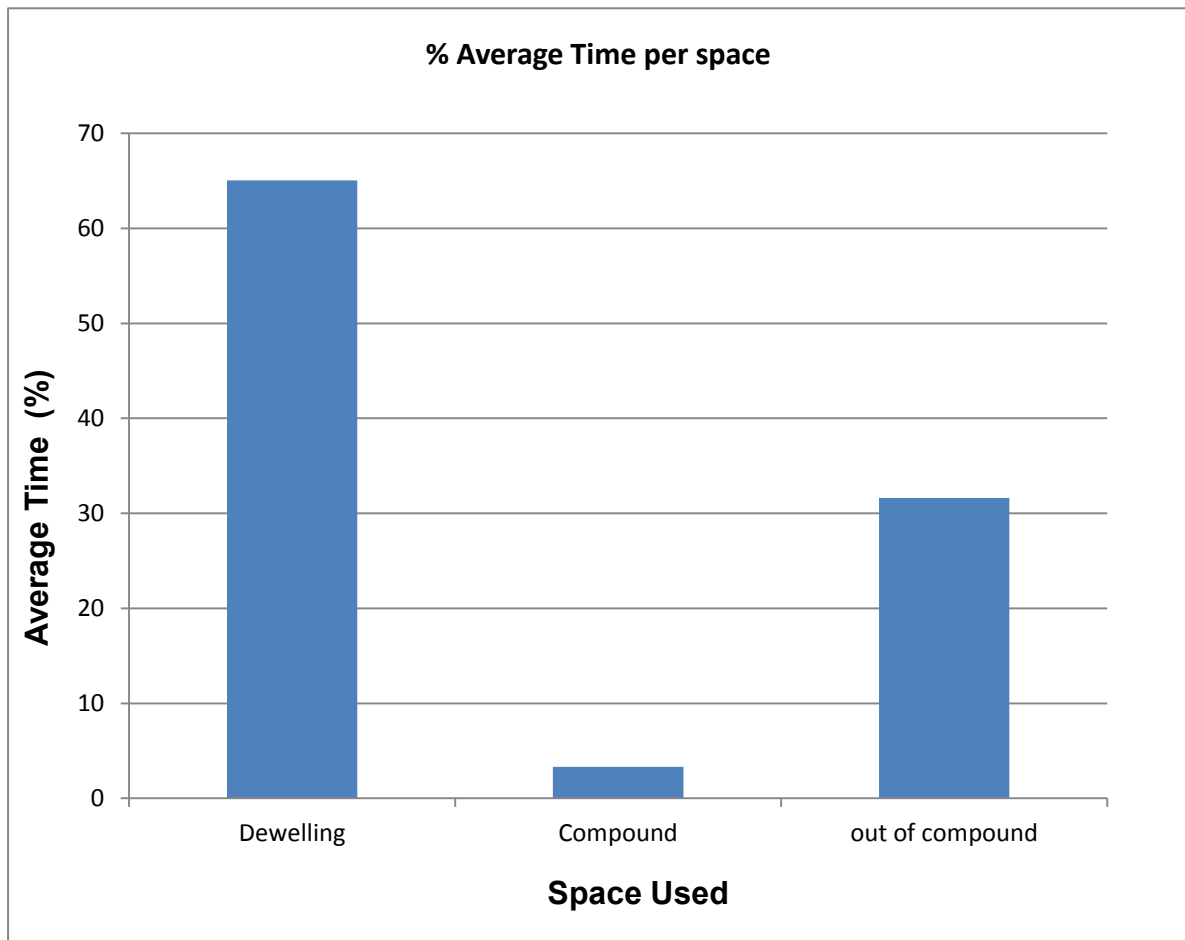


Fig. 4:324 Percentage of space used at dwelling, compound and out of compound level.

The above figure 4.324 shows the space used by the family of the case study sampling at settlement, compound and house level. From the interview conducted with twenty one family members within the 1152 hours, the family spent 65.06 % of their time with in the house, 3.30 % within the compound and 31.63 % outside of the compound.

4.4.2 Types of Shonke Amba settlement Compounds.

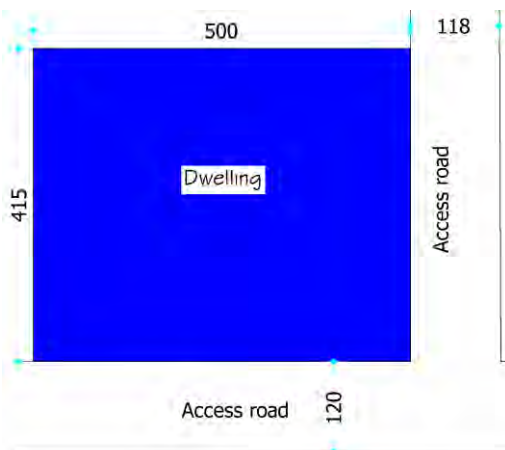


Fig. 4:325 Dwelling without compound and toilet access

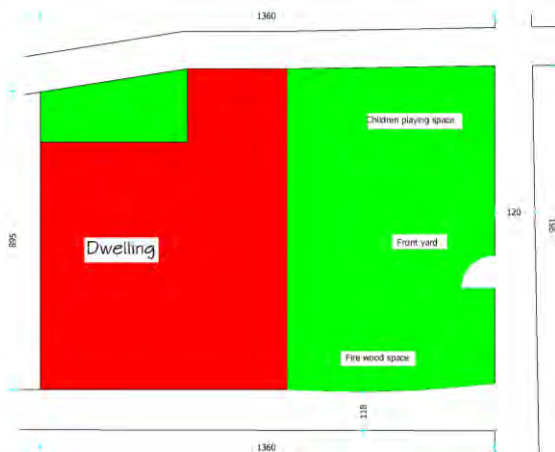


Fig .4:326 Dwelling with compound and no toilet



Fig.4:327 Dwelling with both compound and toilet access

As the analysis of the compound study at appendixes, AP.A4: (Page 235-236) shows; the compound space in Shonke Amba is characterized by regular polygons and with pure urban form. The compound is bounded with a minimum of one access road and fenced with dry masonry wall. Moreover in Sonke Amba a wise use of compound is observed. All dwellings are constructed at the boundary line of the neighbour to maximize the front yard space for the activity such as children’s playground, fire wood storage, animals domain and feeding space and coffee area. Based on the collected and the analysed data the compound of Shonke Amba can be categorized in to three main groups; these are

1. Dwellings which have no compound and no direct access to the toilet and dry waste disposal.
2. Dwellings with compounds but has no direct access to the toilet and dry waste disposal.
3. Dwellings with compounds and direct access to the toilet and dry waste disposal.

In Shonke Amba which has a compound and access to toilet and dry waste disposal is the most preferred compound. The second most preferable site is a dwelling with a compound but no access to toilet and dry waste disposal. The list preferable is a dwelling without a compound and no access to toilet and dry waste disposal. More over the compound type also shows the level of wealth of individuals at the settlement.

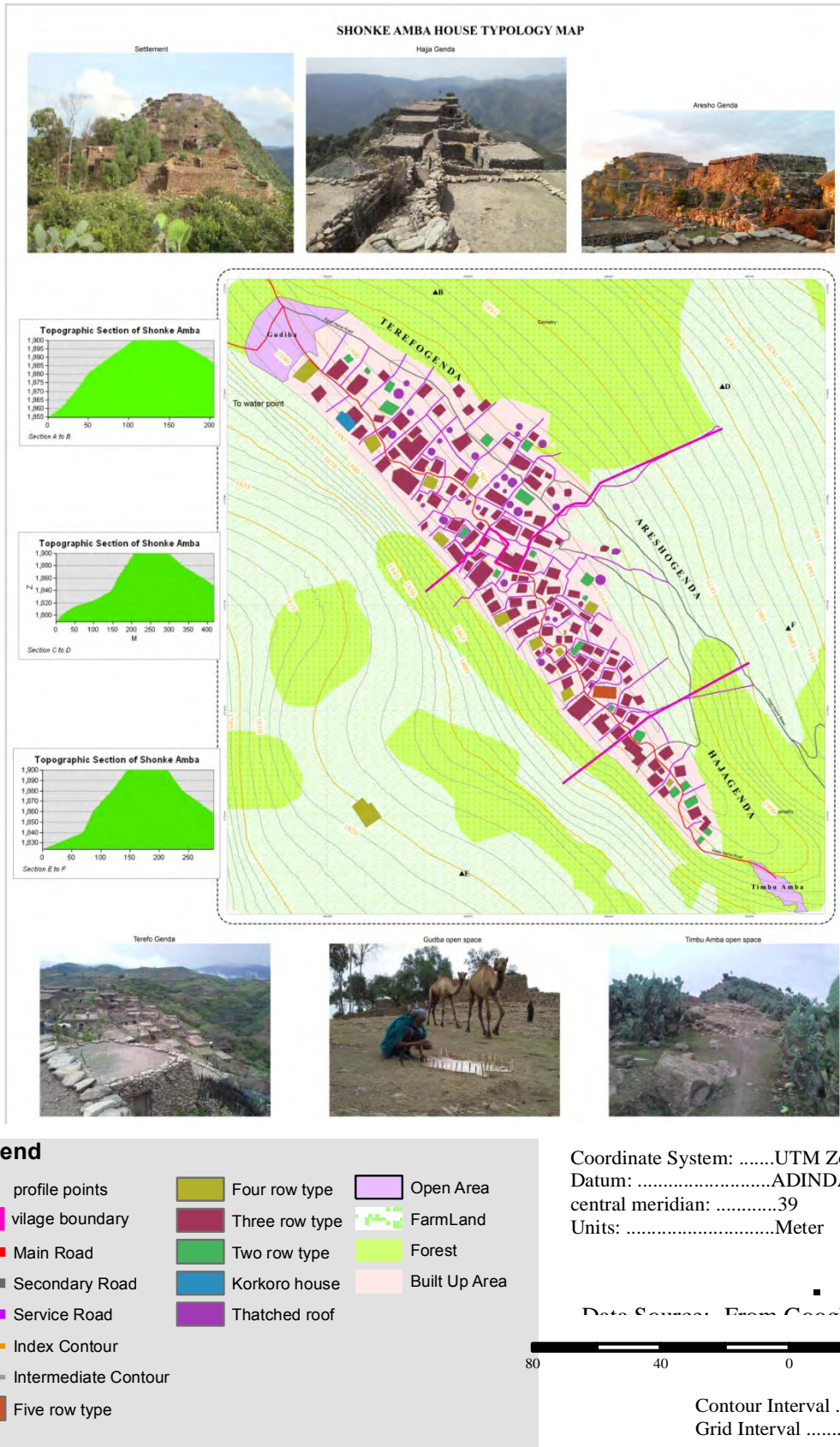


Fig.4.328 Shonke Amba house typology map

As the map above fig.4.328 shows, the Shonke Amba house typology can be categorized into three main parts. These are, two row, three row and four row (locally called *Hulet self*,

Sost self and *Arat self*) respectively. In addition to this there is only one for row (local name *Amist self*) which exists which is used as the grand mosque. Moreover there are also thatched roof and, one corrugated Iron sheet roofing (local name *korkoro bet*) which is used as a temporary house until the main flat roof house (local name *derb bet*) which takes a minimum of four years, is constructed. Therefore the following shows the main types of Shonke Amba houses.

4.4.3 Types of Shonke Amba Settlement Dwellings.

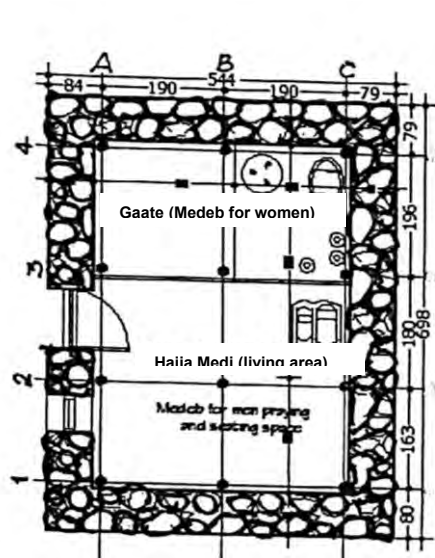


Fig. 4:329 Two row house type

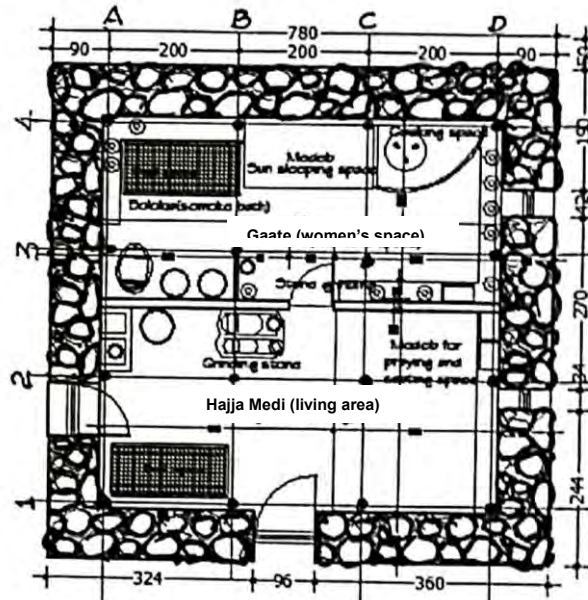


Fig. 4:330 Three tow house type

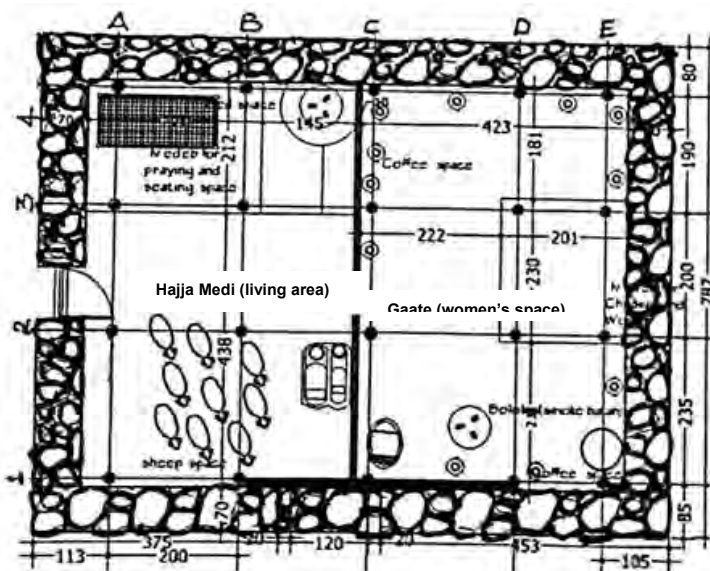


Fig. 4:331 Four row house type

The analysis of the case study shows that in Shonke Amba *derb bet* (dwelling) are mainly categorized into three types based on column arrangement and size of the house. These are two row, tree row and four row. Row is the spaces between two rows of column arrangement or axis. However there is also only one five row dwelling which is a grand mosque at the settlement called *Juma* or *Aresho Genda* mosque. There are also temporary thatched roofing dwellings as explained in case study 3:21 which is prohibited at the Shonke Amba settlement because it is not non-fire resistant and considered as non-heritage of the Argobba people. The Shonke Amba settlement people use the temporary dwellings for about four years, until they construct house (*derb bet*)

CHAPTER FIVE

5.1 Introduction

Chapter five comprises the summary of findings, conclusion and recommendations. The summary of findings includes settlement, compound and house level with their meanings at each level. The conclusion of the findings is examined in relation to the existing literature. Finally the recommendation forwards action that should be taken to address Shonke Amba settlement heritage and social problems.

5.2 Summary of the Findings

5.2.1 The settlement

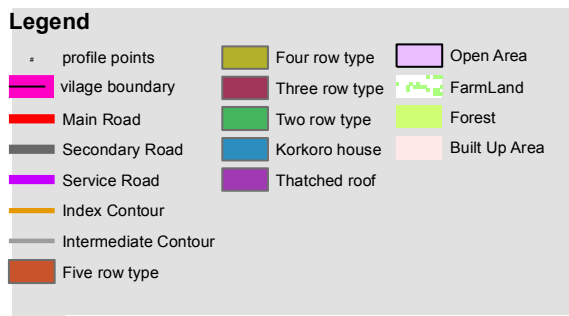
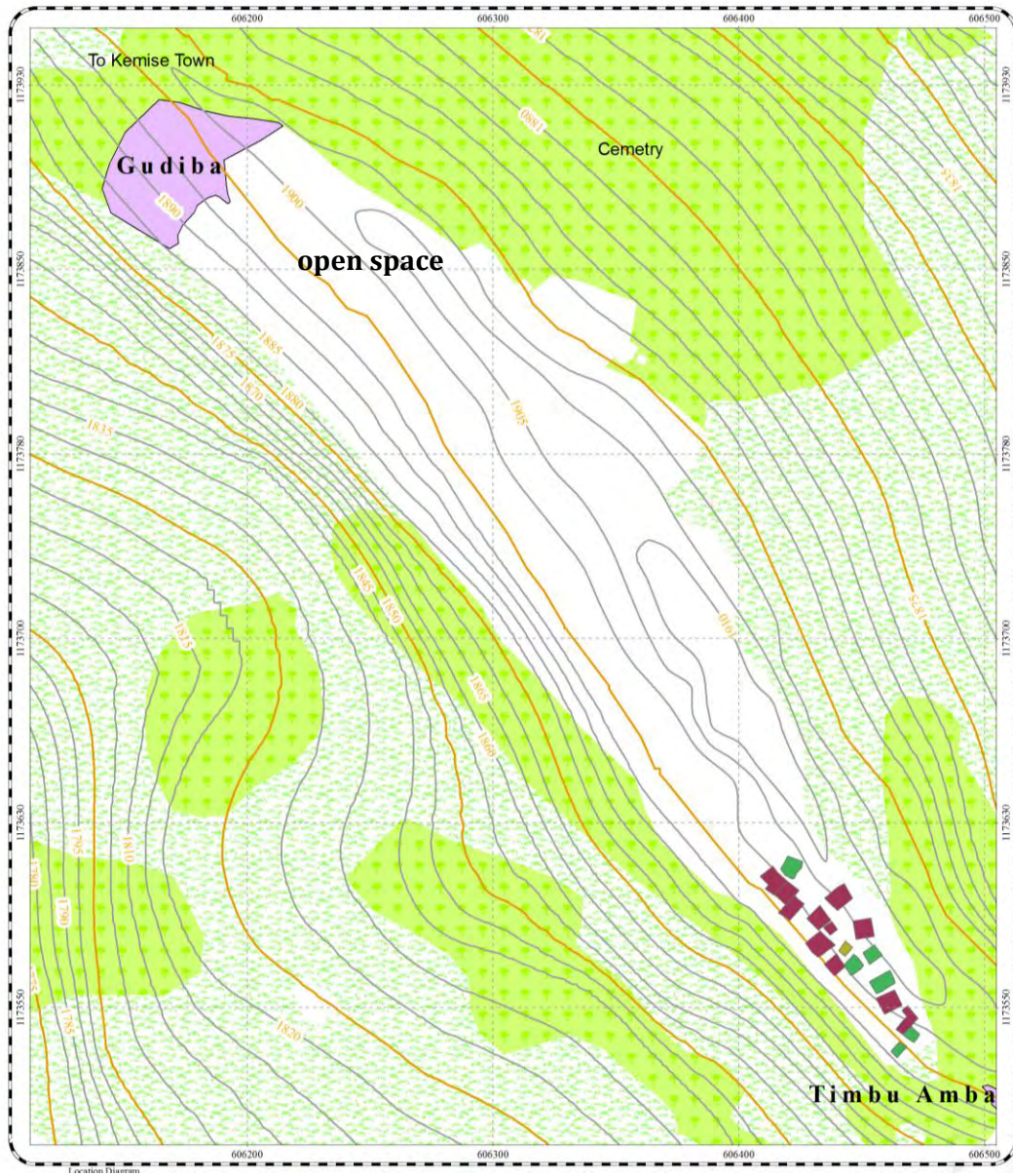
The spatial features

Shonke Amba settlement was established 834 years ago. The founders of the settlement were Fekih Ahimed and Kulubas. The settlement is formed on the plateau at the altitude ranges of 1889-1925 meters above sea level from *Gudba* open space to *Aresho gend* the most elevated point at the settlement. The main reasons for the selection of the Amba site was desire to settle on a defensive and strategically high land to protect the Islamic religion and Argobba culture from the surrounding agitation, to have easy access to foreign trade and fertile land suitable for agricultural activities.

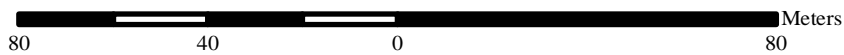
The name of the settlement has two assumptions. The first one is that there were a wife and a husband called Shenkor and Farha; the leaders of the settlement. The settlers called the settlement by combining the two names as Shenkor-farha. Through time this name was converted to Shonke. The second assumption is that the name Shonke is derived from the Oromifa *weara-sokite* the meaning of which is equivalent to the migrant people. Through time this *wera-sokite* is believed to have been converted to Shonke.

The settlement of Shonke Amba was formed through time and developed around mosques which also served as Koran schools. Due to this the settlement is sub divided into three sub settlements called *Hajj agenda*, *Aresho genda* and *Terefo genda* with defined boundary of access road as it is indicated on the map below . The first genda is Hajj agenda, that was formed first followed by Terefo genda and Aresho genda at last. All genda's are formed around the Hajja mosque, Hutuba or Juma mosque and Terefo mosque respectively.

FORMATION OF HAJJA GENDA SUB SETTLEMENT



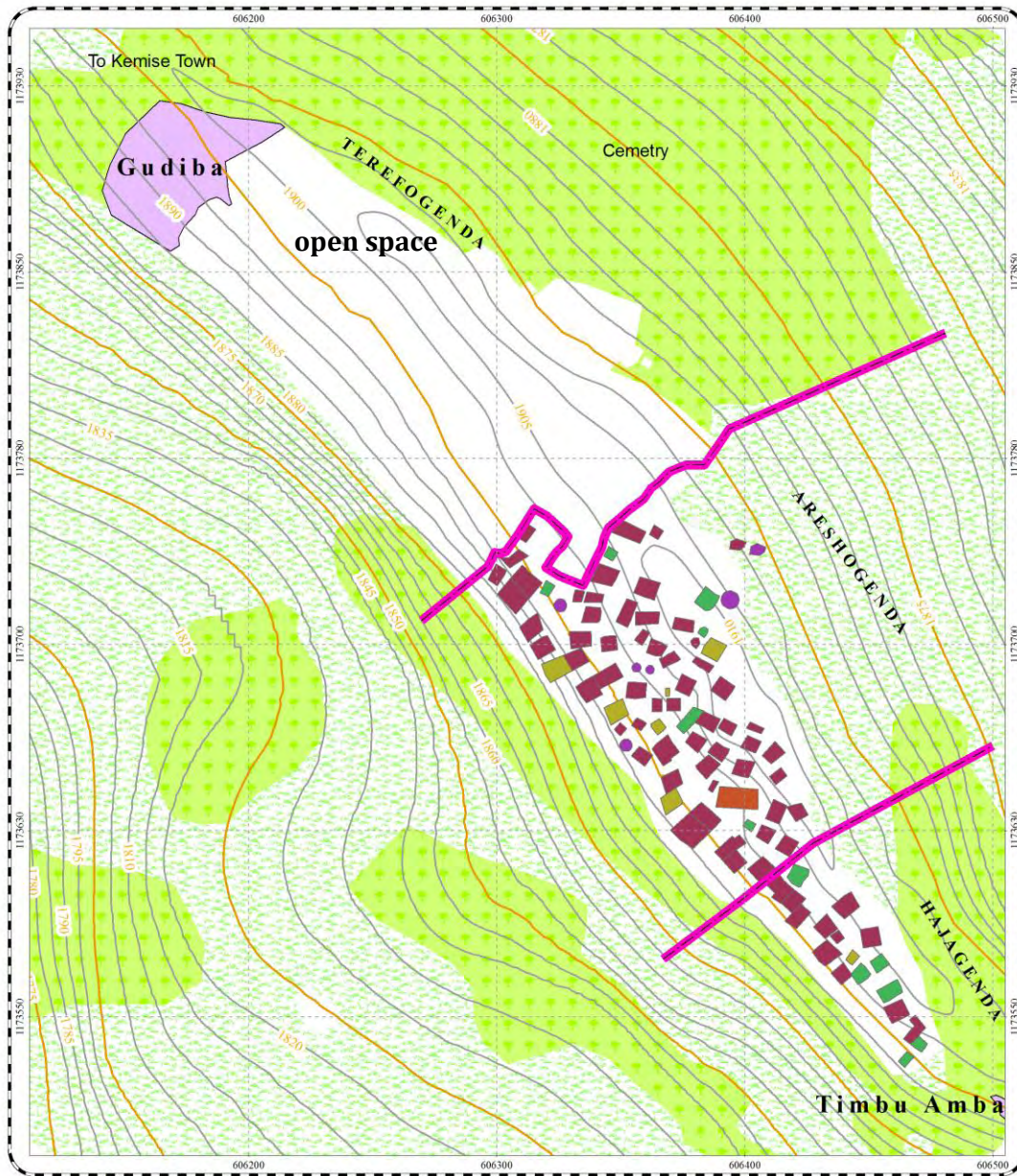
Coordinate System:UTM Zone 37, Northern Hemisphere
 Datum:ADINDAN
 central meridian:39
 Units:Meter



Contour Interval5 m
 Grid Interval200m

Foig. 5.1 Formation map of *Hajjaa Genda* sub settlement

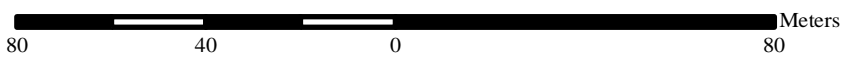
FORMATION OF HAJJA AND ARESHO GENDA SUB SETTLEMENT



Legend

• profile points	Four row type	Open Area
— village boundary	Three row type	FarmLand
— Main Road	Two row type	Forest
— Secondary Road	Korkoro house	Built Up Area
— Service Road	Thatched roof	
— Index Contour		
— Intermediate Contour		
— Five row type		

Coordinate System:UTM Zone 37, Northern Hemisphere
 Datum:ADINDAN
 central meridian:39
 Units:Meter



Contour Interval5 m
 Grid Interval200m

Fig.5.2 Formation map of *Hajjaa and Aresho Genda* sub settlement

FORMATION OF HAJJA, ARESHO AND TEREFO GENDA SETTLEMENT

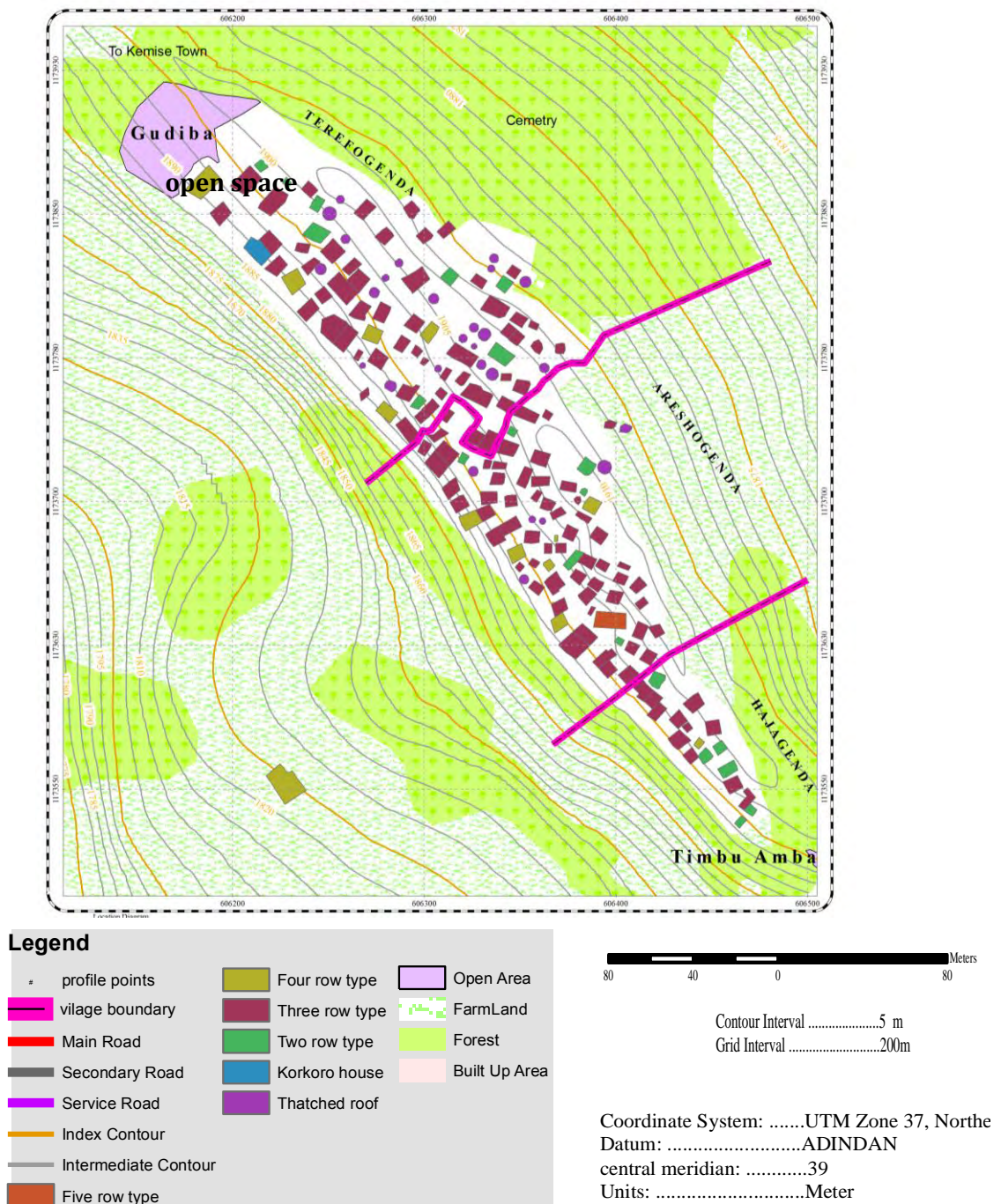


Fig.5.3 Formation map of *Hajjaa, Aresho and Terefo Genda* sub settlement

There were three types of road hierarchy based on the function of each road. These are 1) Aleila heama road or *Zelakiw mended* which is the main road that connects the two open spaces called Gudiba and Timbu Amba open spaces. 2) The secondary roads, which create accesses to the main road, are two in number and are called *Aguftu hema and Hajja hema*. 3) There are 20 service roads which have two main uses. They connect the main and secondary roads. Second they are used as roads that lead to the toilet and dry waste disposal near the cliff of the mountain. The combination of these main, secondary and service roads creates an organic grid system road network. This shows the residents' level of engineering concept was high and they are the ones who introduced grid road network system 834 years ago.

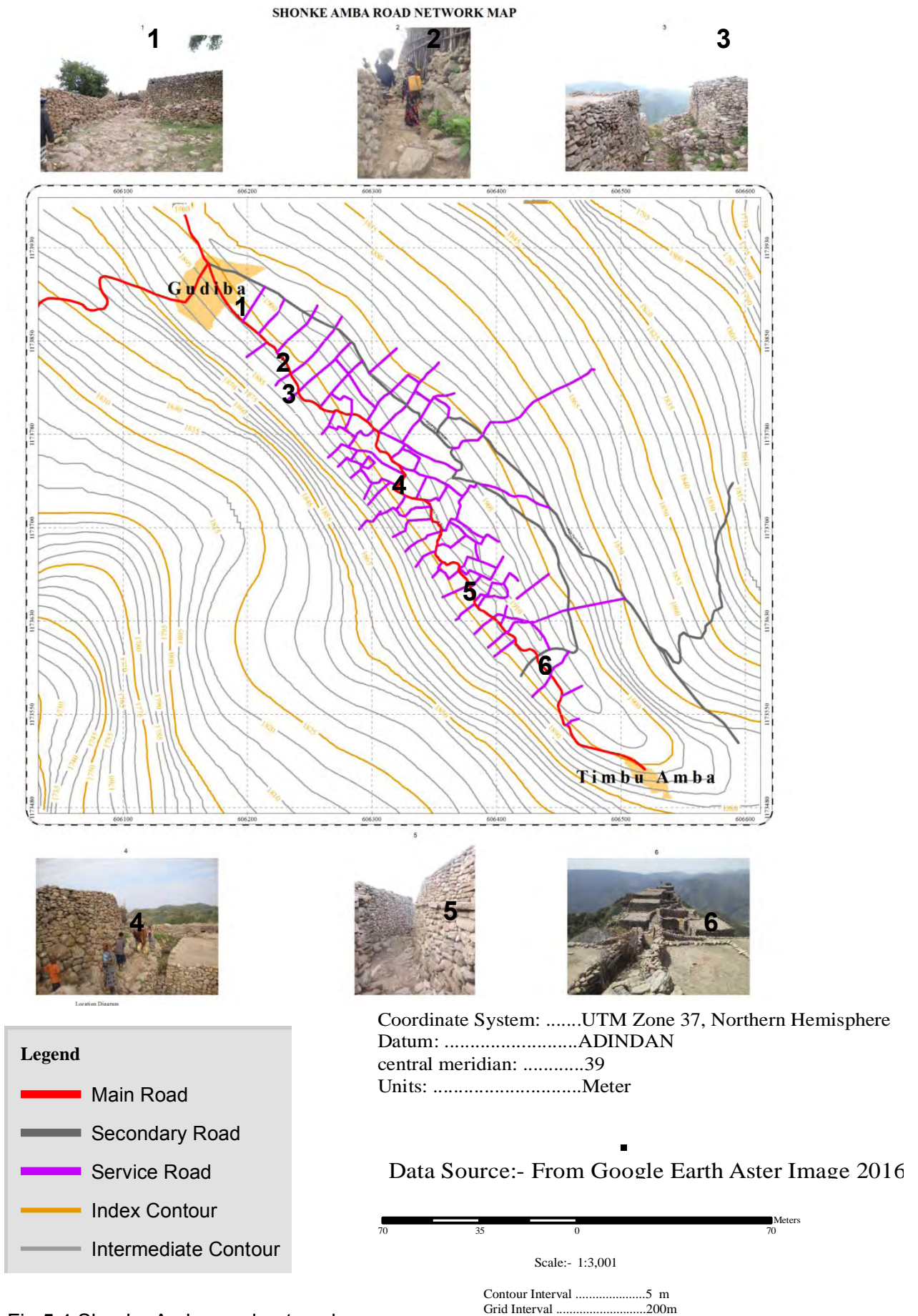


Fig.5.4 Shonke Amba road net work

The special places in the settlements are: open spaces , *wodaje amba*, meeting places, worship places , farm land, compound, water points, fire wood collection places , schools, health posts and cemetery which is also believed as a sacred place due to the resting place of Ulamas, Wolyies and Sheiks.

The Activities that show spatial elements

In Shonke Amba settlement, the *debo*, working in a group at the farm to construct *erken* (terrace) and *derb bet*, ceremonies such as *fatumaye*, circumcision and homestead activities determine spatial marks of the Argobba of Shonke Amba residents. In addition to the above the residents of Shonke Amba are self-sufficient farmers, merchants, traditional weavers and the settlement is a centre for Koran teachings. Inter-marriage within the family enables the Shonke Amba to keep their culture unspoiled and untouched.

The meaning

The cemetery is a sacred place and it is believed that their soul lists every activity at the settlement and prays for the settlement. Moreover, trees at cemetery are never cut down and inside the cemetery no one can use as space for open toilet. Therefore it is the only green space left at the settlement except coffee farm land. The toilet is located at the South of the settlement on the cliff side of the mountain .The meaning is that the toilet has to be the on opposite side of *Kilba* the praying direction of Meka Medina.

5.2.2 The compound spatial elements

The main spaces in the compound are the house, the front yard and the back yard which do not exist in some compounds. The front yard is bounded by an average road width of 1.20 meter including the main, secondary or service road. The narrow road access is made because the limited space on the top of the plateau high land makes it easy to defend the settlement and difficult to attack it . The compound is an urban form regular polygon with a defined boundary and fenced by masonry. The compound size ranges from 20.70 m² without a front and back yard to 236.31 m². The compound is inherited from the family to sons only, since daughters get their shares from their husbands when they get married. The front yard space is used as animal's domain, transition space to the house and open space for daily activities such as washing, milking cows, cooking, and making coffee. The maximum front yard space reaches 121 m². The limited back yard space in the Shonke Amba settlement is also used for cooking, road to the toilet, and animal domains too. The fixed elements that are found in the compounds of ordinary Shonke Amba settlements are the house, fire place, animals domain with shade and *kelewa*. The semi fixed elements are seasonal crops such as maize and vegetables in the limited backyard space, and very limited indigenous trees. The non-fixed elements that were observed during the research are; people , cattle's, Argobba language, *dilka* or dance at *fatumaye* ritual ceremony and the collar full of Argobba women's dressing.

Activities

The major activities that take place in the compounds are, cooking, animal feeding, playing, washing, milking, drying of grains and washing clothes on top of the flat roof and sitting spaces. Women and children are the most frequent users of the compound space.

The men were not seen performing any activities within the compound when the research was conducted.

The Meaning

The orientation of the compound is towards the East. If the site does not allow the house to be oriented to East, the second most preferable direction which is the West will be the orientation of the site. This orientation of the house has two reasons. The first one is the instruction of the Koran that says all houses should be oriented to the east and the second one to be awakened for morning prayer by the light which enters through the cracks of the entrance door.

5.2.3 The house spatial elements

The Argobba of Shonke Amba people strongly believe that the house is their identities, because it was inherited from their grandfathers 834 years ago and the house protects their culture and religion because of its defensive character.

As the study shows on fig.4 328, based on duration, the houses of Shone Amba are classified into two groups these are the permanent house (local name *derb bet*) and temporary house that is used until the permanent house is constructed. These temporary houses are also of two types: the thatched roof housed and corrugated iron sheet roof (local name *Korkoro bet*, only house in number). As soon as the preparation for the construction the permanent house is completed they demolish the temporary house and construct a permanent one. The preparation takes a minimum of four years starting from olive tree planting, management and harvesting. However if the temporary houses and the only one row four used as a grand mosque are included into the classification category, the house typology of Shonke can be raised to six typology. These are also mapped as indicated on fig.4.328 above.

Based on the construction process, the house type is categorized as a piling except the temporary *korkoro bet*, the process of using stone for the walling. The house which is constructed out of 70cm thick stone piles has a flat roof which does not need maintenance for over 30 years.

The Activity

The house in shonke Amba are also used for ritual ceremonies (*fatumaye*), weddings, mournings, cooking, storage, circumcision of girls and boys and socialization. The cooking space is busy in the morning, mid-day and evening time.

The Meaning

Shonke house orientation in Agoba is towards the east The *medeb*, a praying space, is at the right side of the entrance gate facing the east, this makes the *medeb* orientation in the prayer direction of Meka Medina. The Women's space because the smoke bath that women use to attract men is located here and this is where husband and wife sleep in the same bed. .

The spatial arrangement of the house in Shonke Amba is based on basic needs, sex, age and women's privacy and needs. In some houses the women do not dine with men in the

living area. Women's space is a private space where women eat after serving men as per the tradition of the Shonke Amba residents.

5.3 Conclusion

5.3.1 The space used in Settlement, Compound, House and Types of House and Compound

Gebremedhin, (1971) and Oliver, (1997) discussions are reflected in the findings of the Shonke Amba settlement, since the settlement formed on the plateau of the mountaintop shares the advantages of other similar settlements in Ethiopia. But the Shonke Amba settlement in Argobba is peculiar since the top of settlement can be accessed in only two directions as the settlement is surrounded by a cliff to preserve the culture and religion and defend the settlement from the agitation of the surrounding non Argobba settlers. This is also true as Oliver (1997) noted that defence is related to nature of perceived danger of threat to a culture.

The farm space is at 10-30 minute walk from the settlement at the ridges of the mountain because paces where daily and ritual activities take place are supposed to be close to the house. Rapoport (1969) also explained that the house cannot be seen in isolation from the settlement.

Based on the construction process, the type of Argoba Shonke Amba house is categorized as piling, which uses dry stone masonry with sandwiched soil as Gebremedhin(1971) noted of piling system. The form of Argobba Shonke *Amba* house is four sided regular polygon because of the load bearing main wooden Beam. The rectangular house is classified into three types by adding one modules or axis. These are, two row, three row, four row and five row *Hutuba* mosque, to accommodate more people for fray day pray.

The domestic spaces classification is based on sex and age. Women and children sleep at Women's space, whereas men above 18 sleep at living area. The Women's space is also a private space for women to use smoke bath. It is forbidden to share *medeb* in the living area with women during the night to keep (local name *tuhara*) the *medeb* space clean for prayer. So when men are go to Women's space when they want to share a bed with women.

In the literature review physical factors such as defence, economy, religion, climate, construction materials and sites are determinant factors for the form of a house. This is also true for Shonke Amba because:

- The house, which is rectangular in form with a flat roof, is fire resistance while the houses of other nationalities in the surrounding settlements are thatched roofing which can be easily burned by fire.
- The house, which is built near the narrow grid road, is to the advantage of the Shonke Amba residents since it is used as a fortification.
- The 70cm thick masonry wall, 10cm thick solid wood door and the internal door locking system are made for protection. Moreover some of the openings provided on the opposite side of the main door serve as emergency exit if needed.

- The high land which lays 1500-2000 meter above sea level is categorized as Sub tropical zone (*woyna dega*). Since Shonke Amba is located in this climatic zone normal rainfall is expected. Therefore the need of flat roof made of soil material is unthinkable if the house not need for fire resistant defensive house. Therefore defense strongly affect the form of house at Shonke Amba
- The Shonke Amba *house* form is also affected by the economy and religion. For example the four row house type, (of which there are only 13 in number, as some of them are demolished because of the demand for wooden columns) need 20 columns, 15 *Main beams*' 120 *secondary beam*, and 60-70 bundles of sliced *wood*, about 150 man power and a lot of time. All this has direct relations with economy. The internal space arrangement is also based on some basics of the religion.

5.3.2 Construction Materials, Construction steps, and Man Power

The artisans of Shonke Amba strongly believe that without Olive tree wooden elements the dwellings of Shonke Amba are enduring. Because, they believe wooden elements *such* as columns, main beam ,secondary beams and sliced woods of olive tree can resist the massive load of 10cm thick hard-core and 50cm thick soil fill of the flat roof. The limited availability of these wooden elements and the long harvesting time of Olive tree wood, which can take up to ten years affects the construction of this traditional house. Moreover these shortage of wooden elements forced them to demolish the existing houses and reconstruct other houses at the farm area. But stone and soil which are the second most important construction materials are easily available within the settlement and even at the construction sites.

The construction steps starting from the lay out, the construction of 70cm thick masonry wall to erection of the columns and placing of the roof system is led by the artisans and done in *debo* (group work). However the refinement of masonry work, the verticality of the wall has a much lower standard when compared to the early works observed in Toleha settlement one hour from Shnke Amba and Hutuba mosque of Shonke Amba. This is because of lack of knowledge to use simple basic construction tools such as chains, rope, and levelling tools. The gap created on artisans skill transfer is also another factor.

5.3.3 Process of Vernacular house at Shonke Amba.

The elements used in the construction of the house , the orientation of the house towards the east , the special heritages at the settlement of Shonke Amba; such as *Wodaja Amba* space, basic needs, sex and age which is a base for space classification within the house are material cultures and process of vernacular architectures. For example the thatched roof mud and wood wall of the surrounding Oromo house is learned by the Argobba and transformed to stone masonry wall and used for temporary house as Villinga (2006) states hybridization of traditional elements with new ones coexisted in the process of building a vernacular house.

5.4 Recommendations

5.4.1 The community:

- The Argobba of Shonke Amba people have been confined to the plateau of the cliff mountain to preserve their religion and culture for the last 834 years. However the

vernacular house of Shonke Amba is unbelievably being demolished because of the need for wooden elements to reconstruct out of the settlement on independent farm lands. This lack of knowledge of heritage is creating a huge destruction on the heritage site which is registered by the Authority for Research and Conservation of Culture Heritage. Therefore there must be a way to stop demolishing of this houses by teaching the community of Shonke Amba to benefit from the tourism industry.

- The open toilet disposal towards the cliff side of the mountain should be stopped and communal and individual toilet provisions should be provided to avoid water pollution during the rainy season, in which human waste is direct drain to the water point by teaching.

5.4.2 The Government and Policy Makers:

- Girls in Shonke Amba are married at the age of 12 and face unbelievable sexual abuse, which leads to a high divorce rate. Therefore the local officials have to work hard to stop early marriage.
- The circumcision of girls which takes place in Shoke Amba is crime by law. Therefore all concerned bodies should work hard to stop it.
- The Shonke Amba site which was formed 834 years is registered as a heritage site. in 6 pages registry form with Ref. No. Et-AM-DC-I-OO4 on 03/08/2005 Ethiopian calendar by Authority for Research and Conservation of Culture Heritage. This registering format cannot explain the rich cultural, and architectural heritages such as the settlement, the compound and the house they live-in. In addition to this more than three years have elapsed without any action to stop the demolishing of irreversible heritages for the need of wooden elements to construct new houses on farm lands. Therefore the following remedies have to be taken immediately to stop the demolishing of the houses and make the site a tourist destination.
 - a) Create awareness among the community about the value the site has for the residents and the country so that they can preserve the heritages.
 - b) Provide proper access road to the site from Kemise town.
 - c) Construct guest houses that are similar to local houses, provide water, toilet, and use solar panels as a power source.
 - d) Create appropriate access within a settlement by re sizing natural stone steps suitable for all age groups to access any place in the site.
 - e) Promote Shonke Amba by using local and international media to attract both local and international tourists to the site.
 - f) Create a win- win approach for the resident and the government from the tourist income which can enhance heritage protection and improve livelihood of the residents of Shonke Amba.

- g) Solve the potable water problem of Shonke Amba residents by developing the only water point of the settlement.
- h) Create awareness to stop the rising construction of temporary houses such as *korkoro bet* and *sar bet* which strongly affects the historic heritage site.
- i) Allocation of finance for the settlement to preserve the vernacular house which is a heritage of the Argobba nationality since 834 years.

Construct secondary school to help Shonke Amba students who are forced to stop their education on the 8th grade.

5.4.3 Architects and Structural Engineers

- To replace the shortage of Olive tree wooden elements architects and structural engineers should use alternative construction materials, illumination and providing ventilation to women's space needs research based design.
- The settlement pattern, the individual plot size of a house and compound can provide strong lessons for the current house development by urban planners, architects and policy makers.

5.4.4 Further research Areas

- The Shonke Amba flat roof house, which is constructed out of mud mortar and then compacted with a mix of dry soil and gravel does not need maintenance for more than 30years. This water proof roofing system needs further research.
- To replace the shortage of Olive tree wood which is traditionally believed as a massive load resistance wood and to shorten the 10 years 'harvesting' time of the olive tree needs further study based on local traditional methods.
- The smoke bath which is popular in the Argoba settlement and introduced to other parts of the country, and which women and men of Shonke Amba resident strongly believe enhances skin purity, softens and sexual relations needs further research.

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APPENDIXES

AP.A1: Letters and Documents

i) Letter from Director for Graduate Program

To:
Mehari Enyew



EiABC

Ethiopian Institute of Architecture,
Building Construction and City Development
ግብይት ግንባታና ከተማ ልማት ስራ ማኅተም
Addis Ababa University
አዲስ አበባ ዩኒቨርሲቲ

Subject:
Extension of one Semester for your research paper work

Addis Ababa, May 12 2016
Ref Nr: EIABC/GPD/184/2016

Student Mehari Enyew you have asked our office the extension of your research paper work for one semester on the title Ethno Architecture and Settlement in Ethiopia: The case of Argobba Shonka Amba with the letter dated 03/09/08 E.C.

The postgraduate program office has considered the problem you have faced (encountered) while you were working on your research paper work as postgraduate student in the program Housing and Sustainable Development program from your application letter and attached document.

So, the postgraduate director office has accepted your question and allowed you for one semester for your research paper work. Therefore, you are expected to complete your work with in this permitted semester.

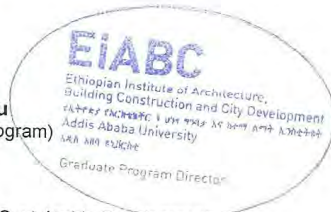
Thank you,

Ethiopian Institute of
Architecture,
Building Construction and
City Development
P.O.Box 518
Addis Ababa, Ethiopia
www.eiabc.edu.et

Fisseha Wegayehu
Graduate Program Director, Chair
Holder of Urban & Regional Planning
M.Sc. Architecture, M.Sc. Urban Design
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Rice University, Houston -Texas

Office: +251 (0) 112 73 24 78
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fisseha.wegayehu@eiabc.edu.et


Dr. Fisseha Wegayehu
(Director for Graduate Program)



CC:
➤ Chair Housing and Sustainable Development

ii) Letter from Dawachefa Woreda Administration



ቁጥር 2/1090/08
ቀን 7/08/08

ሰጅርታ ቀበሌ አስተዳደር ቍ/ቤት

ጅርታ

ጉዳዩ፡- ትብብር መጠየቅን ደመሰክታል።

ከሳዶ በርሳሱ ስሙን ስንደተሞከረው ሱቸ መሃሪ ስንደው በአዲስ አበባ ዩንቨርሲቲ ስድህረ ምረቃ ጥናታቸውን በሾንኬ ጥንተዋ መንደር ሳዶ ሰፊ ያሰ ጥናት ሰማካሂዶ በየታው ስለሚመጡ አስፈላጊውን መረጃ በመስጠት ስና ሰመረጃ የሚፈለጉ ሰዎችን በማስተባበር አስፈላጊውን ትብብር ስንደታደርጉላቸው በትህትና ስንጠይቃለን፡፡



ግሰባዊ//

- ሰሾንኬ መስጅድ ኮሚቴ
 - ሰሀጂ አስማኤስ
 - ኑረ ሁሴን መሀመድ
- ጅርታ

iii) Letter from Housing Chair

ለ: ሚመለከተው ሁሉ



EiABC

Ethiopian Institute of Architecture,
Building Construction and City Development
የኢትዮጵያ ለክተታና ለሥነ-ምህንድስና ስራ
Addis Ababa University
አዲስ አበባ ዩኒቨርሲቲ

ጉዳዩ: ለትምህርታዊ ጥናት እና ምርምር ለሚያደረግ የማስተርስ ተማሪ የመረጃ ትብብር ስለማድረግ

አዲስ አበባ, ታሕሳስ 21, 2008 ዓ.ም.
Ref Nr: EiABC/HC/059/2015

አቶ መኃሪ እንደው በአዲስ አበባ ዩኒቨርሲቲ፤ የኢትዮጵያ አርክቴክቸር ህንጻ ግንባታ እና ከተማ ልማት ኢንስቲትዩት (EiABC)፤ አንድ የትምህርት ክፍል በሆነው የ "HOUSING CHAIR" የድህረ ምረቃ ትምህርታቸውን በመከታተል ላይ ይገኛሉ። ለድህረ ምረቃ ትምህርታቸው የመመረቂያ ጽሁፍ በአሮሚያ ልዩ ዞን አስተዳደር፤ ዳዋ ጨፋ ወረዳ የሾንኬ ቀበሌ የሚገኘውን የአርገባ ብሔረሰብ አስፋፈር፤ የቤት አሰራር፤ እና አኗኗር ላይ ጥናት ለያካሄዱ ስለሆነ ይህንኑ ጥናት የሚያግዙ መረጃዎች በመስጠት እና ሌላም አስፈላጊ ትብብር ታደርጉላቸው ዘንድ በአክብሮት እንጠይቃለን።

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Development
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ከምስጋና ጋር

Imam Mahmoud Hassen
Chair Holder: Chair of Housing
Bsc, AAU,
M.Arch. KU Leuven

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imam.mahmoud@eiabc.edu.et

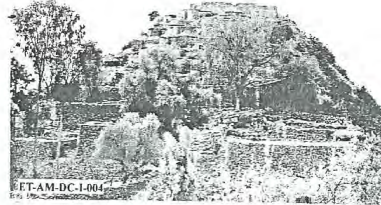
አማም ማሕሙድ ሐሰን
የትምህርት ክፍሉ ሃላፊ



Appendixes-

iii) Heritage registration certificate for Shonke Amba

የማይንቀሳቀሱ ቅርሶች መመዝገቢያ ቅጽ 02



1. የቅርሱ መለያ

1.1 ስም በአማርኛ ፍገራ ንርጎግ መንደር

በአካባቢ ቋንቋ(መጠሪያ)-----

1.2 ምድብ

I	II	III ₂	VI
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1.3 አድራሻ

ቅርሱ የሚገኝበት ቦታ ስም ገንጫ ክልል ገጠና

ጎረቤት/አድራሻ ስም ደቡብ ጎረቤት

የቤት ቁጥር-----

1.4 አገልግሎት

ሀ. የቀድሞ የግንባታ ግብ

ለ. የአሁን የግንባታ ግብ

1.5 የቀድሞ መለያ ቁጥር/ካል-----

1.6 መለያ ቁጥር ET-AM-DC-I-004

2. ባለቤት

2.1 የቅርሱ ባለቤት/ተቋም/ ስም

የሕዝብ የመንግሥት የሃይማኖት የግል

ሌላ ካል ተለይቶ ይጠቀስ-----

2.2 የቅርሱ ባለቤት /ተቋም/ ስም የጎረቤት ግንባታ

3.7 የቅርሱ መግለጫ፡- የገንጠል መሳሪያ መሳሪያ የጠላት መሳሪያ
 ለቅርሱ የተጠቀሱት ስጦታዎች ለቅርሱ የተጠቀሱት ስጦታዎች
 መሳሪያ ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች
 ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች
 ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች
 ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች

3.8. ቅርሱን ተጽዕኖ የሚያደርገው

አድማ የአሰራር ጥበብ የተሰራበት ቁጠ ሌላ

ተለይ ተለይ የሚለው ስጦታ ስጦታ ስጦታ ስጦታ
 ለተለይ ተለይ የሚለው ስጦታ ስጦታ ስጦታ ስጦታ
 ስጦታ ስጦታ ስጦታ ስጦታ ስጦታ ስጦታ ስጦታ ስጦታ ስጦታ ስጦታ
 ስጦታ ስጦታ ስጦታ ስጦታ ስጦታ ስጦታ ስጦታ ስጦታ ስጦታ ስጦታ

3.9. የቅርሱ ጠቀሜታ ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች

ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች ለቅርሱ ስጦታዎች

3.10. ቅርሱ አሁን የሚገኝበት ሁኔታ

ጥሩ ደህና የተገዳ ያልተሟላ

ቅርሱ የተገዳ /ያልተሟላ ከሆነ በዝርዝር ይገለጹ

3.11. ለቅርሱ ደህንነት አስጊ ሁኔታ

አለ	የለም
<input type="checkbox"/>	<input checked="" type="checkbox"/>

ካለ ተለይቶ ይጠቀስ-----

3.12 የተደረገሉት የእንክብካቤ /የጥገና/ ሥራ

አለ	የለም
<input type="checkbox"/>	<input checked="" type="checkbox"/>

የጥገና ስራ ካለ:-

የጥገናው ምክንያት -----
 ያከናወነው አካል -----
 የተከናወነበት ቀን/ዓ.ም. -----
 ጥገና የተደረገሉት ጊዜ ብዛት-----

3.12.1 የተደረገሉት የእንክብካቤ /ቅድመ ጉዳት እንክብካቤ / ሥራ

በጣም ጥሩ	ጥሩ	መካከለኛ	ዝቅተኛ	በጣም ዝቅተኛ
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ተለይቶ ይጠራ ቅድመ ጉዳት -----
የተለየ ነው ንብረት -----

3.13. ቅርሱ አሁን በባለቤትነት በሚያስተዳድረው አካል መተዳደር

የጀመረበት ጊዜ/ቀን ከክፍተት ጊዜ ጀምሮ

3.14. የቅርሱ ተደራሽነት

በጣም ጥሩ	ጥሩ	መካከለኛ	ዝቅተኛ	በጣም ዝቅተኛ	የለውም
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

ተለይቶ በብራራ የመገንጠያ ስራዎች

3.15. ተጨማሪ ማስታወሻ አገልግሎት ለሌሎች የሰጠው የገንዘብ ደንብ
ገንዘብ ለሌሎች ለሰጠው የገንዘብ ደንብ
ለገንዘብ የሰጠው ደንብ

4. ተዛማጅ መረጃዎች

መጽሐፍ	ፎቶግራፍ/ስላይድ/ ካርታ	መዝገብ	ፕላን
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ሌላ ካለ ተለይቶ ይጠቀስ

4.2 የአፈ ታሪክ መረጃ

አለፈ	የለውም
<input type="checkbox"/>	<input checked="" type="checkbox"/>

ካለ ተለይቶ ይጠቀስ

5. የቅርሱ ጠባቂ

- 5.1. ስም ሀይለማርያም ማርያም
- 5.2. የሥራ ኃላፊነት የግንባታ ተግባር (ተገቢ)
- 5.3. ፊርማ ገብረ

6. መረጃ ሰጭ

- 6.1. ስም ደ.ሀ.ሀ.ሀ. ተክላዳሪ
- 6.2. ጾታ ወ
- 6.3. አድራሻ 56
- 6.4. የሥራ ኃላፊነት የግብርና ቤት ተወካይ
- 6.5. ሌላ ካለ.....

7. የመዝጋቢው መረጃ

- 7.1. ስም ተክላዳሪ ኃይለማርያም
- 7.2. የሚሠሩበት ተቋም ስም የቅርንጫፍ ፍትህ ፎንድ ግልልጣን
- 7.3. የስራ ደረጃ ሀ
- 7.4. የሥራ ኃላፊነት የቅርንጫፍ ፍትህ ፎንድ ግልልጣን
ፊርማ ታ
- 7.5. ቅርስ የተመዘገበበት ቀን 3/8/2025 ዓ.ም.

8. በመዝጋቢው መሥሪያ ቤት የሚሞላ

- 8.1. የኃላፊው አስተያየት የግብርና ግልልጣን
በጥሩ ሁኔታ ላይ ሲሆን ለግብርና ግልልጣን
በቀጠለው ጊዜ ላይ ለግብርና ግልልጣን
ላይ ሲሆን ለግብርና ግልልጣን

ስም.....
ፊርማ.....

ማሳሰቢያ:-

ይህ ቅጽ በኮፒ ተሞልቶ

- * ለቅርንጫፍ ፍትህ ፎንድ ግልልጣን
- * ለክልሉ ባህሪና ተራሽም ቢሮ
- * ለአስመዘጋቢው አካል ይሰጣል።

ከፍተኛ ስሜት
የቅርንጫፍ ፍትህ ፎንድ ግልልጣን
ደጋግ ማውጣት ያደልኩልኝ



iv) Family tree of Argobba of Shonke Amba Script in Arabic

وكان اول من حجرت في ارضهم بنو
موسى بن صالح بن محمد بن علي بن
بن محمد بن فقيه السهام بن فقيه طنج بن فقيه
بن محمد بن سليمان بن فقيه الشيخ الوهاب
الشيخ شونك بن الشيخ محمد بن عبد السلام
بن عبد الكامل بن الشيخ محمد بن الشيخ
حسن بن الشيخ علي بن الشيخ سليمان بن الشيخ
محمد بن الويك بن الشيخ محمد بن الشيخ
عفيف بن الشيخ حذاف بن الشيخ احمد بن
عبد القادر بن الشيخ فرج بن الشيخ عبد
الواحد بن الشيخ عبد الكار بن الشيخ الويك
النيلي بن الشيخ عبد القاسم بن الشيخ
السقفي بن الشيخ معروف الكرخي بن
الشيخ داود الطاووس بن الشيخ حسين الكبيسي
بن الشيخ حسن السري بن الشيخ حسين
بن الشيخ جعفر بن علي بن ابي طالب
كرم الله وجهه ورضي الله عنه ورضي
الله عنه وكذا بالنسبة لابا الوصفه كما
وجدت في قديم رصوان الله ورحمته
عليهم اجمعين

Source: Sheikh Endris Ferda

iv) **English Translation of Family tree of Argobba of Shonke Amba**

I who speak this is called Al Sheikh Mohamed nicked as Sheikhu the Son of Musa. The Son of Saleh, The Son of Saied, The Son of Ali, The Son of Mohamed , The Son of Feqih Al Sheikh Abuba, The Son of Al Sheikh Othman, The Son of Al Sheikh Mohamed, The Son of Abdulsalam, The Son of Abdulkamel, The Son of Al Sheikh Mohamed, The Son of Al Sheikh Hassan, The Son of Al Sheikh Ali, The Son of Al Sheikh Sulimen, The Son of Al Sheikh Mohamed, The Son of Al Sheikh Abu-baker, The Son of Al Sheikh Omer, The Son of Al Sheikh Afif, The Son of Al Sheikh Hadad, The Son of Al Sheikh Ahmed, The Son of Abdullqadir, The Son of Al Sheikh Faraj, The Son of Al Sheikh Abdullwahid, The Son of Al Sheikh Abdul-Aziz, The Son of Abu Baker Al Shebele, The Son of Al Sheikh Abdullqasim, The Son of Al Sheikh Al Seefatti, The Son of Al Sheikh Maroof, The Son of Al Sheikh Al Karakhi, The Son of Al Sheikh Dawood Al Alawi, The Son of Al Sheikh Hussein Al Kahini, The Son of Al Sheikh Hassan Al Basri, The Son of Al Sheikh Hussein, The Son of Al Sheikh Jaffar, The Son of Ali The Son of Abi Talib. “whom Allah honorably Awarded him Holiness All Respects”.

Let Allah Award all of them the most Holy Status – Amin.




ሚያ አዲስ
Meaza Adila
ዋና ሥራ አስኪያጅ
General Manager

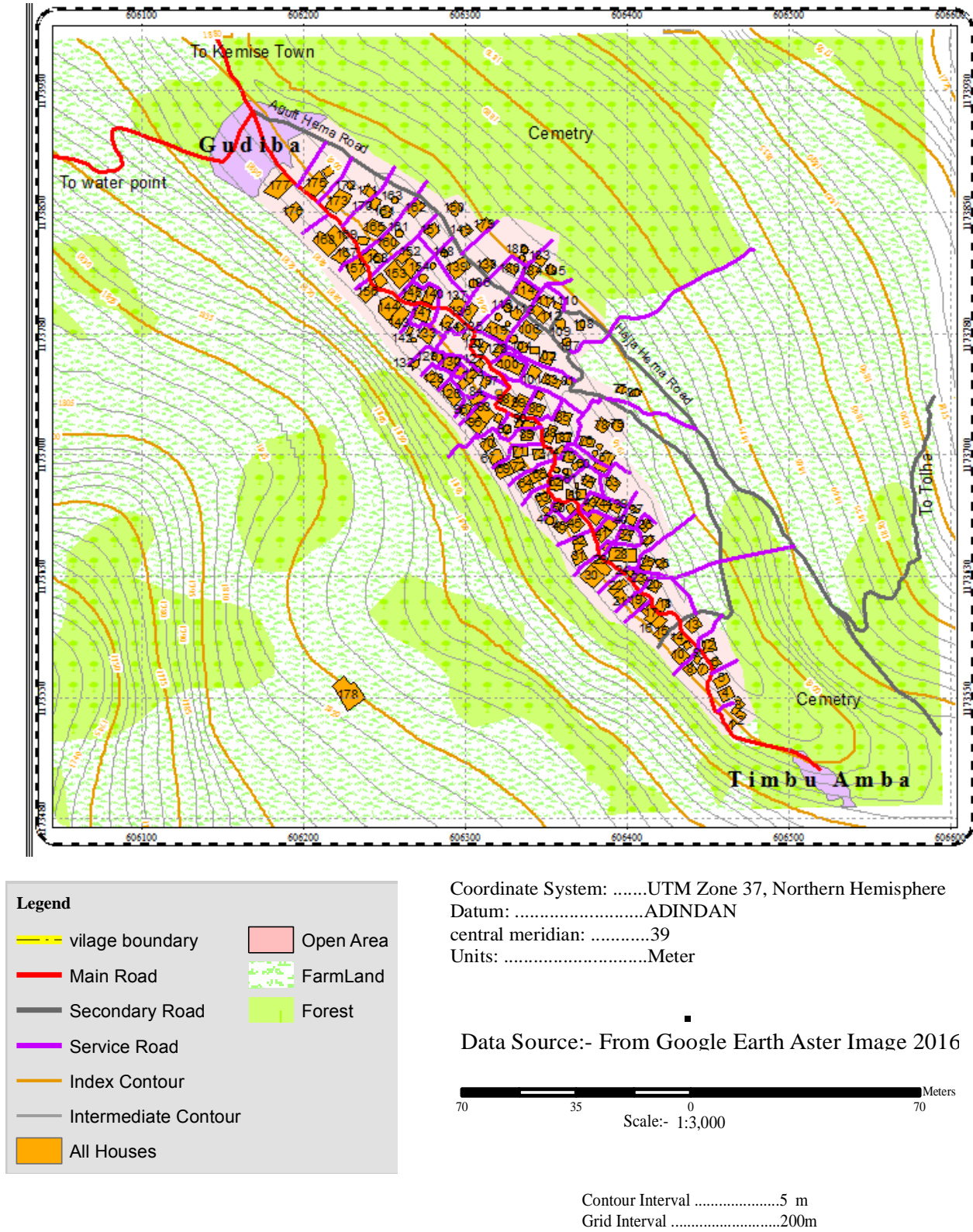


Fig. A1: Map Shonke Amba dwellings with its ID numbers.

Table. A1 : List of owners of dwellings with its ID number with its GPS points at Shonke Amba

No	X	Y	Block_Name	Type	Name	ID1	Altitude	Remark	Type1	Type2
1	606465	1173533	Block No 1	Mosque	Haja Mosque	1	1910			Hulet selef
2	606470	1173539	Block No 2	Dwelling	Mohammed Hassen	2	1912			Hulet selef
3	606469	1173545		Dwelling	Beshir Ebrahim	3	1911			Soset Self
4	606461	1173552	Block No 2	Dwelling	Bedru Tahir	4	1914			Soset Self
5	606459	1173560	Block No 3	Dwelling	Zehara Mohamed	5	1913		Sample Homes	Hulet selef
6	606454	1173572	Block No 5	Dwelling	Mohamed Ebrahim	6	1913	Demolished Dwelling		Hulet selef
7	606447	1173567	Block No 4	Dwelling	Ahimed Mohamed Abamusa	7	1912		Sample Homes	Hulet selef
8	606439	1173567	Block No 4	Dwelling	Beshir Hajji	8	1915			Soset Self
9	606443	1173574	Block No 143	Dwelling	Beshir Nuru	9	1915	Demolished Dwelling		Arat selef
10	606433	1173576	Block No 6	Dwelling	Mohamed Yassin	10	1912			Soset Self
11	606437	1173582	Block No 142	Dwelling	Mohamed Beshir	11	1917	Demolished Dwelling		Soset Self
12	606451	1173582	Block No 7	Dwelling	Nuru Mohamed Defar	12	1917		Sample Homes	Soset Self
13	606441	1173595	Block No 9	Dwelling	Mohamed Esmael	13	1915	Demolished Dwelling		Soset Self
14	606433	1173586	Block No 8	Dwelling	Mohamed Beshir Ahmed	14	1917		Sample Homes	Soset Self
15	606421	1173590	Block No 11	Dwelling	Mohamed Abiye	15	1922			Soset Self
16	606420	1173597	Block No 11	Dwelling	Ahimed Amoye	16	1924			Soset Self
17	606414	1173602	Block No 11	Dwelling	Hassen Ahimed	17	1924		Sample Homes	Soset Self
18	606422	1173607	Block No 10	Dwelling	Shemshu Ahimed Siraj	18	1925		Sample Homes	Hulet selef
19	606407	1173610	Block No 11	Dwelling	Ebrahim Endris	19	1925			Soset Self
20	606417	1173619	Block No 13	Dwelling	Mohamed Nuru Ismael	20	1924			Soset Self
21	606396	1173613	Block No 12	Dwelling	Abdurahiman Hbib	21	1913			Soset Self
22	606394	1173618	Block No 12	Dwelling	Mohamed Siraj Kemal	22	1925		Sample Homes	Soset Self
23	606408	1173624	Block No 14	Dwelling	Beshir Mohamed	23	1926			Soset Self

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24	606402	1173627	Block No 15	Dwelling	Kelewa	24	1920	Part of Mosque		Hulet selef
25	606413	1173633	Block No 17	Dwelling	Abdurahiman Abiye	25	1925			Soset Self
26	606421	1173633	Block No 17	Dwelling	Alima Ahimed	26	1918			Soset Self
27	606414	1173647	Block No 22	Dwelling	Mohammed Ali	27	1919			Soset Self
28	606397	1173638	Block No 18	Dwelling	Huluba Mosque	28	1925			Amest Self
29	606384	1173631	Block No 16	Dwelling	Mohamed Seid	29	1926			Soset Self
30	606378	1173625	Block No 16	Dwelling	Beshir Atta	30	1925			Soset Self
31	606370	1173637	Block No 20	Dwelling	Ahimed Mohamed Kemalu	31	1924			Arat selef
32	606371	1173645	Block No 20	Dwelling	Endris Nuru	32	1924			Soset Self
No	X	Y	Block_Name	Type	Name	ID1	Altitude	Remark	Type1	Type2
33	606387	1173643	Block No 19	Dwelling	Ahimed Nuru	33	1919			Soset Self
34	606399	1173650	Block No 21	Dwelling	Halima Beshir	34	1921			Soset Self
35	606412	1173656	Block No 25	Dwelling	Mohamed Kadi	36	1921			Soset Self
36	606403	1173660	Block No 27	Dwelling	Nuru Ahimed	37	1920			Soset Self
37	606404	1173666	Block No 30	Dwelling	Ahimed Kamil	38	1907			Soset Self
38	606393	1173667	Block No 141	Dwelling	Mohamed Yasin	39	1914			Soset Self
39	606390	1173657	Block No 24	Dwelling	Mohamed Sheku	40	1918		Sample Homes	Soset Self
40	606385	1173651	Block No 23	Dwelling	Mohamed Yesuf	41	1919			Soset Self
41	606380	1173661	Block No 144	Dwelling	Ibrahim Bushira	42	1919			Soset Self
42	606378	1173670	Block No 33	Dwelling	Wodaja Amba	43	1919	Wodaja mewcha	Sample Homes	Hulet selef
43	606385	1173669		Dwelling	Ahimed Muktar	44	1909			Soset Self
44	606368	1173657	Block No 26	Dwelling	Mohamed Esmael	45	1924			Soset Self
45	606359	1173655	Block No 26	Dwelling	Abdurahiman Abiye	46	1919			Soset Self
46	606352	1173659	Block No 28	Dwelling	Indris Mohammed	47	1918			Sar Bet
47	606350	1173666	Block No 29	Dwelling	Ahmed Abiye	48	1917	Demolished Dwelling		Soset Self
48	606357	1173668	Block No 31	Dwelling	Mohamed Esimael Ahmed	49	1917			Soset Self
49	606365	1173667	Block No 32	Dwelling	Mohamed	50	1922			Arat

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					Nuru					selef
50	606365	1173676	Block No 145	Dwelling	Bushura Ebrahim	51	1905			Soset Self
51	606371	1173676	Block No 146	Dwelling	Mohamed Ahimed Yasin	52	1897			Soset Self
52	606391	1173682	Block No 35	Dwelling	Mohamed Beshir	53	1913			Soset Self
53	606376	1173684	Block No 36	Dwelling	Esmaeal Bushra	54	1890			Soset Self
54	606369	1173681	Block No 159	Dwelling	Endris Bushura	55	1892		Sample Homes	Arat selef
55	606383	1173692	Block No 158	Dwelling	Ahimed Aba Bushura	56	1904			Soset Self
56	606387	1173698	Block No 42	Dwelling	Mohamed Seid Aba.	57	1902			Arat selef
57	606383	1173705	Block No 156	Dwelling	Ahmed Mohammed	58	1903			Hulet selef
58	606380	1173701	Block No 157	Dwelling	Seid Abe	59	1897	Demolished Dwelling		Soset Self
59	606370	1173694	Block No 160	Dwelling	Mohamed Jalew	60	1903	Demolished Dwelling		Soset Self
60	606362	1173690		Dwelling	Mohammed Muktar	61	1901			Sar Bet
61	606356	1173682	Block No 38	Dwelling	Mohamed Aboseid	62	1910			Soset Self
62	606348	1173673	Block No 34	Dwelling	Hamed Mohamed Kemalu	63	1917		Sample Homes	Arat selef
63	606337	1173682	Block No 40	Dwelling	Mohamed Nursiraj	64	1915			Soset Self
64	606345	1173687	Block No 40	Dwelling	Kamil Mohamed	65	1914			Soset Self
No	X	Y	Block_Name	Type	Name	ID1	Altitude	Remark	Type1	Type2
65	606356	1173691	Block No 39	Dwelling	Ibrahim Mohammed	66	1896			Sar Bet
66	606318	1173699	Block No 45	Dwelling	Ahimed Mohamed	67	1914			Soset Self
67	606324	1173690	Block No 44	Dwelling	Mohamud Beshir Yassin	69	1912		Sample Homes	Arat selef
68	606314	1173707	Block No 45	Dwelling	Idris Yasin Weliyu	70	1907		Sample Homes	Soset Self
69	606334	1173702	Block No 44	Dwelling	Mohamed Jalo	71	1913			Soset Self
70	606332	1173694	Block No 44	Dwelling	Mohamed Ibru Almedi	72	1912			Soset Self

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71	606345	1173700	Block No 43	Dwelling	Sheikh Nuru	73	1913			Soset Self
72	606359	1173703	Block No 139	Dwelling	Endris Bushura	74	1899			Soset Self
73	606364	1173699	Block No 41	Dwelling	Mohamed Harun	75	1897			Soset Self
74	606375	1173708	Block No 155	Dwelling	Beshir Abe	76	1895			Soset Self
75	606397	1173740	Block No 153	Dwelling	Ahimed Mohamed	77	1880			Soset Self
76	606385	1173718	Block No 49	Dwelling	Mohamed Seid	78	1889			Hulet selef
77	606394	1173718	Block No 140	Dwelling	Nurhussen Ahmed	79	1886			Sar Bet
78	606405	1173738	Block No 153	Dwelling	Mohamed Yasin Hajji	80	1880			Sar Bet
79	606364	1173745	Block No 175	Dwelling	Ahimed Seid	81	1880			Soset Self
80	606346	1173737	Block No 176	Dwelling	Mohamed Yasin Ababahir	82	1884		Sample Homes	Hulet selef
81	606353	1173746	Block No 56	Dwelling	Mohamed Harun Bushura	83	1885			Soset Self
82	606307	1173735	Block No 124	Dwelling	Mohamed Ebrahim	84	1885			Soset Self
83	606361	1173723	Block No 50	Dwelling	Ebrahim Yasin	85	1882			Soset Self
84	606344	1173728	Block No 53	Dwelling	Beshir Mussa	86	1901			Soset Self
85	606361	1173711	Block No 46	Dwelling	Mohamed Mehamed Seid	87	1898		Sample Homes	Soset Self
86	606353	1173713	Block No 154	Dwelling	Endris Mohamed	88	1998			Soset Self
87	606338	1173712	Block No 47	Dwelling	Beshir Yasin	89	1913			Soset Self
88	606339	1173719	Block No 161	Dwelling	Ahmed Abo	90	1913			Soset Self
89	606333	1173720	Block No 48	Dwelling	Ahmed Abo	91	1913	Compound		Soset Self
90	606326	1173716	Block No 162	Dwelling	Mohammed Ali Abre	92	1911			Sar Bet
91	606312	1173725	Block No 51	Dwelling	Mohamed Ahimed	93	1909			Soset Self
92	606320	1173723	Block No 129	Dwelling	Indris Beshir	94	1911	Demolished Dwelling		Hulet selef
93	606307	1173719	Block No 51	Dwelling	Mohamed Kemal	95	1907			Soset Self
94	606300	1173728	Block No 52	Dwelling	Ahimed Harun	96	1910	Demolished Dwelling		Soset Self
95	606312	1173745	Block No 127	Dwelling	Ahimed Mohamed Hajji	97	1908	Demolished Dwelling		Soset Self
96	606327	1173733	Block No 54	Dwelling	Mohamed	98	1896			Soset

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					Jalew					Self
No	X	Y	Block_Name	Type	Name	ID1	Altitude	Remark	Type1	Type2
97	606334	1173731		Dwelling	Ahmed Ababushe	99	1911			Soset Self
98	606328	1173756	Block No 59	Dwelling	Teha Ali	100	1895			Soset Self
99	606342	1173751	Block No 57	Dwelling	Mohammed Beshir Abe	101	1898			Soset Self
100	606351	1173760	Block No 61	Dwelling	Beshir Nur Ahimed	102	1883			Soset Self
101	606343	1173765	Block No 152	Dwelling	Ahimed Teyib	103	1885			Soset Self
102	606336	1173767	Block No 64	Dwelling	Ibrahim Mohammed	104	1888			Sar Bet
103	606330	1173772	Block No 138	Dwelling	Mohammed Ahmed Ali	105	1904	Kitchen		Sar Bet
104	606340	1173777	Block No 151	Dwelling	Harun Mehamednur	106	1889	New Constructed Dwelling	Sample Homes	Hulet selef
105	606363	1173770	Block No 65	Dwelling	Nurseid Nuru	107	1880			Sar Bet
106	606371	1173780	Block No 69	Dwelling	Mohamed seid	108	1800			Soset Self
107	606359	1173781	Block No 70		Ahimed Seidnur	109	1883			Soset Self
108	606357	1173792	Block No 74	Dwelling	Fatuma Yasin Ababahir	110	1883			Soset Self
109	606349	1173795	Block No 78	Dwelling	Mohammed Ahmed Yassin	111	1902			Soset Self
110	606348	1173786	Block No 78	Dwelling	Mohamed Ahimed	112	1889			Soset Self
111	606344	1173789	Block No 78	Dwelling	Mohamed Abiye	113	1883	Demolished Dwelling		Soset Self
112	606337	1173801	Block No 82	Dwelling	Mohamed Seid Sultan	114	1890	Demolished Dwelling		Soset Self
113	606326	1173791	Block No 119	Dwelling	Ahmed Hassen Yesuf	115	1990	Kitchen		Sar Bet
114	606331	1173787	Block No 150	Dwelling	Mohamed Seid	116	1889	Demolished Dwelling		Sar Bet
115	606326	1173781	Block No 131	Dwelling	Indris Beshir Yassin	117	1905	Indris Beshir Yassin Kitchen		Sar Bet
116	606320	1173785	Block No 130	Dwelling	Indris Beshir Yassin	118	1905			Sar Bet
117	606320	1173777	Block No 68	Dwelling	Mohammed Ahmed Ali	119	1903			Soset Self
118	606320	1173764	Block No 63	Dwelling	Mussa Ahimed Yassin	120	1897			Soset Self
119	606307	1173769	Block No 125	Dwelling	Ahmed Hassen	121	1898	Kitchen		Sar Bet

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120	606311	1173767	Block No 126	Dwelling	Mohammed Nur Yemam	122	1899			Soset Self
121	606309	1173756	Block No 165	Dwelling	Seid Endris	123	1909			Soset Self
122	606303	1173749	Block No 123	Dwelling	Mohamed Mehamednur	124	1907			Soset Self
123	606298	1173744	Block No 123	Dwelling	Ahmmed Yesuf	125	1906			Soset Self
124	606292	1173737	Block No 55	Dwelling	Sani Mohamed	126	1908			Soset Self
125	606297	1173752	Block No 122	Dwelling	Mohammed Musa	127	1905	Demolished Dwelling		Hulet selef
126	606281	1173747	Block No 58	Dwelling	Mohamed Mohamednur	128	1906		Sample Homes	Arat selef
No	X	Y	Block_Name	Type	Name	ID1	Altitude	Remark	Type1	Type2
127	606283	1173760	Block No 120	Dwelling	Aweya Kehadi	129	1906			Sar Bet
128	606291	1173757	Block No 121	Dwelling	Hamid Mohammed	130	1905			Soset Self
129	606300	1173773	Block No 119	Dwelling	Seid Imam	131	1903			Soset Self
130	606269	1173756	Block No 60	Dwelling	Beshir Ismael Bushura	132	1909	Demolished & reconstructed		Soset Self
131	606276	1173774	Block No 66	Dwelling	Ahimed esmael	133	1898			Soset Self
132	606288	1173782	Block No 71	Dwelling	Mohammed Nur Ismael	134	1905	Yebeg bet		Soset Self
133	606296	1173778	Block No 67	Dwelling	Yasin Shekihyasin	135	1900			Soset Self
134	606303	1173788	Block No 72	Dwelling	Mohamednur Ismael	136	1897			Arat selef
135	606295	1173793	Block No 76	Dwelling	Musa Ahmed Yassin	137	1896	Demolished Dwelling	Sample Homes	Soset Self
136	606313	1173818	Block No 88	Dwelling	Sophia Aliye	138	1890		Sample Homes	Hulet selef
137	606296	1173816	Block No 96	Dwelling	Ahimed Mohamed	139	1893			Soset Self
138	606278	1173799	Block No 79	Dwelling	Ahimed Hassen Yesuf	140	1898		Sample Homes	Soset Self
139	606273	1173787	Block No 73	Dwelling	Mehamednur Esmael	141	1900			Arat selef
140	606266	1173776	Block No 66	Dwelling	Hajji Mohammed Ismael	142	1905			Soset Self
141	606259	1173785		Dwelling	Ahimed Yasin Hajji	143	1903			Soset Self

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142	606252	1173791	Block No 75	Dwelling	Terfo Mosque	144	1904			Soset Self
143	606267	1173800	Block No 80	Dwelling	Mohamed Ahimed	145	1901			Soset Self
144	606274	1173809	Block No 83	Dwelling	Nurhussen Muktar	146	1902			Sar Bet
145	606280	1173817	Block No 85	Dwelling	Nureibrahim Nur	147	1901			Sar Bet
146	606287	1173825	Block No 91	Dwelling	Mohamed Mohamedu	148	1893			Sar Bet
147	606300	1173839	Block No 101	Dwelling	Mohamed Ahimed	149	1889			Soset Self
148	606293	1173852	Block No 104	Dwelling	Kedija Mohamed	150	1889			Soset Self
149	606279	1173839	Block No 100	Dwelling	Mohamed Ali Mohamed	151	1897			Soset Self
150	606262	1173823	Block No 112	Dwelling	Mohamed Endris	152	1900			Soset Self
151	606258	1173811	Block No 87	Dwelling	Ahimed Siraje	153	1902			Soset Self
152	606266	1173816	Block No 87	Dwelling	Mohamed Ahimed	154	1904			Soset Self
153	606247	1173808	Block No 84	Dwelling	Ahimed Abamela	155	1901			Soset Self
154	606240	1173800	Block No 81	Dwelling	Endris Yasin Nur	156	1902			Soset Self
155	606232	1173815	Block No 86	Dwelling	Mohamed Hasen Yesuf	157	1900	Demolished Dwelling		Arat selef
156	606241	1173823	Block No 92	Dwelling	Ahimed Abamela	158	1900			Soset Self
157	606246	1173821	Block No 92	Dwelling	Mohamed Ebrahim	159	1897	Demolished Dwelling		Sar Bet
No	X	Y	Block_Name	Type	Name	ID1	Altitude	Remark	Type1	Type2
158	606252	1173831	Block No 111	Dwelling	Ahimed Ebrahim	160	1894			Soset Self
159	606259	1173837	Block No 99	Dwelling	Edris Ebrahimmur	161	1891	Demolished Dwelling		Sar Bet
160	606269	1173852	Block No 105	Dwelling	Mohamed Endris Muhe	162	1889		Sample Homes	Soset Self
161	606256	1173858		Dwelling	Kasim Yasin	163	1896			Sar Bet
162	606251	1173850	Block No 115	Dwelling	Seid Endris	164	1900			Sar Bet
163	606244	1173840	Block No 118	Dwelling	Khuran School	165	1989			Hulet selef
164	606237	1173833	Block No 114	Dwelling	Mohamed Sied Sulan	166	1900	Demolished Dwelling		Soset Self
165	606223	1173823	Block No 93	Dwelling	Mohamed Ahimed	167	1897			Soset Self
166	606213	1173831	Block No 102	Dwelling	Ahimed Mohamed Yasin	168	1899		Sample Homes	Korkoro Bet

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167	606220	1173835	Block No 102	Dwelling	Mohamed Yasin Hajji	169	1899			Soset Self
168	606244	1173856	Block No 106	Dwelling	Mohamed Kasim	170	1896		Sample Homes	Hulet selef
169	606240	1173863	Block No 116	Dwelling	Ahimed Shekizmuhe	171	1991			Soset Self
170	606228	1173867	Block No 107	Dwelling	Ahimed Sheikhmuhe	172	1991	Goat house		Hulet selef
171	606221	1173857	Block No 108	Dwelling	Mohamed Abamela	173	1895			Soset Self
172	606215	1173875	Block No 110	Dwelling	Anwar Mohamednur	174	1996			Hulet selef
173	606207	1173867	Block No 108	Dwelling	Sheikhsied Mohamed	175	1902			Soset Self
174	606194	1173850	Block No 103	Dwelling	Nurahimed Nur	176	1998	Demolished Dwelling		Soset Self
175	606185	1173866	Block No 109	Dwelling	Endris Kemal Nur	177	1895		Sample Homes	Arat selef
176	606228	1173553	Block No 166	Dwelling	Mohamed Sied	178	1826			Arat selef
177	606312	1173842	Block No 167	Dwelling	Ahmed Seid	179	1873	179A, 179B and 179C		Soset Self
178	606329	1173815	Block No 166	Dwelling	Beshir Nuru Adem	180	1876			Soset Self
179	606335	1173822	Block No 168	Dwelling	Mohammed Seid Nuru	181	1877			Sar Bet
180	606336	1173827	Block No 169	Dwelling	Nuru Seid	182	1887			Sar Bet
181	606347	1173820	Block No 170	Dwelling	Ahmed Seid Nuru	183	1887			Soset Self
182	606342	1173814	Block No 171	Dwelling	Ahmed Seid Nuru	184	1887			Hulet selef
183	606353	1173815	Block No 172	Dwelling	Mohammed Yassin Hajji	185	1886	185A, 185B		Sar Bet
184	606305	1173806	Block No 173	Dwelling	Besher Esmael	186	1905			Sar Bet
185	606268	1173771	Block No 174	Dwelling	Mohammed Ahmed Beshir	187	1905	Demolished Dwelling		Sar Bet

AP. A2 Wodaja Amba Women's compound.



Fig.A2-1 Wodaja Amba women's meeting place

Wodaja Amba is a space which is used as women's meeting place to pray for someone or for the settlement, when there is any unusual thing such as shortage of rainfall and others and to thank God for any achievement they have made. *Wodaja* is held during day time or at night. It can be also held at an individual's house. *Wedaja Amba* space is also used to heal *Fatumaye*. *Fatumaye* and *wodaja* are spiritual sermons which need space to perform certain ritual or regions activities. For these activities the Argobba Shonke Amba residents allocate space. Of this space, *wodaja ambu* is one of the spaces used only by female residents of the settlements of the Shonke Amba to perform *wedaja* or *Fatumaye*.

Fatumaye

Fatuma is the daughter of prophet Mohamed. Due to this it is believed by the female residents of the Shonke Amba, that even one should prepare food and serve the residence to pray for them to get what they need to happen, for example if someone wants to have a child, a pregnant woman to deliver peacefully or to have a husband. If a woman has a pregnant daughter, when her daughter reaches her 8th month of pregnancy her mother goes to her daughter's home and asks her husband to take back her daughter to her home. Within a week she prepares local drinks called fenugreek (local name *abish*), goat meal and porridge (local name *genfo*). All the women are invited and eat and drink what has been prepared for them. On the ceremony the mother-in-law is invited and she comes with coffee, butter, and bread (local name *dabo*). After they eat and drink what has been served, the participants of the ceremony start to beat a drum and sing a *dilka* (dancing). The entire process of eating, drinking and *dilka* starts around 13:00 and continues during the day and continues the whole night without interruption. Early in the morning the participants are served porridge and they bless the pregnant by saying let "siti Fatuma" will be with her to deliver in peace. During the *dilka* the following lyrics of song is reputedly overheard.

ፋጡማ ነቢ፣

አዩ አሪቢ።

ንንቺ ብትመጩ፣

ሰርባና ናቃቢ።

Fatuma the daughter of prophet

Please come with us

If you are here

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Holed my thigh



Fig. A2-2 Dilka performance with dreamers beat



Fig. A2-3 Women's during performing of dilka



Fig. A2-4

Location

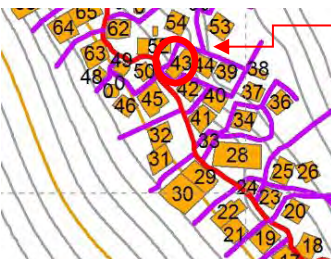


Fig. A2-5 Location of Wodaja Amba

The geographical location of the Wodaja Amba is at a= N 10 37.089 E 039 58.396, b= 10 37.087, E 039 58.398, c= N 10 37.086 E 039 58.395 and d= 10 37.088 E 039 58.396 at altitude of 1919mt above sea level. The total area of the Wodaja Amba meeting place to perform ritual activity is 28.04m².

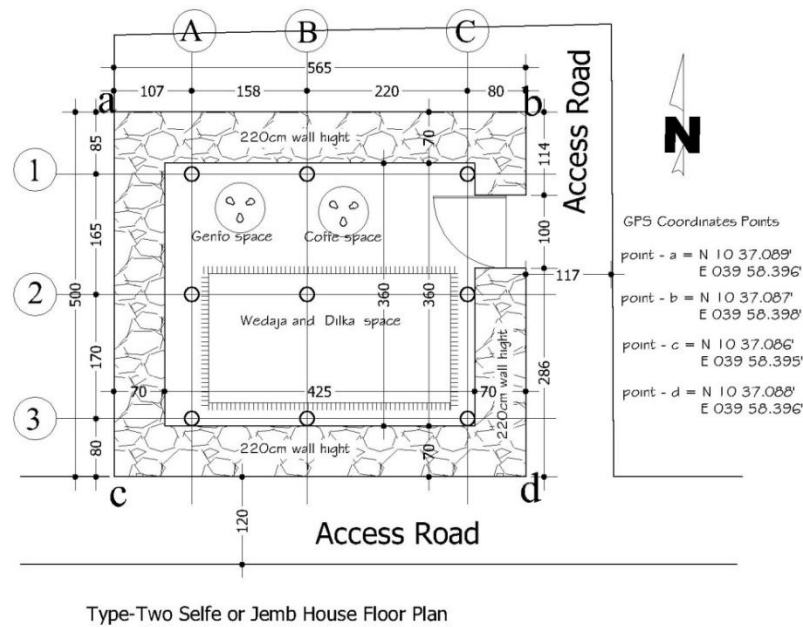


Fig. A2-6 Compound and floor plan of the Wedaja Amba

The Front yard

The *Wodaja Amba* has no front yard the house, it is constructed on the border of the access road on three sides. The front road is used as a transition space to the *Wodaja Amba* space.

The back yard

There is no back yard space for the *Wodaja Amba*.

The House

The house type of the *Wodaja amba* is two row house type. The footprint area of the house is 28.08 m². the house has 9 columns and the 70cm thick masonry wall is constructed up to 1.85 meter height and the rest centimeter cm is left open on three sides for cross ventilation to avoid the suffocation. the *dilka* house clear internal room high is 2.25 meter. The internal space is pool and the spaces are sub divided into cooking space for *genfo* , coffee ceremonies, space for seating and *dilka* performance.

Orientation of the house

The *Wodaja Amba* is the place of praying. Therefore the orientation of the house is East direction as the religion allows facing.

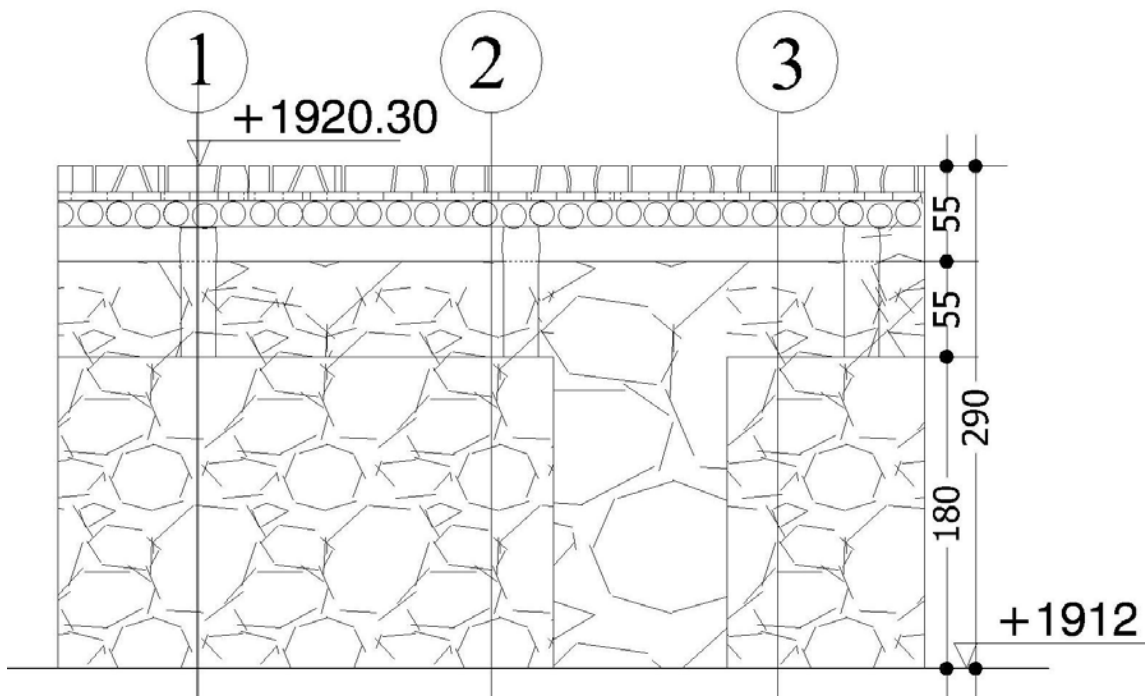
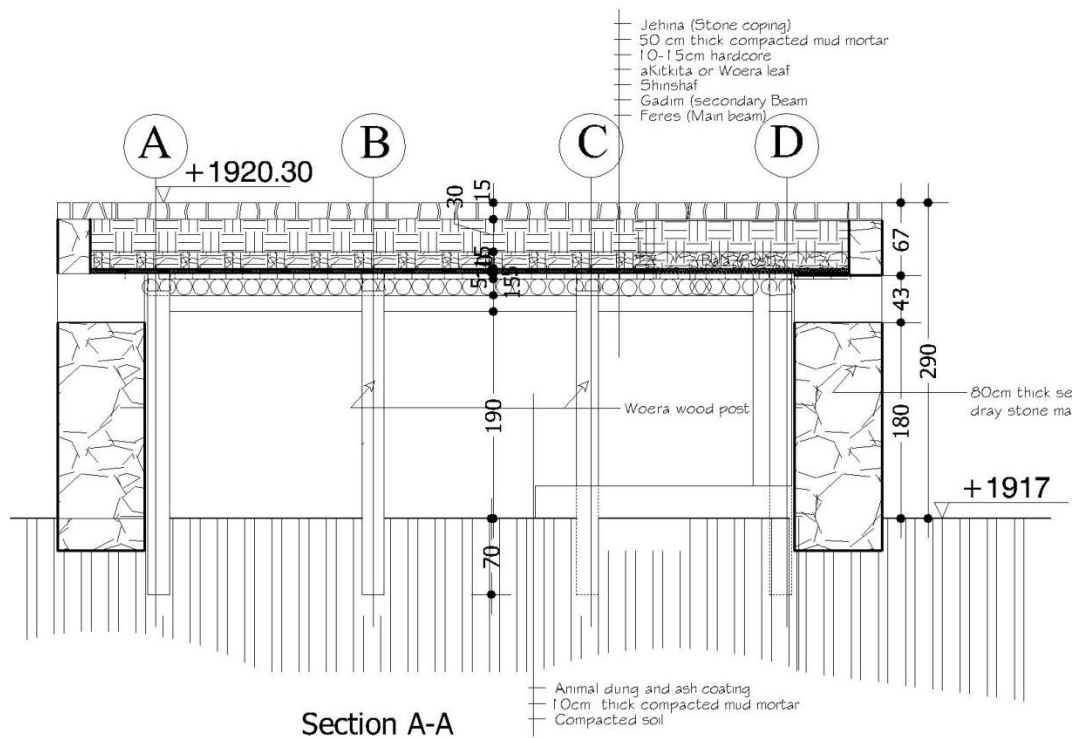


Fig. A2-7 East Elevation



A2-1

Fig. A2-8 Section of Wodaja Amba

Furniture's in the space:



Fig. A2-9 Gathering for *Wodaja*



Fig. A2-10 Waiting for *Genfo* meal



Fig. A2-11 Making *Genfoo*



Fig. A2-12 Cooking space at *Wodaja Amba*



Fig. A2-13 Ventilation at wall of *Wodaja Amba*



Fig. A2-14 Columns main beam at *Wodaja Amba*



Fig. A2-15 Wodaja coffee ceremony at open space in front of Wodaja Amba

AP. A3 Ato Endris Kemal Nur's Compound



Fig.A3:1 Ato Endris Kemal Nur's compound

Ato Endris Kemal Nur's compound is one of the 24 samples selected for the case study. The reason for the selection was that the house type is for row house. It has the biggest compound in the Shonke Amba and the location of the house is towards the cliff side.

When the researcher went to Ato Endris Kemal Nur's compound, the whole family was relocated out of the settlement because Ato Endris Kemal Nur killed a man whom he had a conflict with. In Argoba of the Shonke Amba tradition, if someone kills a person he cannot live in the settlement and with his family unless he makes a peace deal with the victim's family of kill by paying life indemnity. Even if the killer is legally imprisoned and punished by the civil law, he has to pay life indemnity, in order to go back home and live with his family.

When the research was conducted Ato Endris Kemal Nur was imprisoned and his family was out of the settlement; the house was empty and looked after by the guard appointed by the family. Therefore the

study on the house and the compound was conducted since it contributes for the research in terms of space type at the compound and house level of Shonke Amba.

Compound:

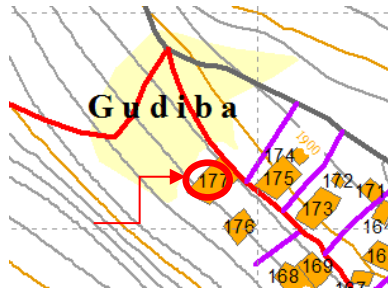


Fig.A3:2 Location of Ato

Endris Kemal Nur's compound

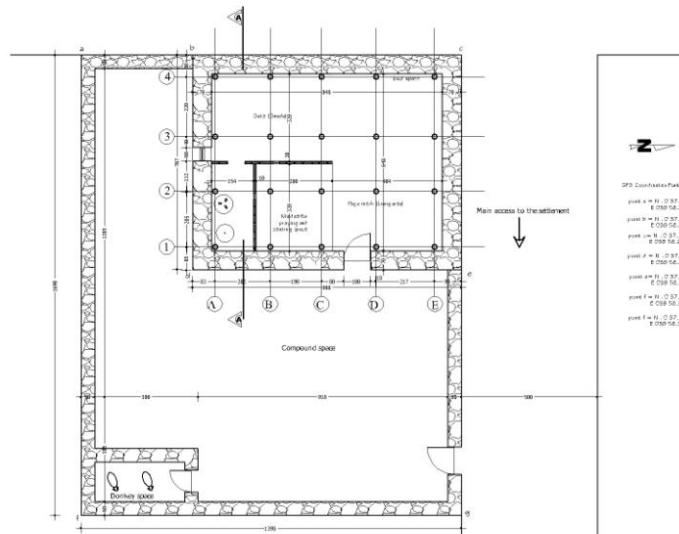


Fig.A3:3 Compound and floor plan of Ato Endris Kemal Nur's house.

The geographical location of Ato Endris Kemal Nur's compound is at a= N10 37.174 E039 58.294, b= N10 37.176 E039 58.295, c= N 10 37.179 E 039 58.297, d= N 10 37.179 E 039 58.295, e= N 10 37.175 E 039 58.303, f= N10 37.168 E 039 58.301 and g= N 10 37.172 E039 58.306 at altitude of 1895 above sea level. The total area of the compound is 236.31 m² which is the largest compound in the settlement.

Ato Endris Kemal Nur's compound is located at the main entrance of the Shonke Amba settlement open space called *Gudba*. The size of the compound and the house which is for row type creates a well coming sense to any new comer to the settlement. The size of the house is proportion to the compound. Moreover the main access road that bound the compound and leads to the settlement is also welcoming in size which 5meter wide as compared to other main and service road which is not exceed 1.20meter.



Fig.A3:4 Ato Endris Kemal Nur's Hous location in relation to the settlement.

The Front Yard

The front yard of the compound is accessed from the northern side of main access road which is 50meter in width. The front yard is 121.3m² which is half of the compound area or more than the standard plot of Shonke Amba, or almost equivalent to the plot size allocated for the resident of Addis Ababa 1992; which is 134m². This shows that it is a big lesson for the urban planners that the Ahonke Amba residents were

adopted the minimum plot area which is 75-122m² currently popular in all over the country was practiced and implemented 834 years back. This makes the Shonke Amba peculiar intermesh of using and understanding the engineering and town planning concepts.



Fig.A3:5 the front yard of the *derb bet*.

The front yard of Ato Endris Kemal Nur's compound is used for transition space and animal domains, it is also used as a ceremonial places for weeding and other social activities as the key informant Hajji Mohamed Esmaeil explained to the researcher.

The back yard

The house of Ato Endris Kemal Nur has no back yard space since the house is constructed on the property line.

The House

Ato Endris Kemal Nur's house is four row type. Moreover It has 20 columns with a diameter of 20centimeter. The total foot print of the house is 78.27m² including 70cm thick dry stone masonry wall. The internal clear room height below the main beam is 1.95 meter and the overall external *derb bet* height is 2.70meter. The internal space of the house is sub divided into the living area and the Women's space. The living area has *medeb* space for praying and sleeping; while the research is conducted some of the internal wooden portion wall is demolished and no house furniture is remained at the house. Even the smoke bath which is fixed and unmovable is demolished. The remaining parts are the spaces which demarcated by demolished wooden portions of living area, Women's and cooking spaces.



Fig.A3:6 combined space of living area and women's space due to the demolished partition

Orientation of the house

The orientation of Ato Endris Kemal Nur's *derb bet* is towards the East direction.

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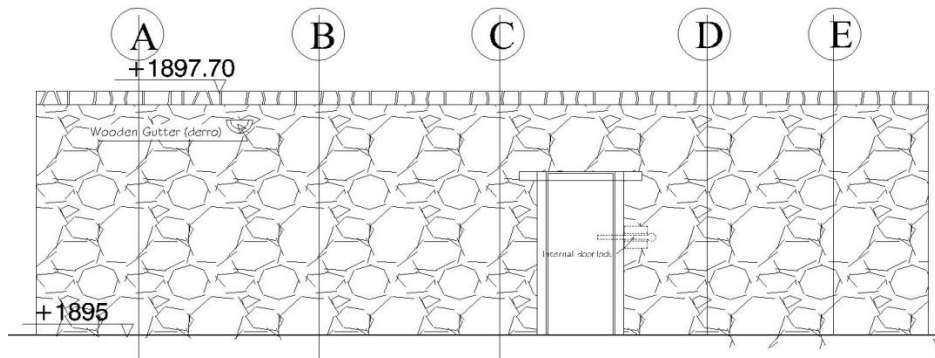


Fig.A3:7 East Elevation

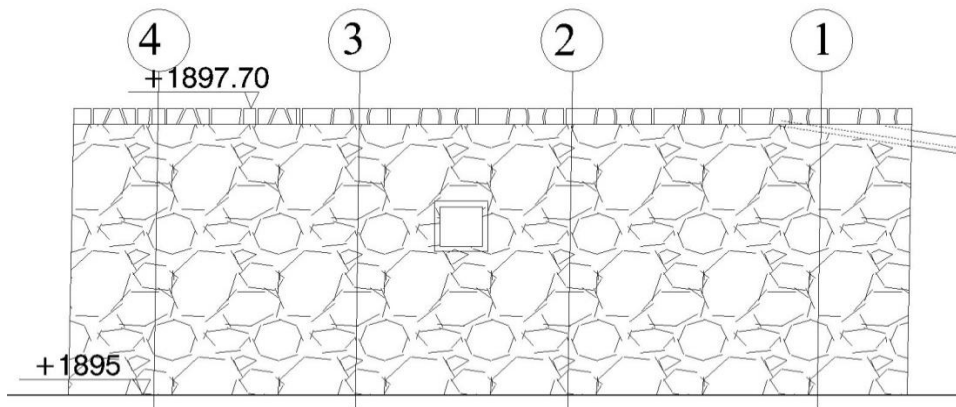


Fig.A3:8 South Elevation

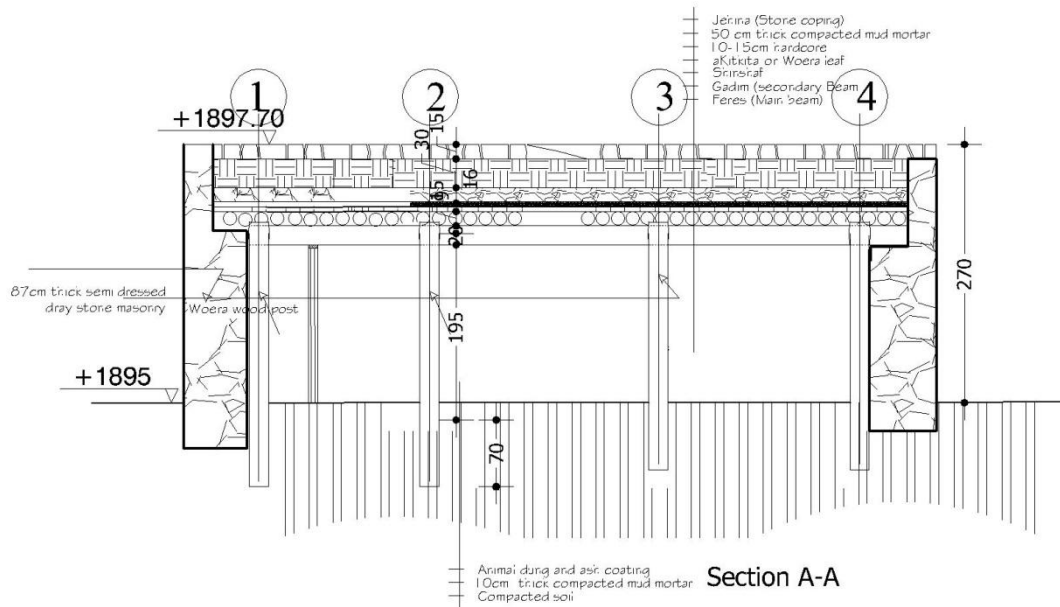
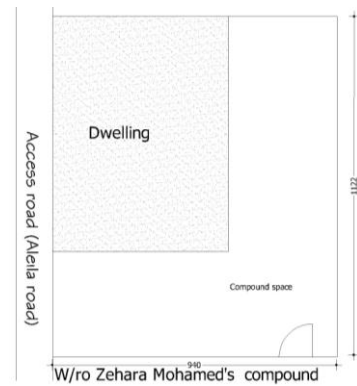
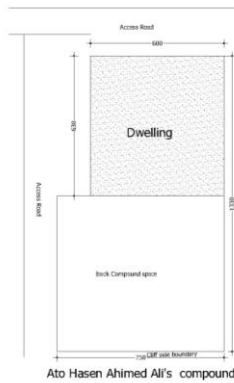
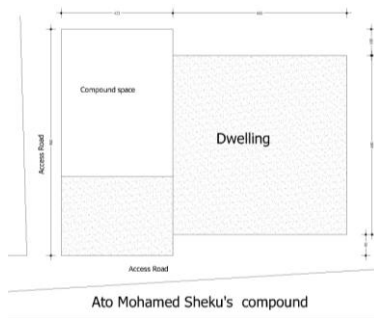
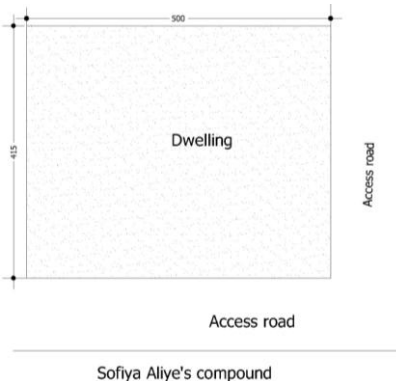
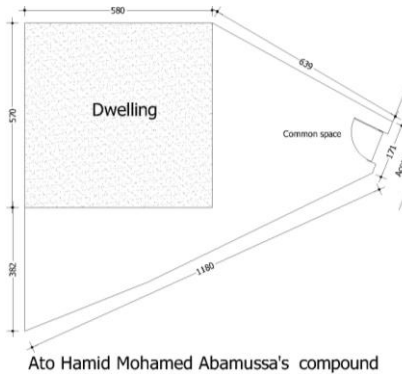
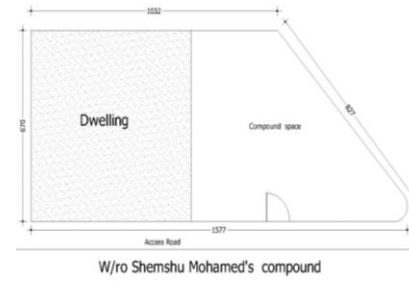
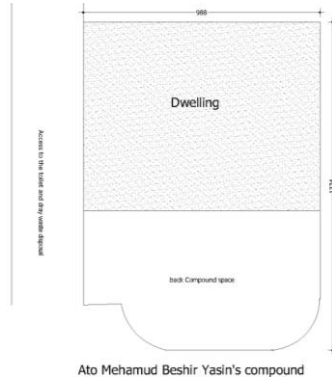
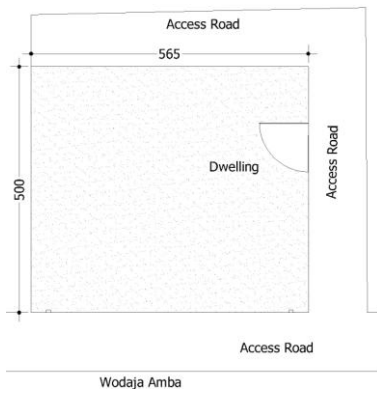


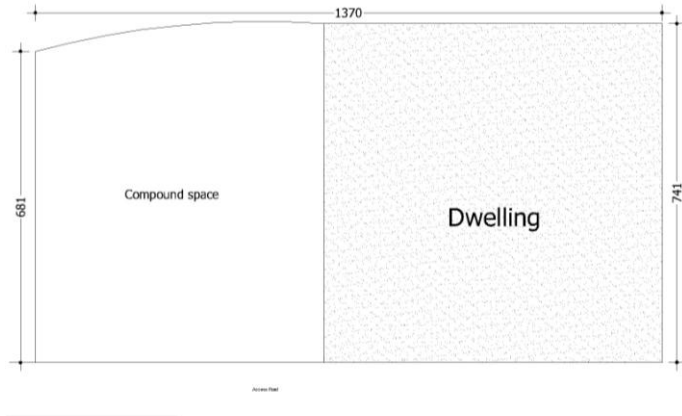
Fig.A3:9 Section of the *derb bet*

AP. A4: Types Shonke Amba Compound



CCCC

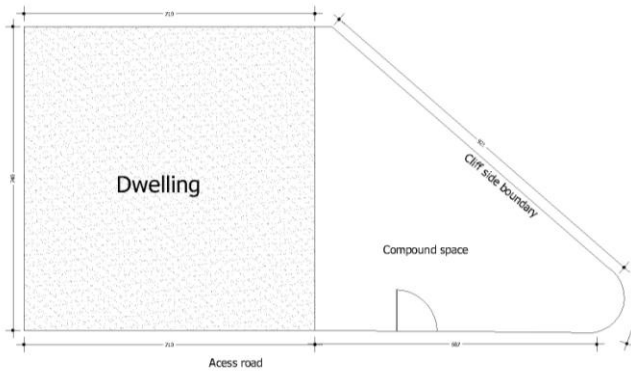
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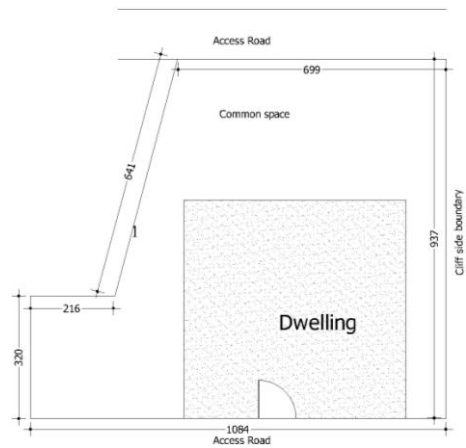
Ato Mohamed Beshru Ahimed's compound



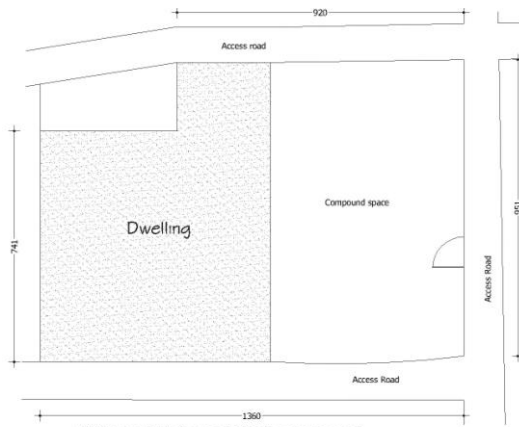
Endris Kemalnur's compound



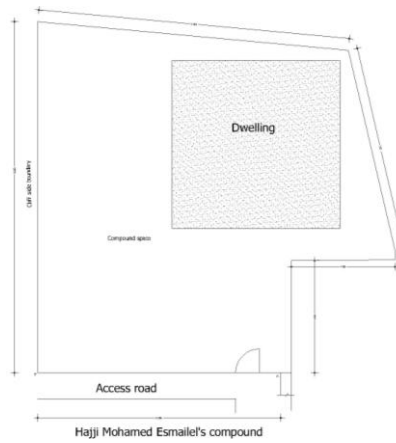
Ato Nuru Mohamed Defar's compound



Ato Mohamed Yasin Ababahir's compound



Mohamud Mehamed Seid's compound



Hajji Mohamed Esmalle's compound

AP.A5 Domestic space used and perception map

Table A5.3.1.1 Domestic space use and claim of Hajji Mohamed Esmael's family

Time	Derb bet (dwelling)				Back yard	Grazing area	Market	Feitching water	Farm area	School	Mosque	way
	Hajja medi	Gati	Fire place	Cattle area								
Hajji Mohamed												
5:00-5:20	✓											
5:20-6:00	✓											
6:00-6:40	✓											
6:40-7:00	✓											
7:00-7:15												✓
7:15-11:00									✓			
11:00-11:15												✓
11:15-13:00	✓											
13:00-13:05												✓
13:05-13:15											✓	
13:15-16:00									✓			
16:00-16:15												✓
16:15-18:00											✓	
18:00-18:05												✓
18:05-20:00	✓											
20:00-5:00	✓											
Sub Total	14:40	0:00	0:00	0:00	0:00	0:00	0:00	0:00	6:30	0:00	1:55	0:55
Wife												
5:30-5:40	✓											
5:40-8:30			✓									
8:30-9:00	✓											
9:00-10:00								✓				
10:00-12:00			✓									
12:00-13:00	✓											
13:00-13:15		✓										
13:15-15:30									✓			
15:30-17:00	✓											
17:00-17:15		✓										
17:15-18:00				✓								
18:00-20:00			✓									
20:00:20:15		✓										
20:15-21:00	✓											
21:00-5:30		✓										
Sub Total	3:55	9:15	6:50	0:45	0:00	0:00	0:00	1:00	2:15	0:00	0:00	0:00
Son												
6:00-6:15		✓										
6:15-7:30	✓											
7:30-7:45												✓
7:45-11:30									✓			
11:30-11:45												✓
11:45-12:00	✓											
12:00-12:30												✓
12:30-16:30										✓		
16:30-17:00												✓
17:00-17:15												✓
17:15-18:00												✓
18:00-19:00					✓							
19:00-20:00	✓											
20:00-21:30	✓											
21:30-6:00												
Sub total	4:00	8:45	0:00	0:00	1:00	0:00	0:00	0:00	3:45	4:00	0:00	2:30

Time	Derb bet (dwelling)				Back yard	Grazing area	Market	Fetching water	Farm area	School	Mosque	way
	Living area	Gati	Fire place	Cattle area								
Head of house hold												
5:00-5:15	✓											
5:15-7:00		✓										
7:00-7:30	✓											
7:30-9:30	✓											
9:30-12:30									✓			
12:30-13:00		✓										
13:00-13:30	✓											
13:30-16:00								✓				
16:00-18:00	✓											
18:00-20:00		✓										
20:00-21:00	✓											
21:00-5:00	✓											
Sub Total	14.15	4:15	0:00	0:00	0:00	0:00	0:00	3.20	3:00	0:00	0:00	0:00

Table A5.3.2.1 Domestic space use and claim of w/ro Zehara Mohamed

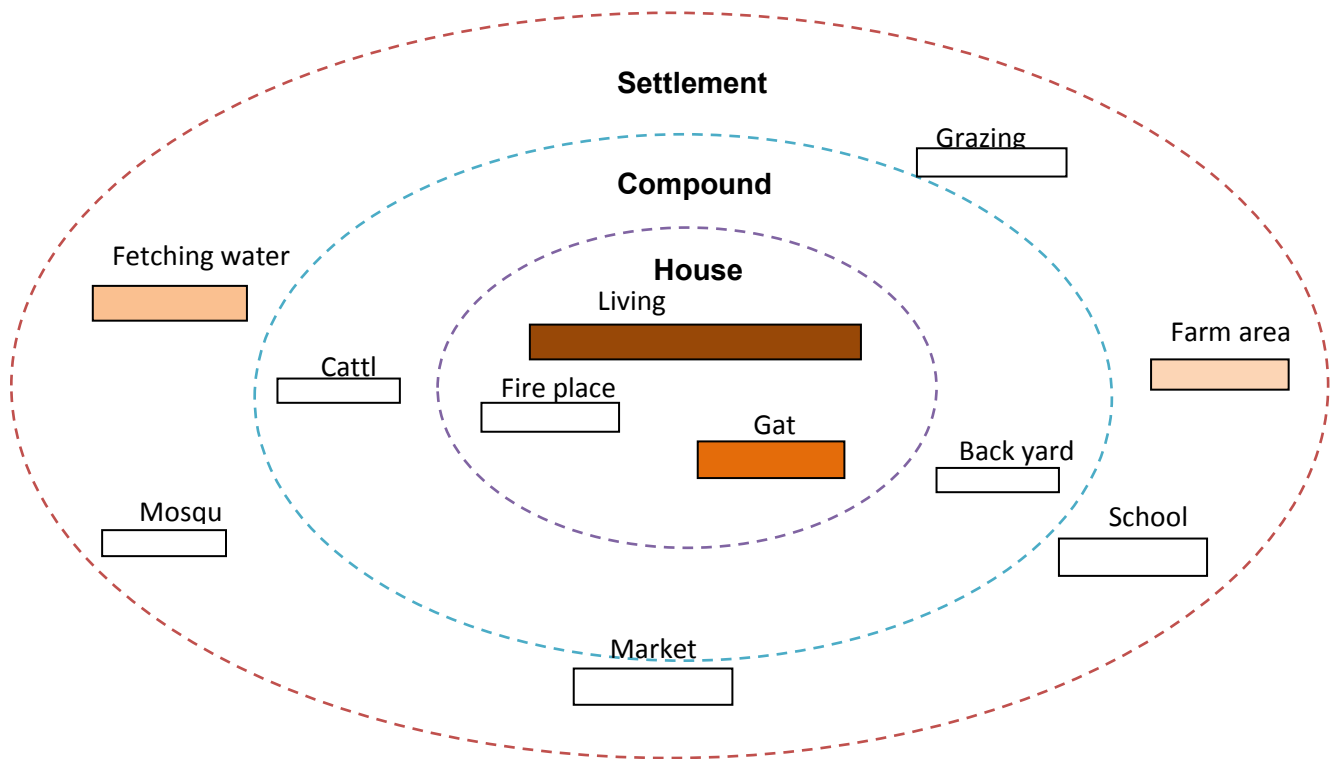


Fig. A5.3.2.2 Perception map of W/ro Zehara Mohamed in relation to her space claim

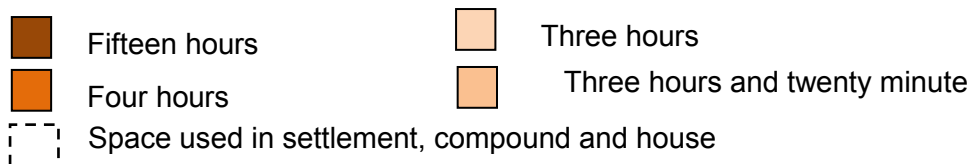


Table A5.3.3.1 Domestic space use and claim of Ato Hamid Mohamed Abamusa family

Time	Derb bet (dwelling)				Back yard	Grazing area	Market	Fetching water	Farm area	School	Mosque	way
	Haja medi	Gati	Fire place	Cattle area								
Hamid Mohamed Abamusa family												
5:00-5:15	✓											
5:15-6:30	✓											
6:30-7:00	✓											
7:00-8:00	✓											
8:00-8:10												✓
8:10-12:00									✓			
12:00-12:10												✓
12:10-13:00											✓	
13:00-14:00	✓											
14:00-14:10												✓
14:10-17:00									✓			
17:00-17:10												✓
17:10-17:30											✓	
17:30-20:00	✓											
20:00-20:15	✓											
20:15-21:00	✓											
21:00-5:00	✓											
Sub Total	15:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	6:40	0:00	1:10	0:40
Wife												
5:00-5:15		✓										
5:15-7:00		✓										
7:00-8:00	✓											
8:00-9:30								✓				
9:30-13:00		✓										
13:00-13:15		✓										
13:15-14:00	✓											
14:00-17:00	✓											
17:00-17:15		✓										
17:15-19:00		✓										
19:00-21:00	✓											
21:00-5:00		✓										
Sub Total	6:45	15:45	0:00	0:00	0:00	0:00	0:00	0:00	1:30	0:00	0:00	0:00

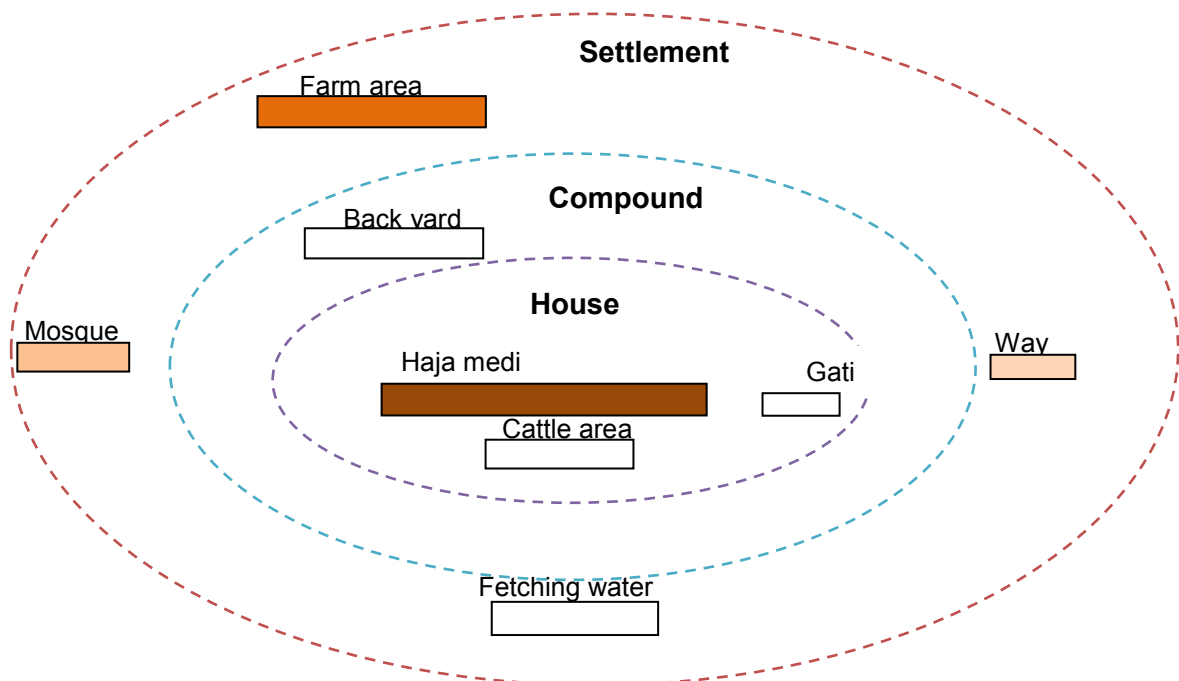


Fig. A5.3.3.2 Perception map of Ato Hamid Mohamed Abamusa in relation to his space claim

- Fifteen and half hours
- Seven hours
- One hour
- Forteen minute
- Space used in settlement, compound and house

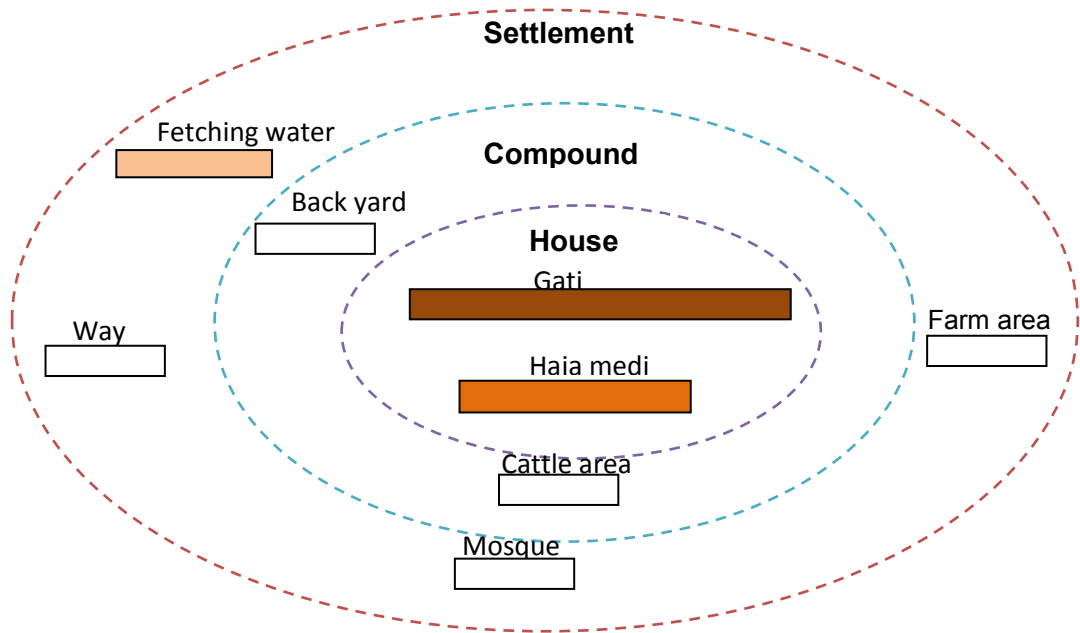


Fig. A5 3.3.3 Perception map of Ato Hamid Mohamed Abamusa's wife in relation to her space claim

- Seven hours
- One and half hour
- Sixteen hours
- Space used in settlement, compound and house

Table A5 3.4.1 domestic space use and claim of W/ro Merema Mohamed Defar family

Time	Derb bet (dwelling)				Back yard & Compound	Grazing area	Market	Fetching water	Farm area	School	Mosque	way
	Haja medi	Gati	Fire place	Cattle area								
W/ro Merema Mohamed Defar												
6:00-6:15	✓											
6:15-9:00		✓										
9:00-12:00									✓			
12:00-12:20	✓											
12:20-14:00	✓											
14:00-16:30									✓			
16:30-17:00	✓											
17:00-17:20	✓											
17:20-18:00	✓											
18:00-21:00		✓										
21:00-21:30	✓											
21:30-22:00	✓											
22:00-6:00	✓											
Sub Total	12:45	5:45	0:00	0:00	0:00	0:00	0:00	0:00	5:00	0:00	0:00	0:00
Daughter												
6:00-6:30		✓										
6:30-8:00		✓										
8:00-8:30	✓											
8:30-9:30								✓				
9:30-10:00					✓							
10:00-12:00	✓											
12:00-13:00		✓										
13:00-13:30		✓										
13:30-16:30		✓										
16:30-17:00								✓				
17:00-19:00		✓										
19:00-19:30	✓											
19:30-22:00		✓										
22:00-6:00		✓										
Sub Total	3:00	19:00	0:00	0:00	0:30	0:00	0:00	1:30	0:00	0:00	0:00	0:00

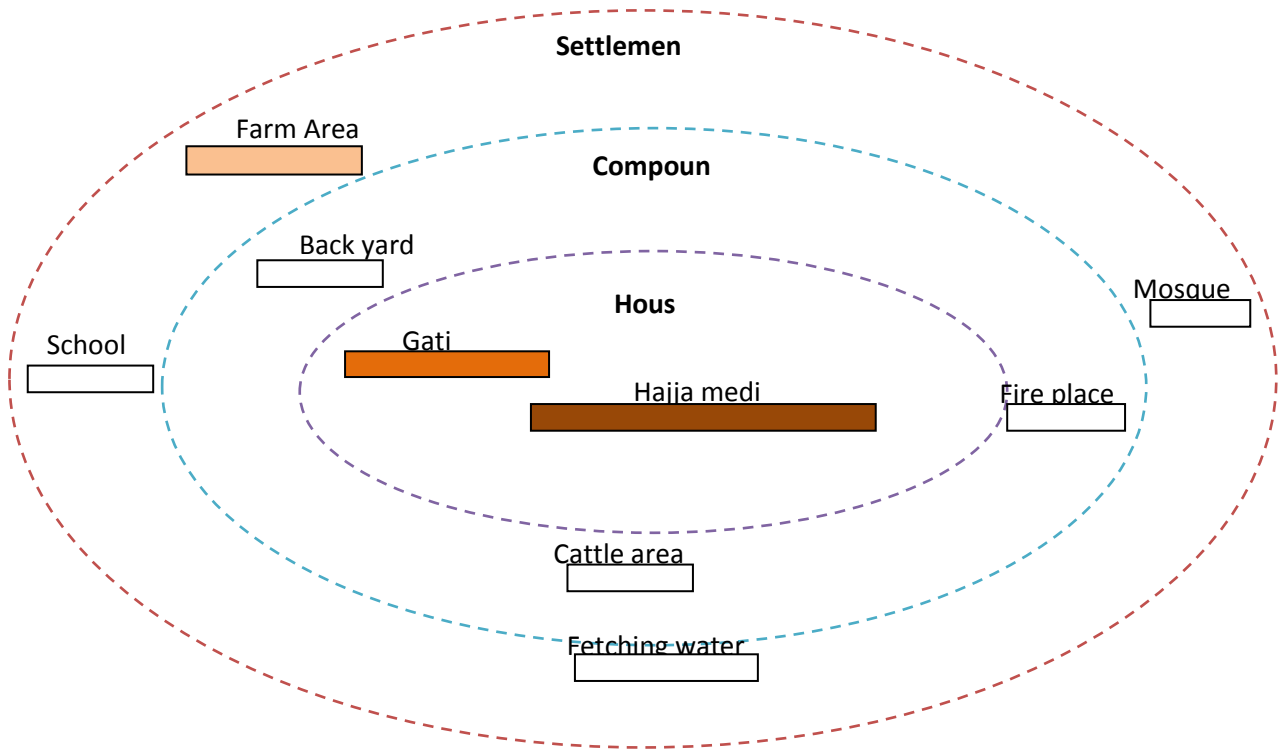


Fig. A5. 3.4.2 perception map of W/ro Merema Mohamed Defar in relation to her space claim

- Thirteen hours
- Six hours
- Five hours
- Space used in settlement, compound and house

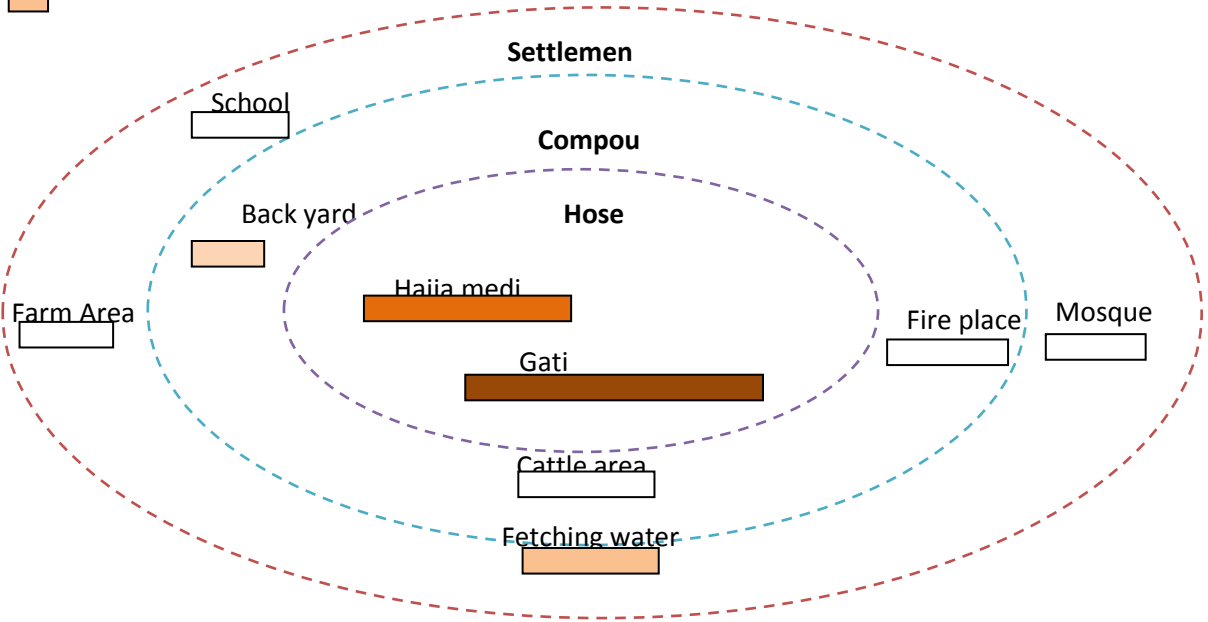


Fig. A5.3.4.3 Perception map of W/ro Merema Mohamed Defars' daughter in relation to her space claim

- Nineteen hours
- Half hours
- One and half hour
- Three hours
- Space used in settlement, compound and house

Table. A5.3.5.1 Domestic space use and claim of Ato Ediris Mohamed family.

Time	Derb bet (dwelling)				Back yard & Compound	Grazing area	Market	Fetching water	Farm area	School	Mosque	way
	Haja medi	Gati	Fire place	Cattle area								
Ato Ediris Mohamed Defar												
5:00-5:15	✓											
5:15-7:30	✓											
7:30-8:00	✓											
8:00-8:15												✓
8:15-9:00							✓					
9:00-10:00												✓
10:00-11:00							✓					
11:00-12:00												✓
12:00-12:30	✓											
12:30-15:00	✓											
15:00-15:30												✓
15:30-17:00									✓			
17:00-17:15												✓
17:15-17:30	✓											
17:30-23:00	✓											
23:00-5:00	✓											
Sub Total	17:45	0:00	0:00	0:00	0:00	0:00	1:45	0:00	1:30	0:00	0:00	3:00
Wife												
6:00-7:00								✓				
7:00-8:00		✓										
8:00-8:30		✓										
8:30-8:45	✓											
8:45-10:00	✓											
10:00-12:00	✓											
12:00-13:00								✓				
13:00-14:00	✓											
14:00-15:00		✓										
15:00-18:00		✓										
18:00-22:00	✓											
22:00-6:00		✓										
Sub Total	8:30	13:30	0:00	0:00	0:00	0:00	0:00	2:00	0:00	0:00	0:00	0:00

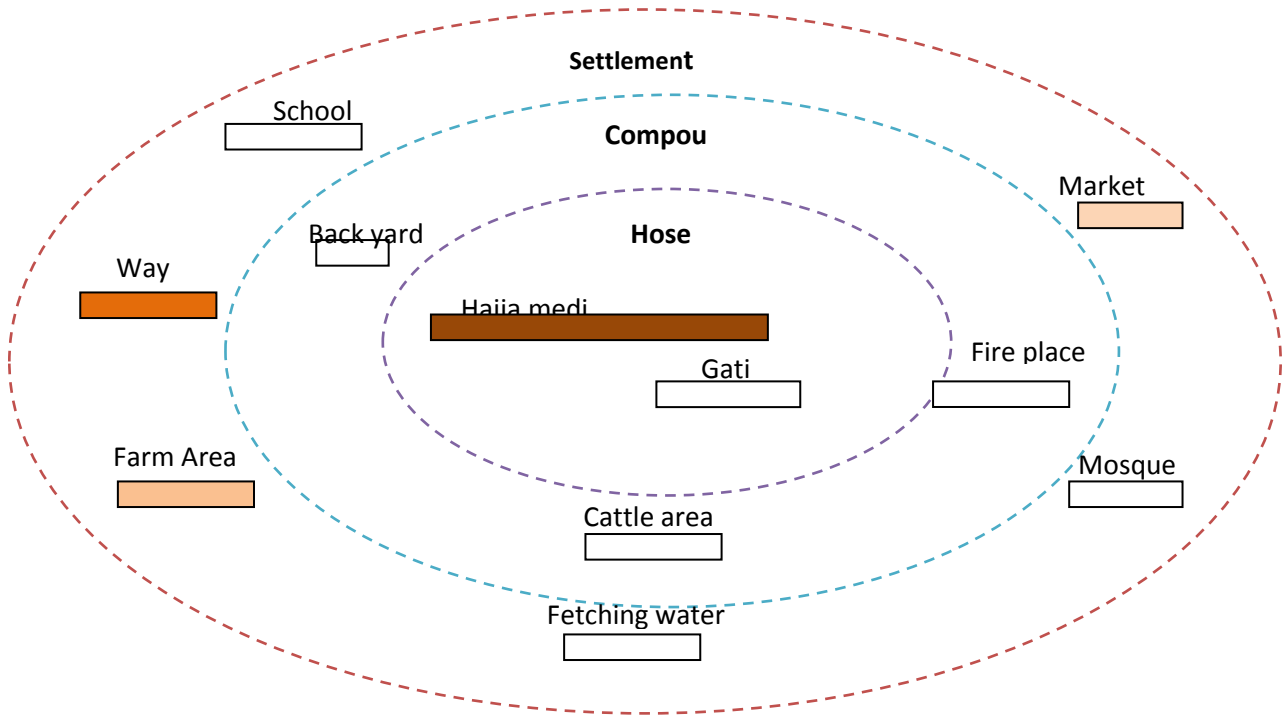


Fig. A5. 3.5.2 perception map of Ato Ediris Mohamed in relation to his space claim.

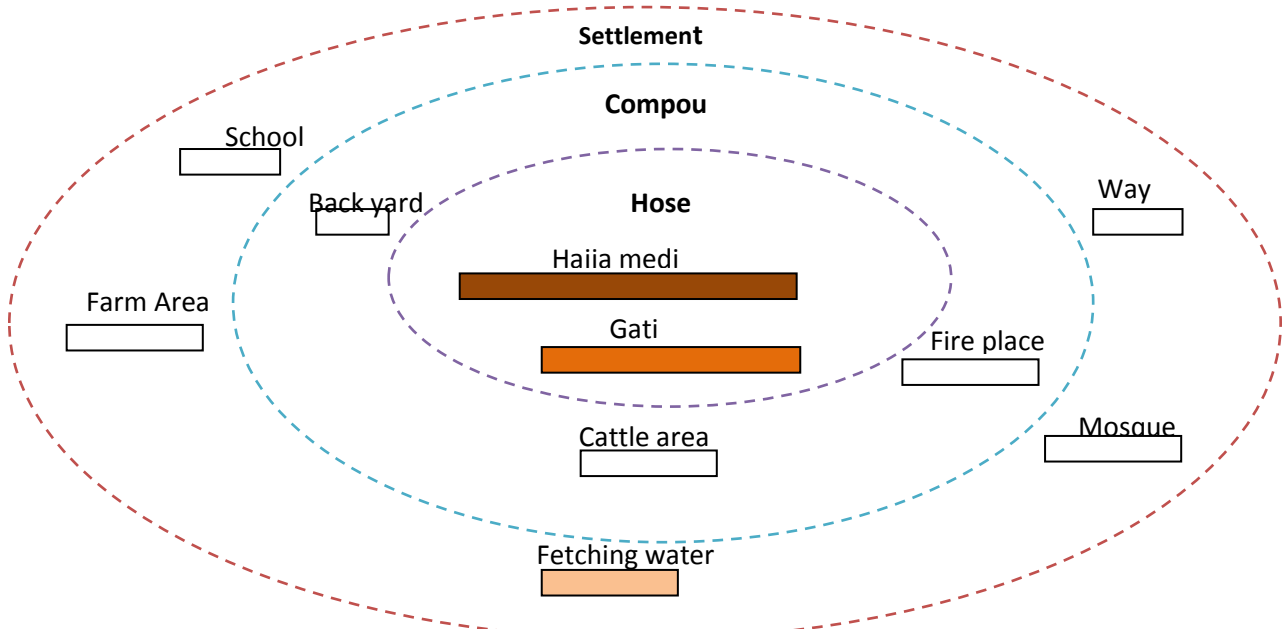
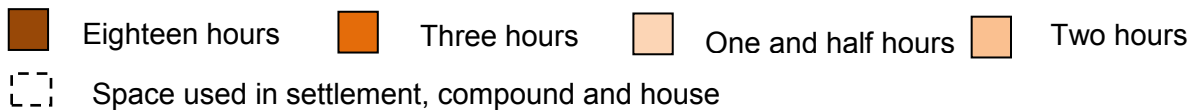


Fig. A5.3.5.2 perception map of Ato Ediris Mohamed's Wife in relation to her space claim.

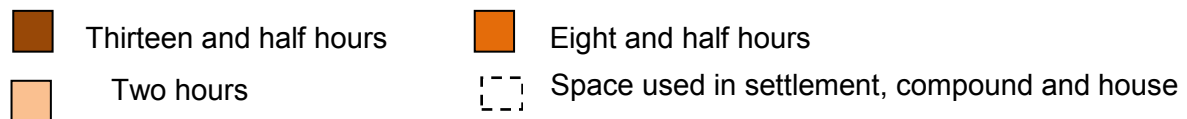


Table. A5.3.6.1 Domestic space use and claim of W/ro Alima Kamil's family

Time	Derb bet (dwelling)				Back yard	Borkena river	Abila Market	Fetching water	Farm area	School	Pire group House	way
	Hajja medi	Gati	Fire place	Cattle area								
W/ro Alima Kamil												
6:00- 8:00		✓										
8:00-8:30		✓										
8:30-9:30								✓				
9:30-11:30						✓						
11:30-13:00	✓											
13:00-14:00	✓											
14:00-16:00	✓											
16:00-18:00		✓										
18:00-21:00	✓											
21:00-22:00	✓											
22:00-6:00	✓											
Sub Total	16:30	4:30	0:00	0:00	0:00	2:00	0:00	1:00	0.0	0:00	0:00	0:00
Son												
6:00-6:15												✓
6:15-8:00									✓			
8:00-8:15												✓
8:15-9:00							✓					
9:00-9:20												✓
9:20-9:40	✓											
9:40-10:00												✓
10:00-10:15									✓			
10:15-10:30												✓
10:30-13:00	✓											
13:00-13:30	✓											
13:30-13:45												✓
13:45-17:00									✓			
17:00-17:15												✓
17:15-19:00											✓	
19:00-19:10												✓
19:10-20:00	✓											
20:00-22:00											✓	
22:00-6:00											✓	
Sub Total	4:10	0:00	0:00	0:00	0:00	0:00	0:45	0:00	5:15	0:0	11:45	2:05
Daughter												
6:00-7:00								✓				
7:00-7:30	✓											
7:30-8:00	✓											
8:00-10:00	✓											
10:00-10:30												✓
10:30-12:00										✓		
12:00-17:00										✓		
17:00-17:30												✓
17:30-18:00	✓											
18:00-19:00								✓				
19:00-20:00	✓											
20:00-22:30	✓											
22:30-21:00	✓											
21:00-6:00	✓											
Sub total	14:30	0:00	0:00	0:00	0:00	0:00	0:00	2:00	0:00	6:30	0:00	1:00

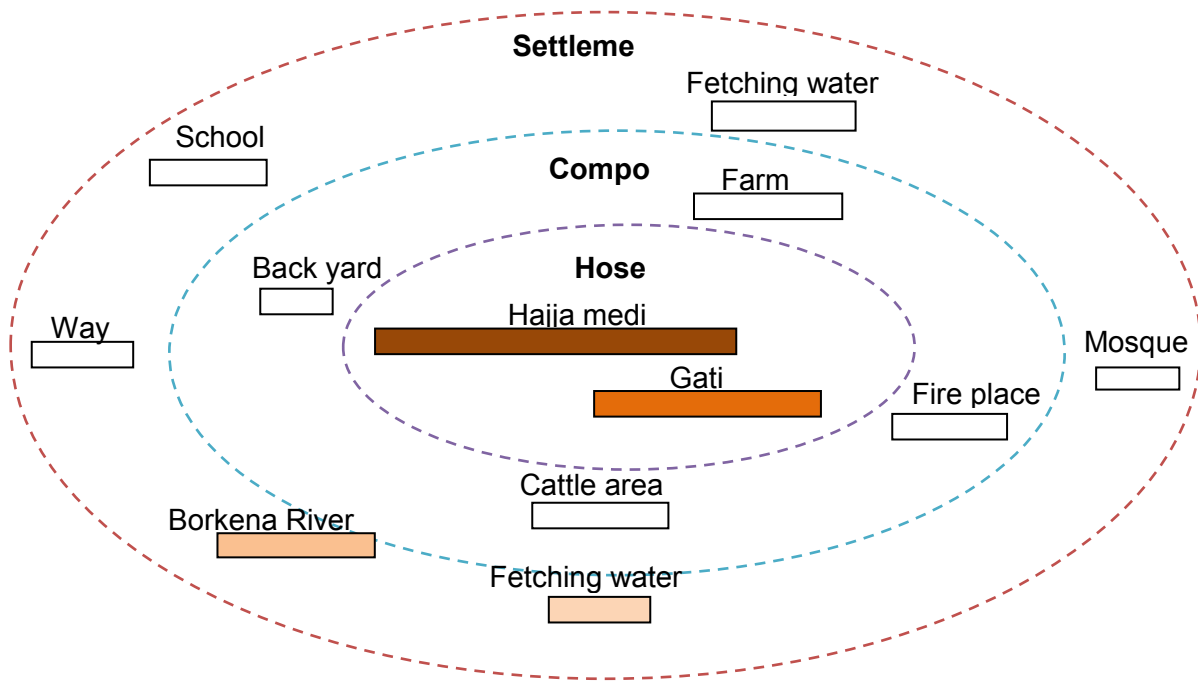


Fig. A5.3.6.2 Perception map of W/ro Alima Kamil Ali in relation to her space claim.

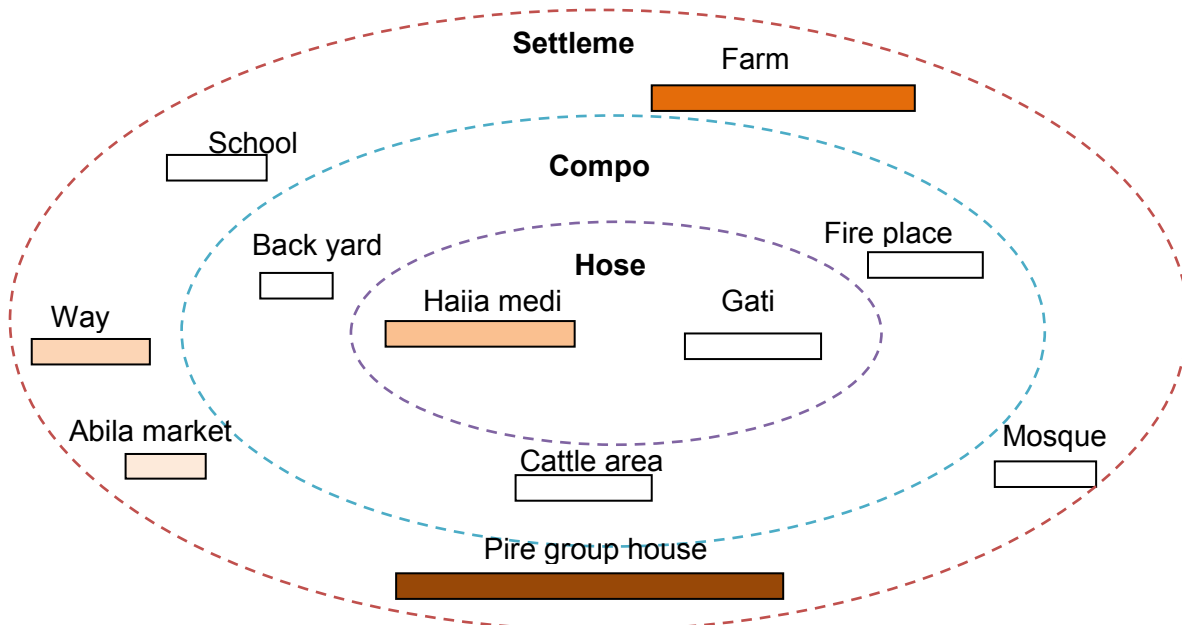
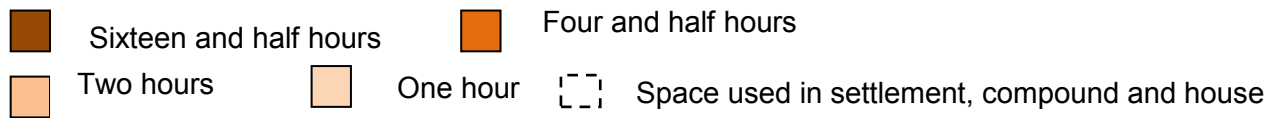
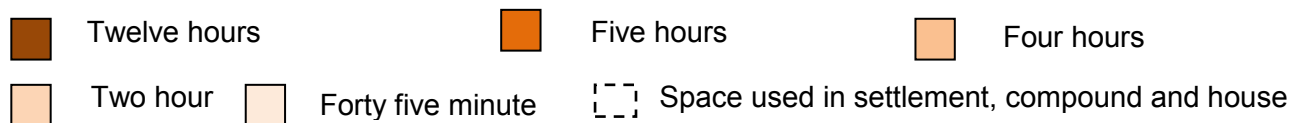


Fig. A5.3.6.3 Perception map of W/ro Alima Kamil Ali's son in relation to his space claim.



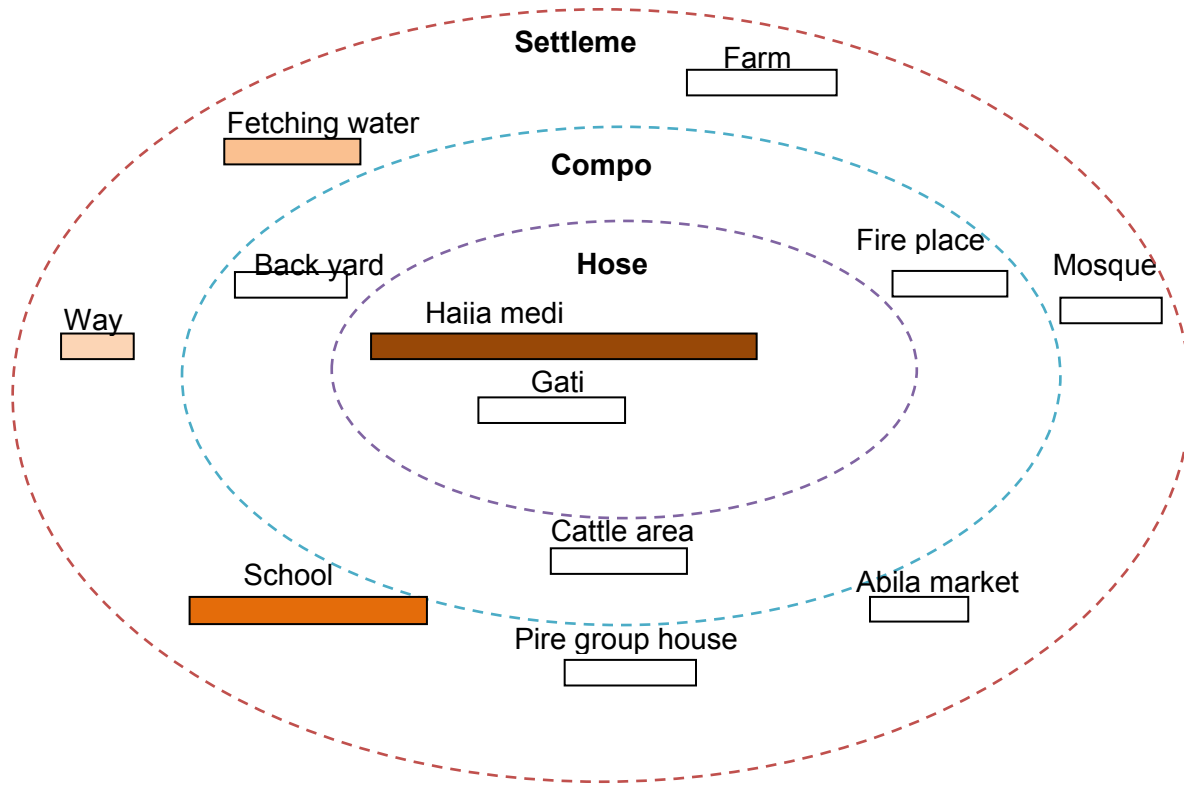


Fig. A5.3.6.4 Perception map of W/ro Alima Kamil Ali's daughter in relation to her space claim.

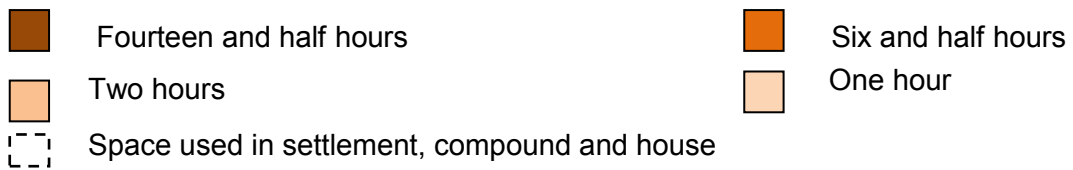


Table: A5.3.7.1 domestic space use and claim of W/ro Shemshu Ahmed Siraj.

Time	Derb bet (dwelling)				Back yard	Borkena river	Abila Market	Fetching water	Farm area	School	Settlement	Food donors House	way
	Hajja medi	Gati	Fire place	Cattle area									
W/ro Alima Kamil													
7:00- 7:30	✓												
7:30-10:00												✓	
10:00-12:00												✓	
12:00-13:00	✓												
13:00-17:00												✓	
17:00-18:00	✓												
18:00-19:00	✓												
19:00-7:00	✓												
Sub Total	15:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0.0	0:00	8.30	0:00	

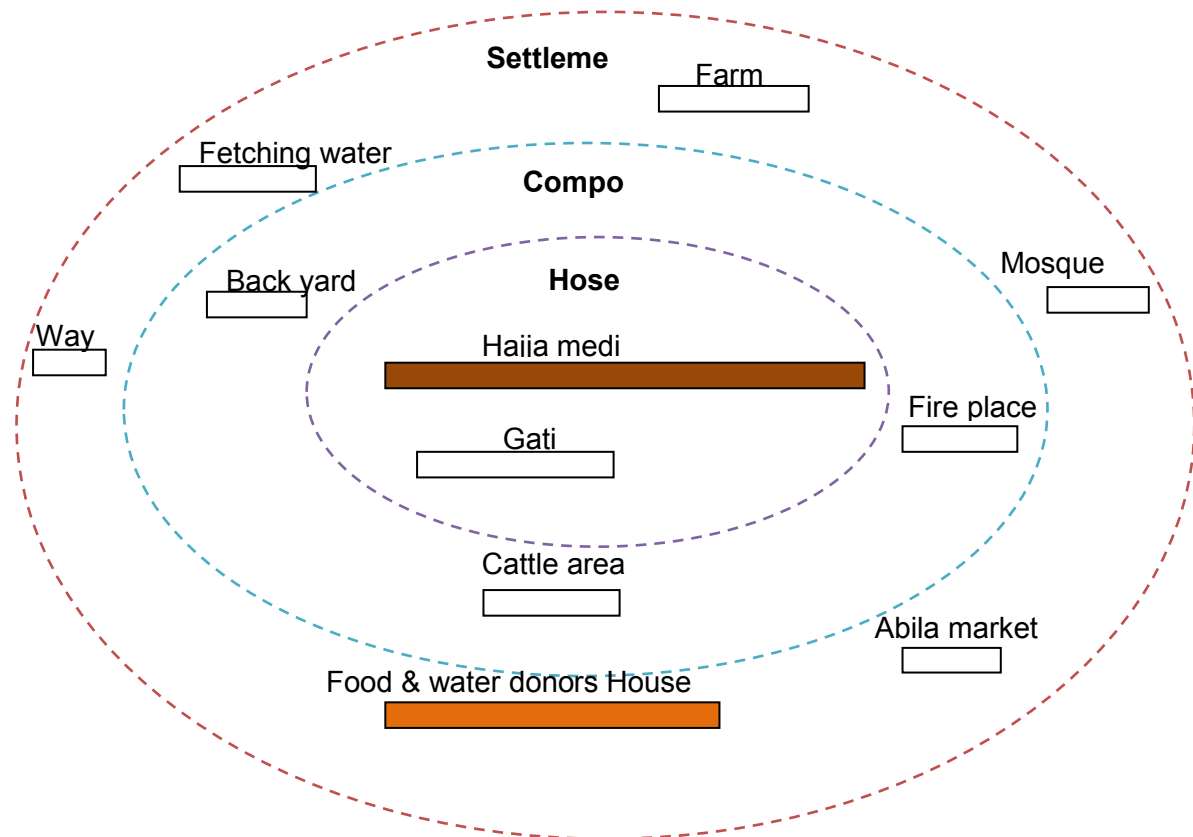


Fig.A5.3.7.2 perception map of W/ro Shemshu Ahimed Siraj in relation to her space claim.

- Fifteen and half hours
- Eight and half hours
- Space used in settlement, compound and house

Table: A5.3.8.1 domestic space use and claim of Merema Kelii's family.

	Hajj a medi	Gati	Fire plac e	Catti e area									
Merema kelii													
5:00-5:30	✓												
5:30-7:00			✓										
7:00-7:30	✓												
7:30-8:30	✓												
8:30-12:00			✓										
12:00-12:30	✓												
12:30-13:00	✓												
13:00-17:00	✓												
17:00-18:00			✓										
18:00-20:30	✓												
20:30-22:00	✓												
22:00-5:00	✓												
Sub Total	17:00	0	7:00	0:00	0:00	0:00	0	0:00	0	0:00	0	0:00	0:00
Son													
5:00-6:45	✓												
6:45-7:00	✓												
7:00-7:20													✓
7:20-11:30									✓				
11:30-12:00													✓
12:00-12:30	✓												
12:30-14:00	✓												
14:00-14:30													✓
14:30-17:00									✓				
17:00-17:30													✓
17:30-18:00	✓												
18:00-22:00	✓												
22:00-5:00	✓												
Sub Total	15:30	0:00	0:00	0:00	0:00	0	0	0	0:00	6:40	0:00	0:00	1:50
Son													
9:00-9:10													
9:10-9:30	✓												
9:30-10:00													✓
10:00-10:30									✓				
10:30-11:00													✓
11:00-12:00	✓												
12:00-17:00								✓					
17:00-20:00										✓			
20:00-23:00								✓					
23:00-9:00								✓					
Total	1:20	0:00	0:00	0:00	0:00	0:00	0:00	18:1	0:00	0:30	3:00	0:00	1:00
Daughter													
5:00-5:30		✓											
5:30-6:00			✓										
6:00-7:00									✓				
7:00-8:00	✓												
8:00-13:30	✓												
13:30-14:30	✓												
14:30-16:00							✓						
16:00-17:00	✓												
17:00-17:30	✓												
17:30-18:00			✓										
18:00-20:00	✓												
20:00-20:30	✓												
20:30-21:30	✓												
21:30-22:30	✓												
22:30-5:00		✓											
Sub total	13:30	7:00	1:00	0:00	1:30	0:00	0:0	1:00	0:00	0:00	0:00	0:00	0:00

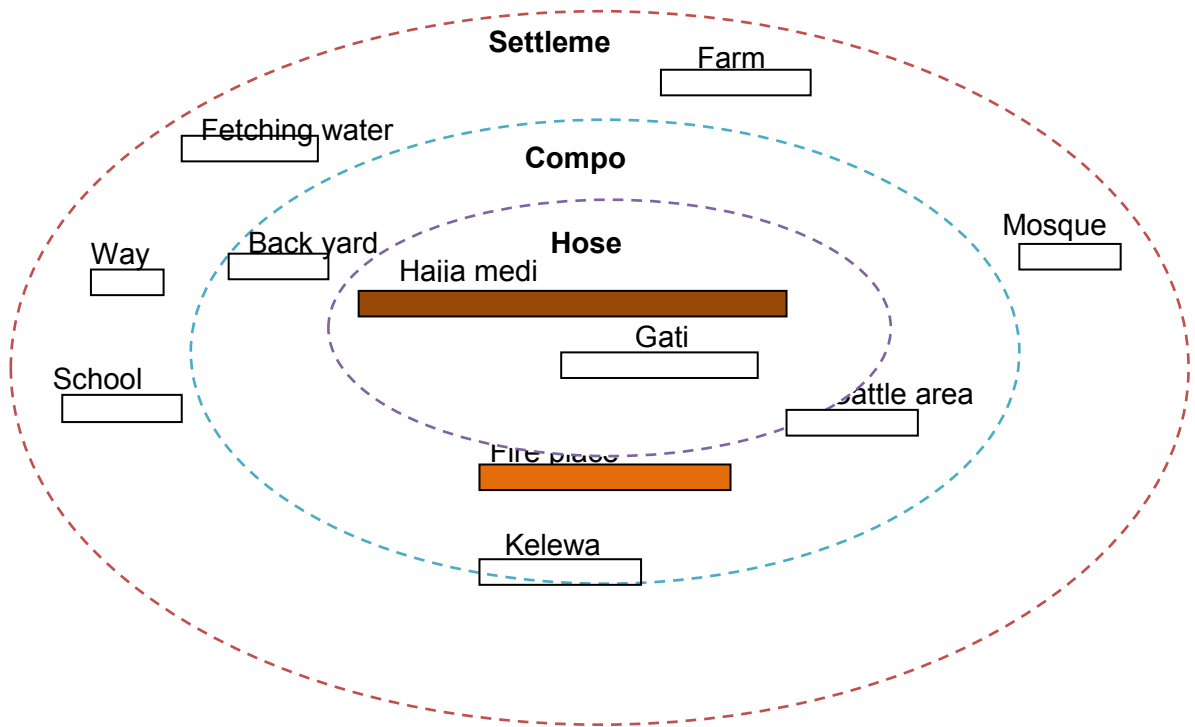


Fig.A5.3.8.2 perception map of W/ro Merema Kelil in relation to her space claim.

- Seventeen Hours
- Seven hours
- Space used in settlement, compound and house

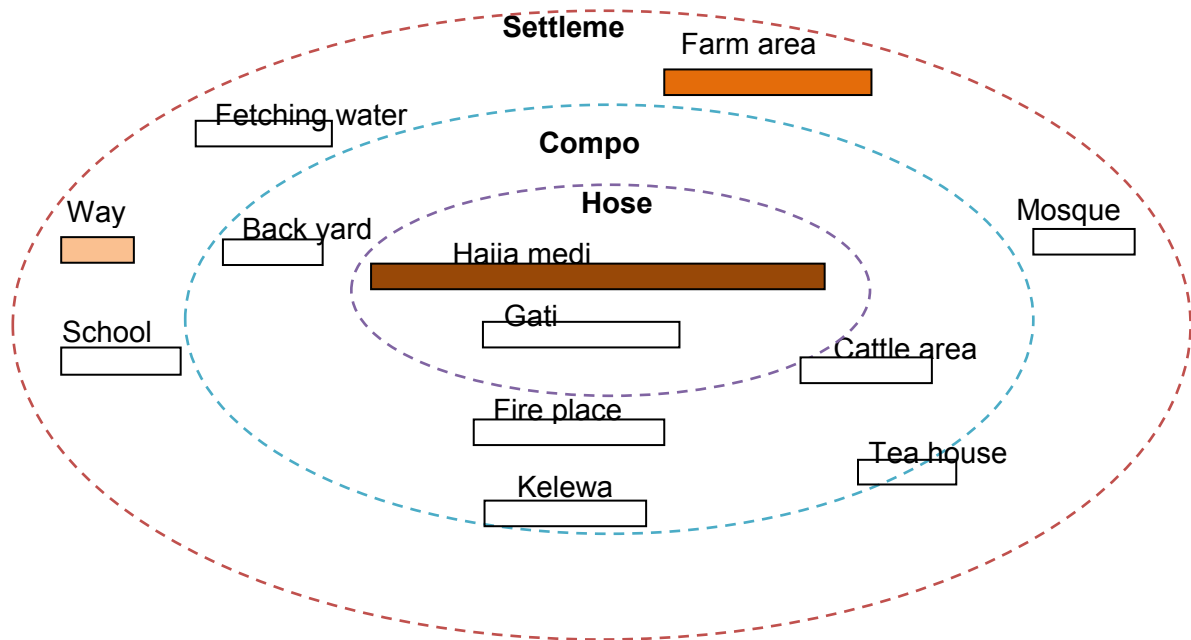


Fig. A5.3.8.3 Perception map of W/ro Merema Kelil's Son in relation to his space claim.

- Fifteen and half hours
- Six and fourteen minute
- Two hours
- Space used in settlement, compound and house

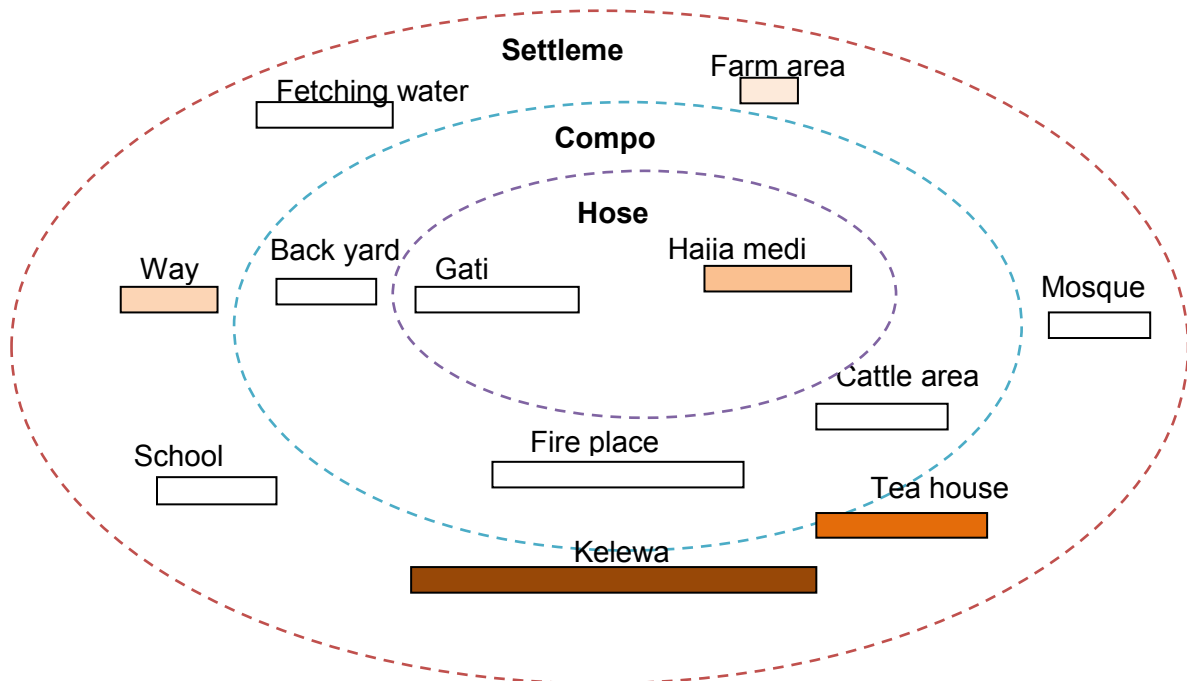


Fig. A5.3.8.4 perception map of W/ro Merema Kelil's Son in relation to his space claim.

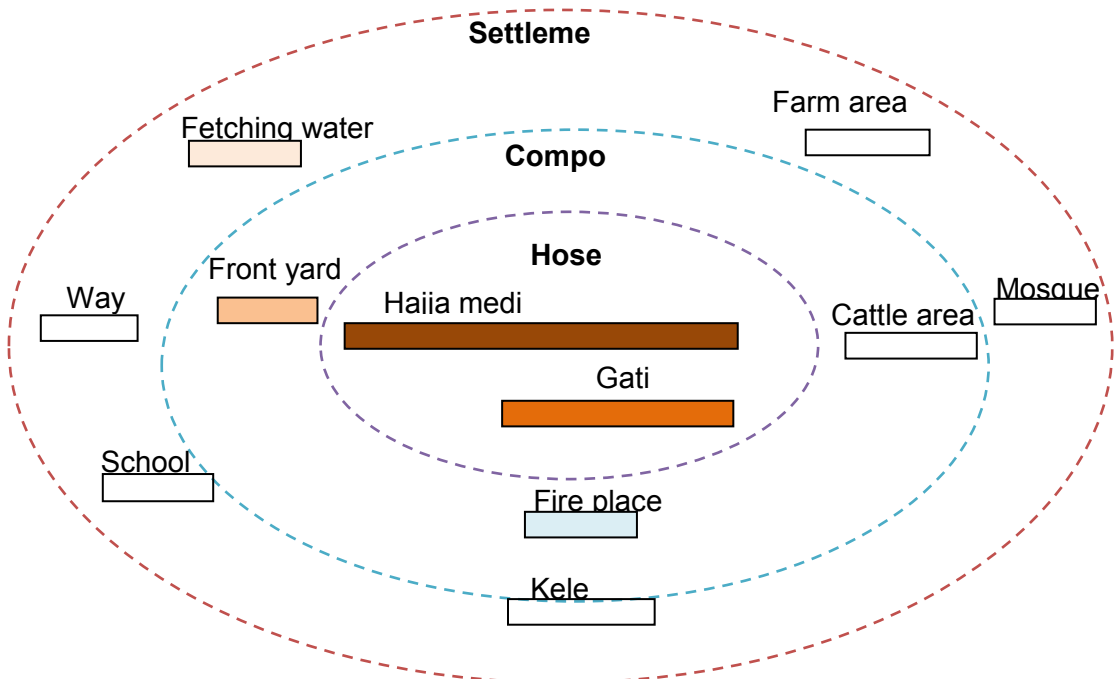
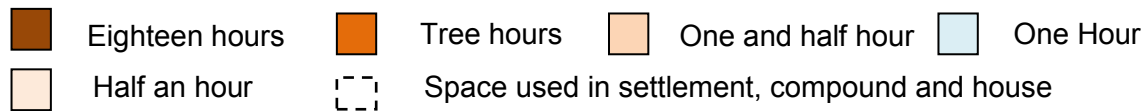


Fig. A5.3.8.5 Perception map of W/ro Merema Kelil's daughter in relation to her space claim.



Table: A5.3.9.1 Domestic space use and claim of Ato Mohamed Sheku's family

Time	Derb bet (dwelling)				Front yard	School	Kelewa	Fetching water	Farm area	Tea house	Borkena	Way
	Hajja medi	Gati	Fire place	Cattle area								
Wife												
5:00-5:20		✓										
5:20-6:00		✓										
6:00-8:00	✓											
8:00-13:00		✓										
13:00-14:00	✓											
14:00-20:00		✓										
20:00-21:00	✓											
21:00-5:00		✓										
Sub Total	4:00	20:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
Son												
6:00-8:00							✓					
8:00-9:00												✓
9:00-13:00									✓			
13:00-14:00									✓			
14:00-17:00									✓			
17:00-18:00												✓
18:00-20:00										✓		
20:00-20:30	✓											
20:30-20:45												✓
20:45-21:00							✓					
21:00-6:00							✓					
Sub Total	0:30	0:00	0:00	0:00	0:00	0:00	11:15	0:00	8:00	2:00	0:00	2:15
daughter												
6:00-6:45								✓				
6:45-7:30								✓				
7:30-8:00	✓											
8:00-11:00											✓	
11:00-11:15	✓											
11:15-11:45												✓
11:45-12:00						✓						
12:00-17:00						✓						
17:00-17:30												✓
17:30-18:15								✓				
18:15-19:30		✓										
19:30-20:00	✓											
20:00-21:00		✓										
21:00-6:00		✓										
Total	1:15	10:45	0:00	0:00	0:00	5:15	0:00	2:15	0:00	0:00	3:00	1:00

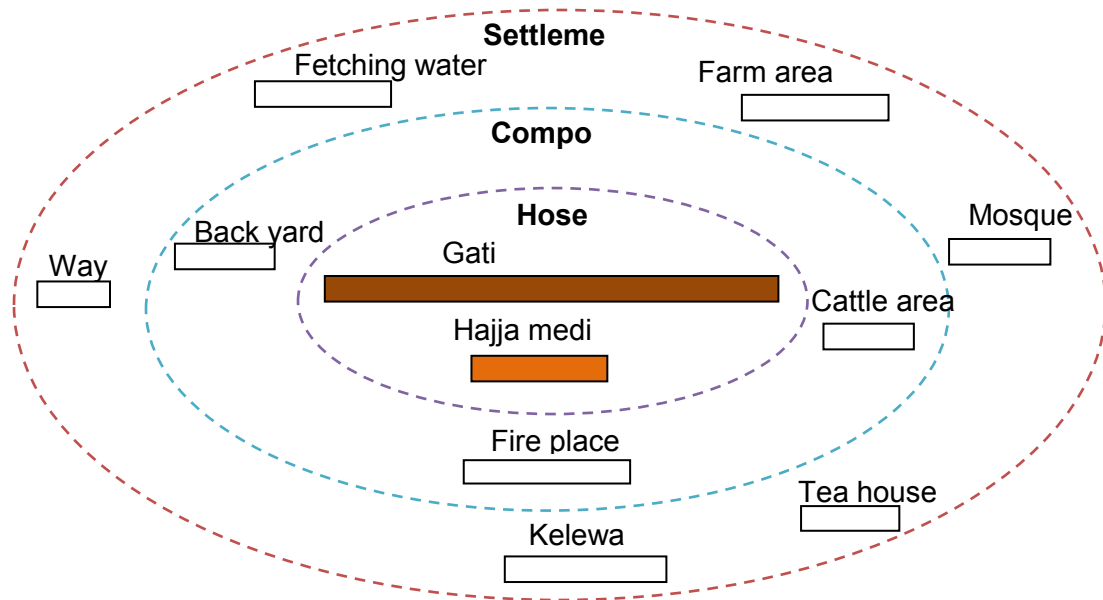


Fig. A5.3.9.2 Perception map of Ato Mohamed Sheku's Wife in relation to her space claim.

- Twenty hours
- Four hours
- Space used in settlement, compound and house

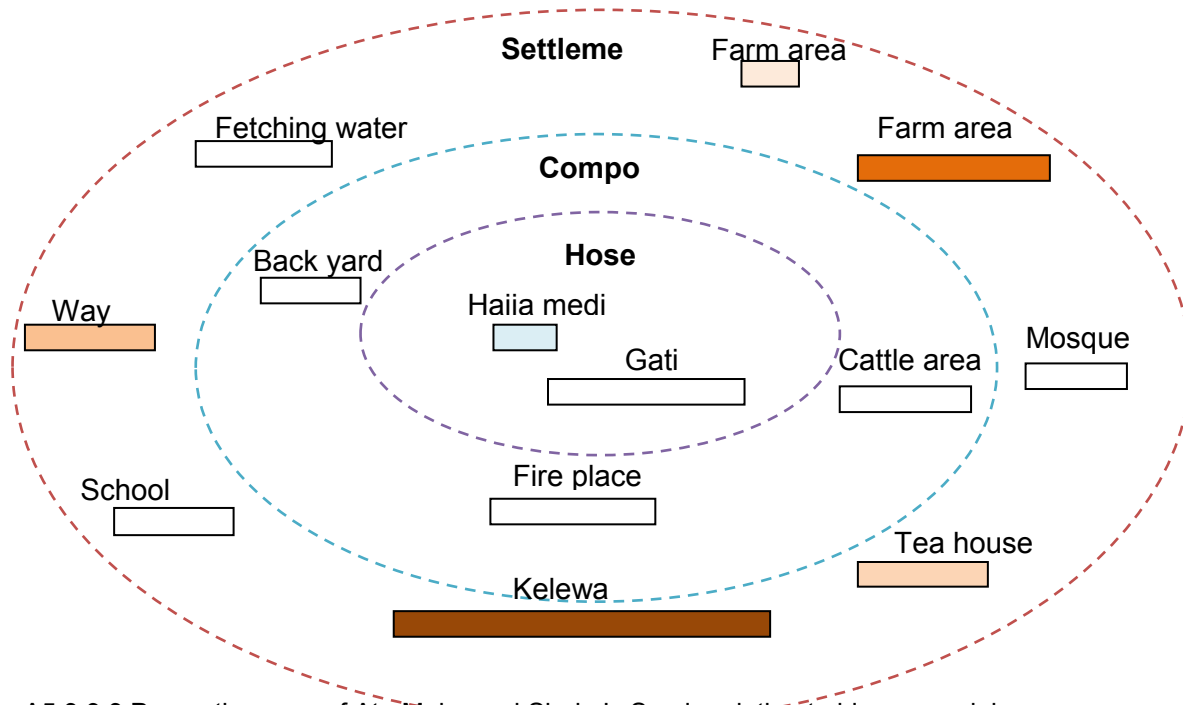


Fig. A5.3.9.3 Perception map of Ato Mohamed Sheku's Son in relation to his space claim.

- Eleven hours
- Eight hours
- Two and hours
- Two Hours
- Half unhouse
- Space used in settlement, compound and house

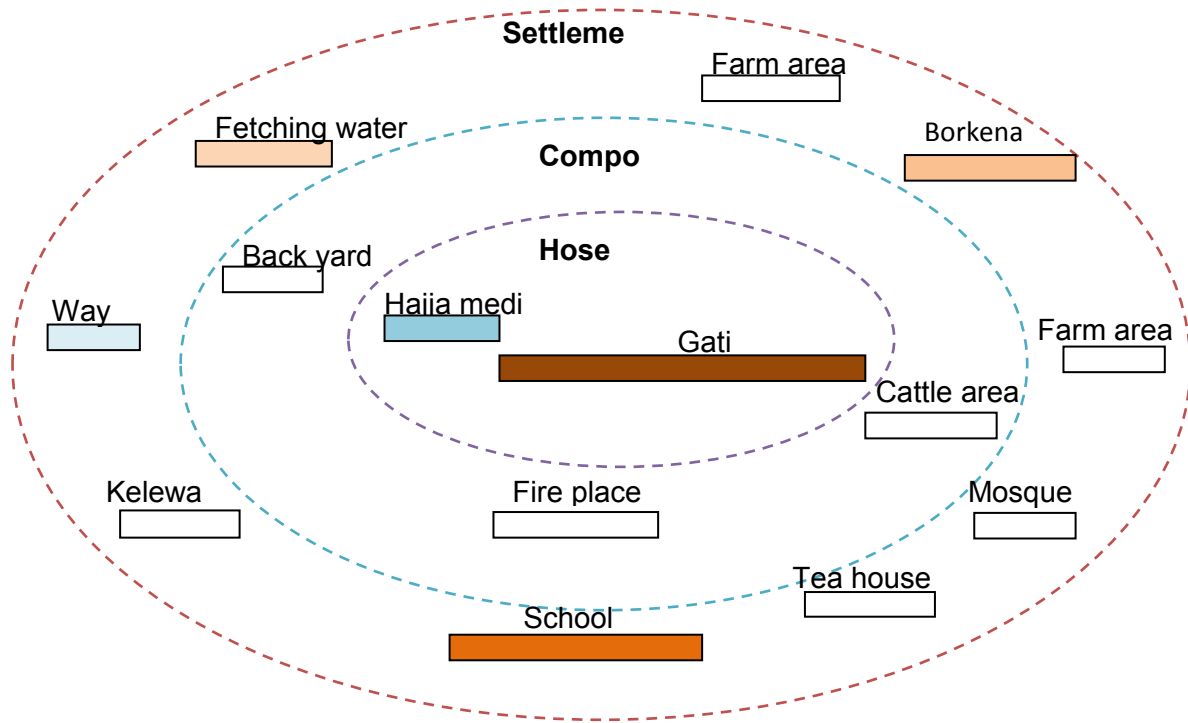


Fig. A5.3.9.4 Perception map of Ato Mohamed Sheku's Son in relation to her space claim.

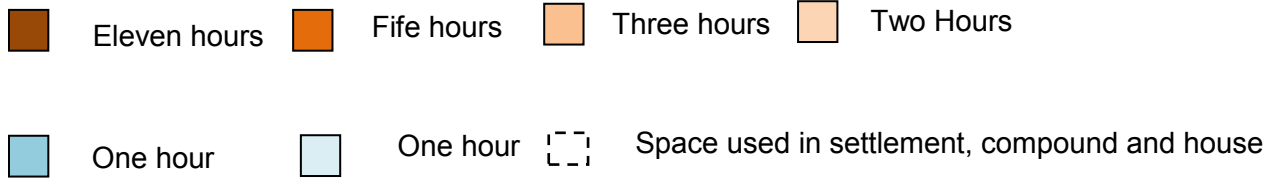


Table: A5.3.10.1 Domestic space use and claim of Ato Mehamud Mohamed Kemalu's family

Time	Derb bet (dwelling)				Back yard	Borkena river	Abila Market	Fetching water	Farm area	School	Mosque	way
	Hajja medi	Gati	Fire place	Cattle area								
Ato Mehamud Mohamed Kemalu												
5:00-5:15											✓	
5:15-7:00											✓	
7:00-7:30	✓											
7:30-8:00												✓
8:00-12:00								✓				
12:00-12:30												✓
12:30-13:00	✓											
13:00-13:30	✓											
13:30-14:00											✓	
14:00-14:30												✓
14:30-17:00								✓				
17:00-17:30												✓
17:30-20:00											✓	
20:00-21:00	✓											
21:00-5:00	✓											
Sub Total	10:30	0:00	0.00	0.00	0.00	0:00	0:00	0:00	6.30	0:0	5.00	2:00
Ato Mehamud Mohamed Kamal's wife												
5:00-7:00		✓										
7:00-7:30	✓											
7:30-8:30								✓				
8:30-9:30								✓				
9:30-10:30	✓											
10:30-12:30	✓											
12:30-13:00		✓										
13:00-13:15	✓											
13:15-14:00	✓											
14:00-17:00	✓											
17:00-20:00		✓										
20:00-21:00	✓											
21:00-5:00		✓										
Sub Total	8:30	13:30	0:00	0:00	0:00	0:00	0:00	2:00	0:00	0:00	0:00	0:00

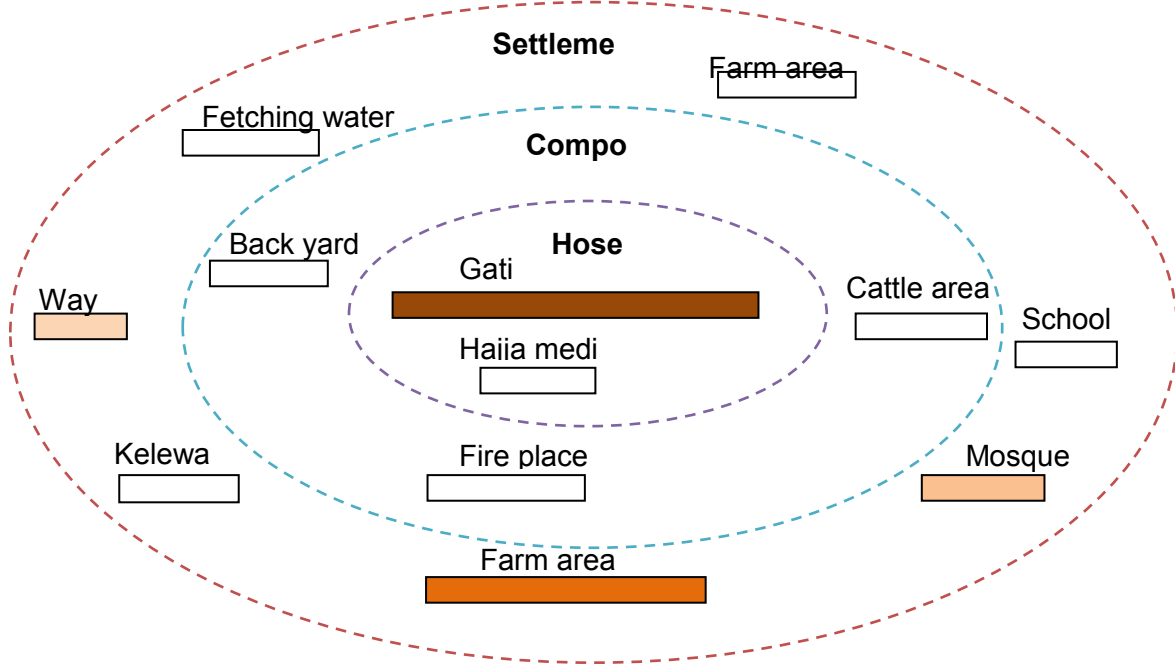


Fig.A5.3.10.2 perception map of Ato Mehamud Mohamed Sheku in relation to his space claim.

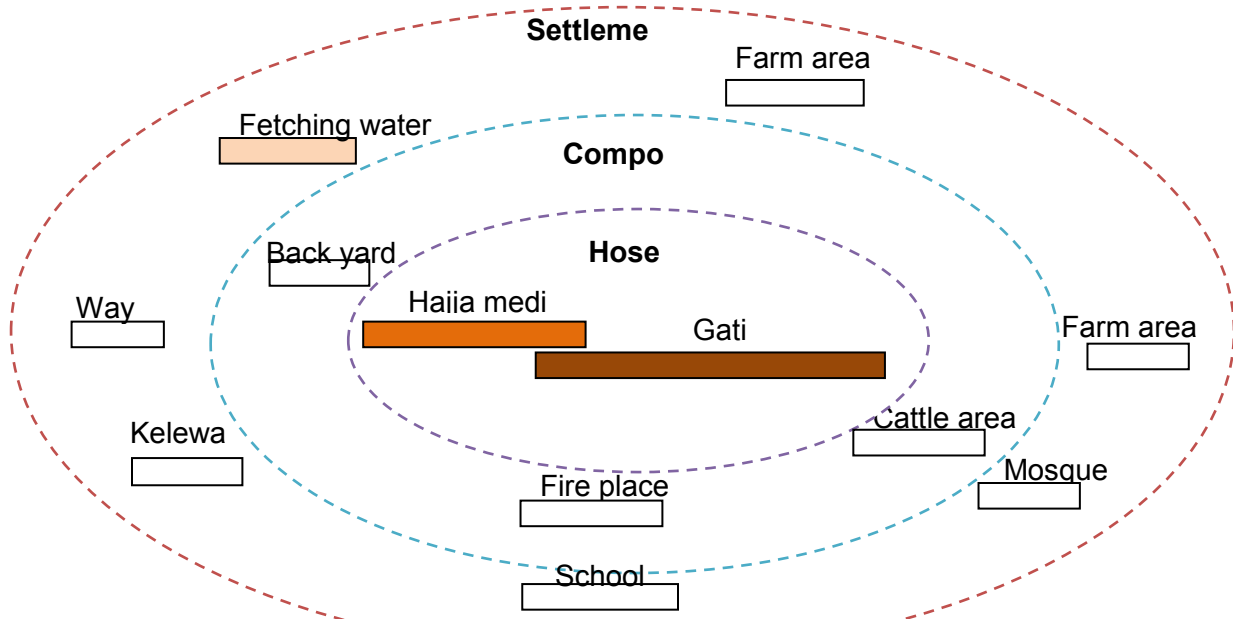
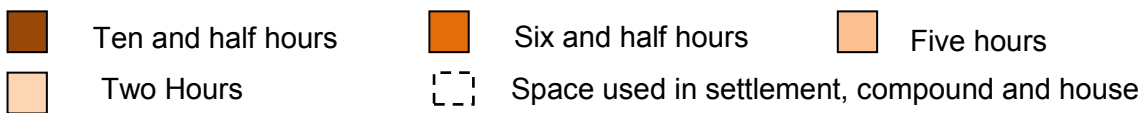


Fig. A5.3.10.3 Perception map of Ato Mehamud Mohamed Sheku's Wife in relation to her space claim.



Table: A5.3.11.1 Domestic space use and claim of W/ro Merema Osman.

Time	Derb bet (dwelling)				Front yard	School	Kelewa	Fetching water	Farm area	Tea house	Borkena	Way
	Hajja medi	Gati	Fire place	Cattle area								
Wife												
5:00-5:15	✓											
5:15-6:30		✓										
6:30-7:00	✓											
7:00-9:30							✓					
19:30-12:00								✓				
12:00-12:30	✓											
12:30-13:00		✓										
13:00-13:15	✓											
13:15-14:00	✓											
14:00-17:00	✓											
17:00-20:00		✓										
20:00-20:15	✓											
20:15-21:00	✓											
21:00-5:00	✓											
Sub Total	14:45	4.45	0:00	0:00	0:00	0:00	0:00	2:00	2.30	0:00	0:00	0:00

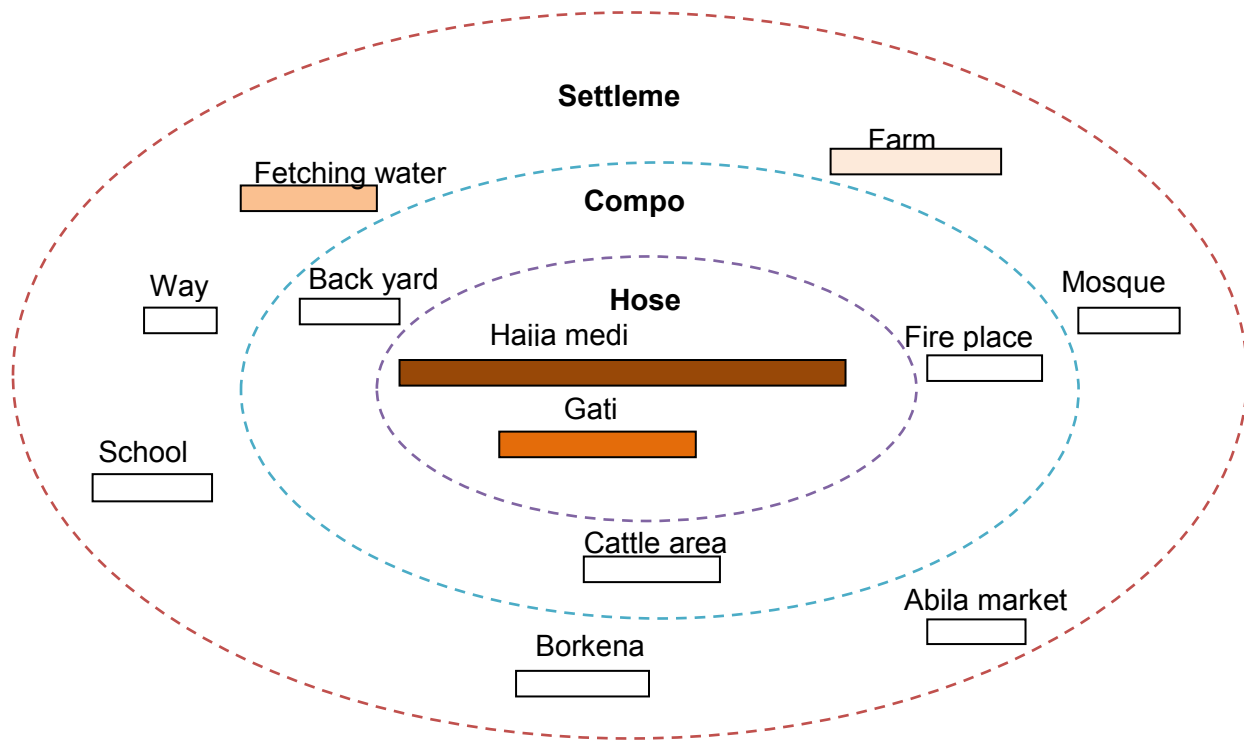


Fig. A5.3.11.2 Perception map of W/ro Merema Osman in relation to her space claim.

- Fifteen hours
- Five hours
- Two and half hours
- Two hours
- Space used in settlement, compound and house

Table: A5.3.12.1 Domestic space use and claim of Ato Endris Yasin wolyu's Family

Time	Derb bet (dwelling)				Front yard	School	Kelewa	Fetching water	Farm area	Tea house	Borkena	Way
	Hajja medi	Gati	Fire place	Cattle area								
Endris Yasin wolyu												
8:00-8:15							✓					
8:15-8:45	✓											
8:45-7:15												✓
7:15-12:00									✓			
12:00-12:30												✓
12:30-13:00	✓											
13:00-13:30												✓
13:30-18:00									✓			
18:00-18:30												✓
18:30-19:00										✓		
19:00-20:00	✓											
20:00-21:10												✓
20:10-23:00							✓					
23:00-8:00							✓					
	2:00	0.0	0:00	0:00	0:00	0:00	11.05	0:00	9.15	0.30	0.00	2:10
Mother												
6:00-7:30	✓											
7:30-10:30	✓											
10:30-12:30	✓											
12:30-13:00	✓											
13:00-14:00	✓											
14:00-14:30	✓											
14:30-15:00	✓											
15:00-17:00								✓				
17:00-18:00	✓											
18:00-19:00	✓											
19:00-19:30	✓											
19:00-20:30	✓											
20:30-5:00	✓											
Sub Total	22:00	0:00	0:00	0:00	0:00	0:00	0:00	2:00	0:00	0:00	0:00	0:00

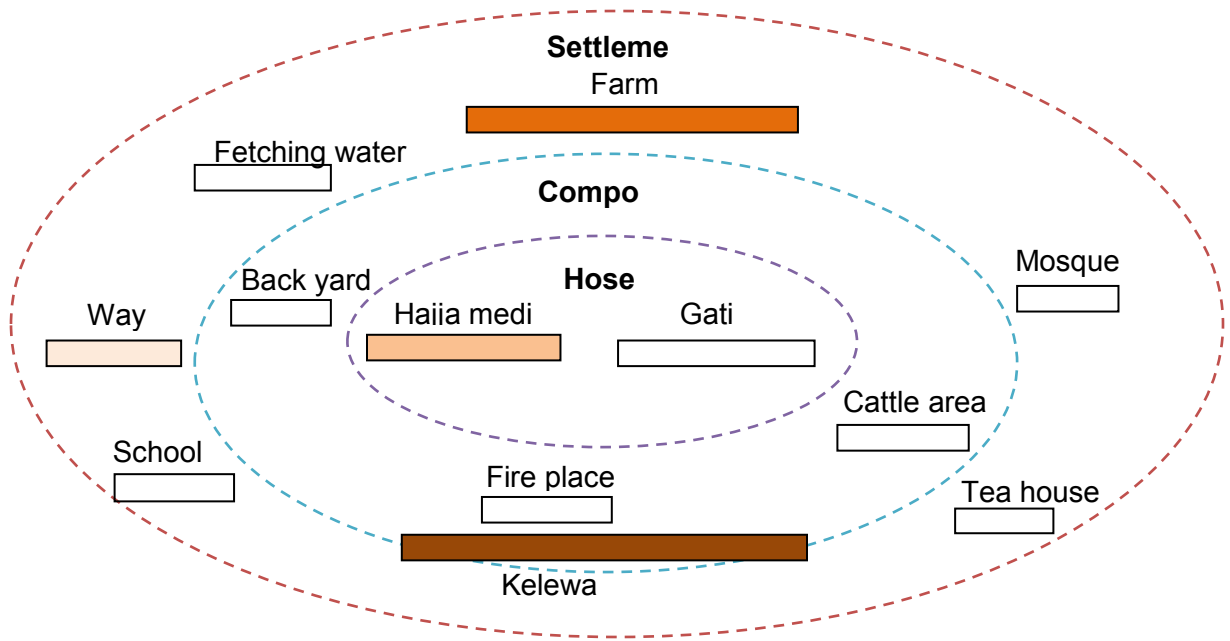


Fig. A5.3.12.2 Perception map of Ato Endris Yasin Weliyu in relation his space claim.

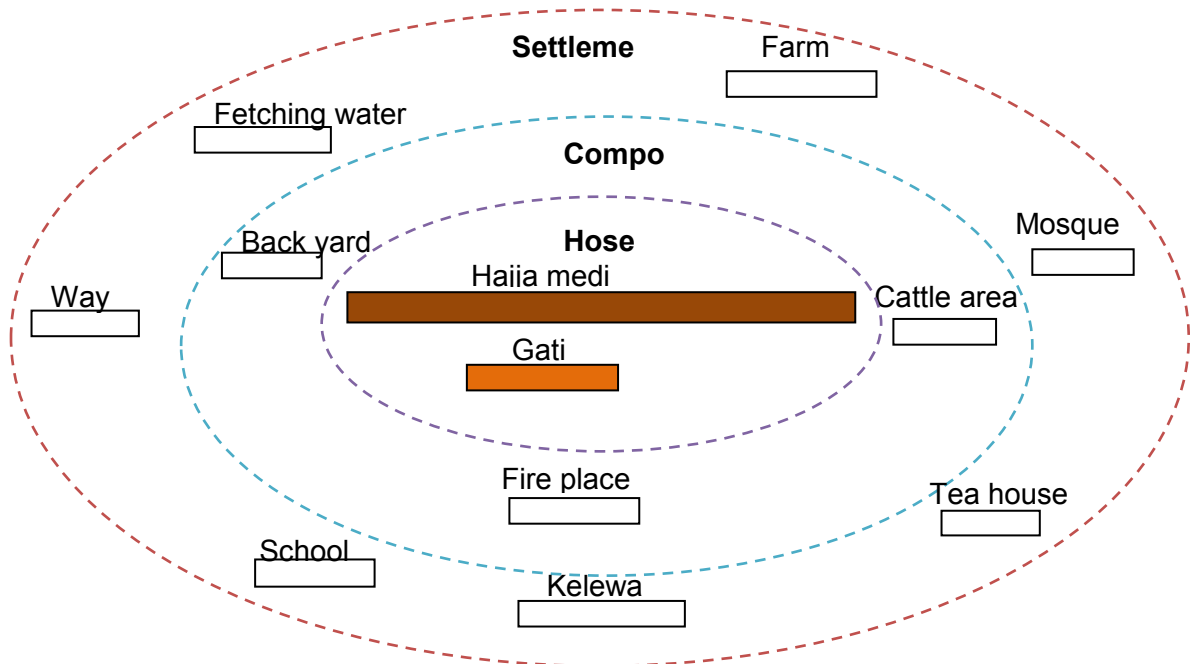
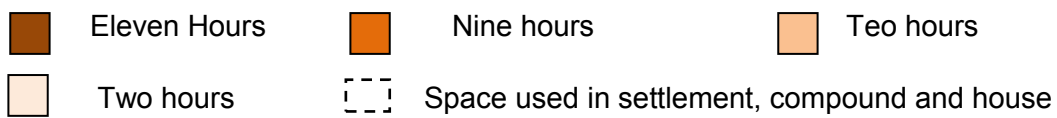


Fig. A5.3.12.3 Perception map of Ato Endris Yasin Weliyus Mother in relation to her space claim.

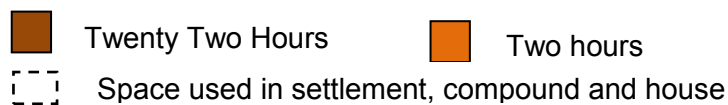


Table : A5.3.13.1 Domestic space use and claim of Ato Mohamed Yasin Aba-bahir's family.

Time	Derb bet (dwelling)				Front yard	School	Mother Home	Fetching water	Farm area	Tea house	Borkena	Way
	Hajja medi	Gati	Fire place	Cattle area								
Mohamed Yasin Aba-bahir												
6:00-6:15	✓											
6:15-7:30	✓											
7:30-8:30	✓											
8:30-9:00												✓
9:00-12:30									✓			
12:30-13:00									✓			
13:00-18:00									✓			
18:00-18:30												✓
18:30-20:00	✓											
20:00-20:15	✓											
20:015-21:00	✓											
21:00-5:00	✓											
Sub total	14:00	0.0	0:00	0:00	0:00	0:00	0:00	0:00	9.00	0.00	0.00	1:00
Wife												
5:00-5:15		✓										
5:15-7:30		✓										
7:30-8:00	✓											
8:00-9:00								✓				
9:00-10:00	✓											
10:00-10:30	✓											
10:30-11:45												✓
10:45-18:00							✓					
18:00-18:15												✓
18:15-19:00		✓										
19:00-19:30	✓											
19:30-20:00	✓											
20:00-21:00		✓										
21:00-21:30	✓											
21:30-5:00		✓										
Sub Total	6:45	9:30	0:00	0:00	0:00	0:00	6:15	1:00	0:00	0:00	0:00	0:30

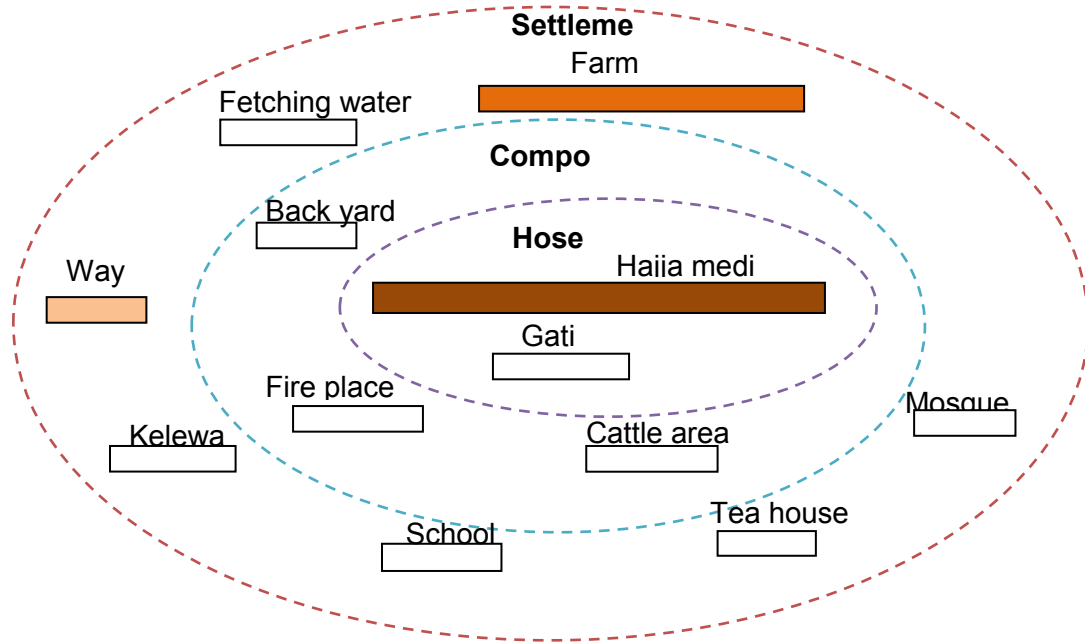


Fig. A5.3.13.2 Perception map of Ato Mohamed Yasin Aba-bahir in relation to his space claim.

Fourteen Hours
 Nine hours
 One hour
 Space used in settlement, compound and house

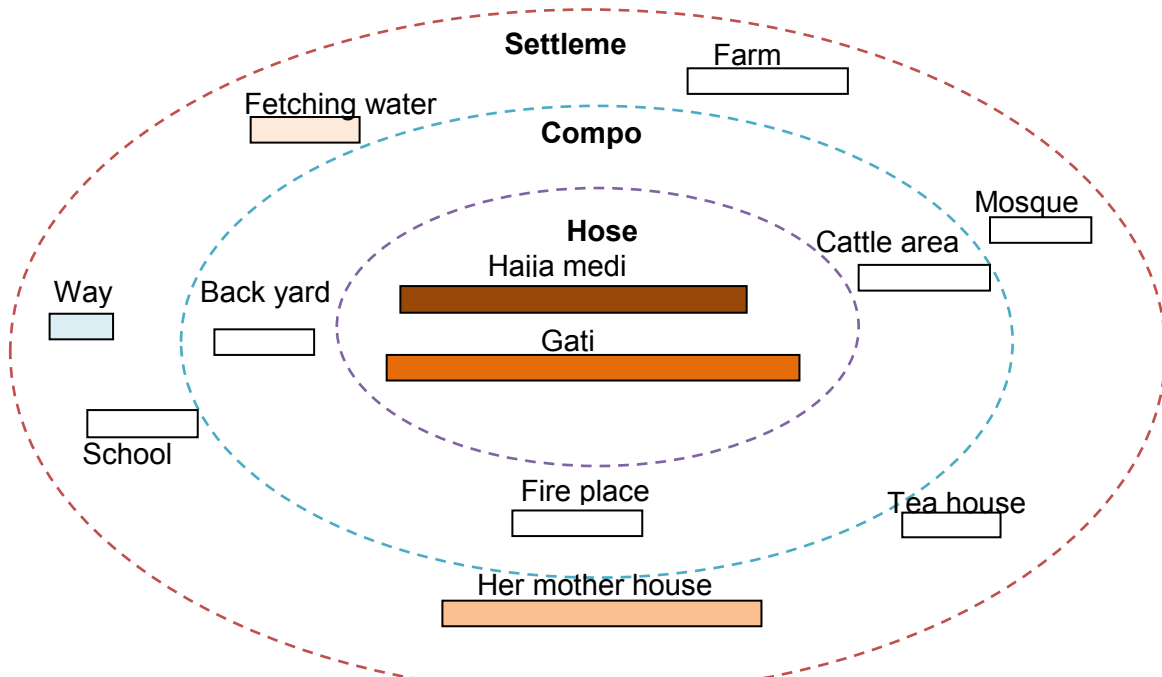


Fig. A5.3.13.3 Perception map of Ato Mohamed Yasin Aba-bahir's wife in relation to her space claim.

Less than Ten Hours
 Less than Seven hours
 Less than Seven hours
 One Hour
 Less than One Hour
 Space used in settlement, compound and house

Table :A5.3.14.1 Domestic space claim of Ato Mehamud Mohamed Seide's Family

Time	Derb bet (dwelling)				Back yard	Grazing area	Market	Fetching water	Farm area	School	Mosque	way
	Hajja medi	Gati	Fire place	Cattle area								
Ato Mehamud Mohamed Seid												
5:00-5:15	✓											
5:15-5:45												✓
5:45-9:00									✓			
9:00-9:30												✓
9:30-10:30	✓											
10:30-11:00												✓
11:00-12:30									✓			
12:30-13:00												✓
13:00-13:30	✓											
13:30-14:00	✓											
14:00-14:30												✓
14:30-17:00									✓			
17:00-17:15									✓			
17:15-17:45												✓
17:45-19:00	✓											
19:00-19:15	✓											
19:15-20:00	✓											
20:00-21:00	✓											
21:00-5:00	✓											
Sub Total	13:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	7.30	0:00	0:00	3:00
Wife												
5:00-5:15		✓										
5:15-7:00		✓										
7:00-7:30	✓											
7:30-8:30								✓				
8:30-9:00	✓											
9:00-12:00	✓											
12:00-13:00		✓										
13:00-13:30	✓											
13:30-14:30		✓										
14:30-18:00	✓											
18:00-20:00		✓		✓								
20:00-21:00	✓											
21:00:5:00		✓										
Sub Total	14:00	9:00	0:00	0:00	0:0	0:00	0:0	1:00	0:00	0:00	0:00	0:00
Daughter												
5:00-6:00								✓				
6:00-7:00								✓				
7:00-7:30	✓											✓
7:30-8:00	✓								✓			
8:00-11:00	✓											✓
11:00-11:30												✓
11:30-12:00										✓		✓
12:00-17:00										✓		✓
17:00-17:30												✓
17:30-18:00	✓											✓
18:00-19:00								✓				✓
19:00-20:00		✓			✓							
20:00-21:00	✓											
21:00-5:00		✓										
Sub total	4:30	10:0	0:00	0:00	0:0	0:00	0:0	3:00	0:00	5:30	0:00	1:00

Time	Derb bet (dwelling)				Front yard	School	Kelewa	Fetching water	Farm area	Tea house	Borkena	Way
	Hajja medi	Gati	Fire place	Cattle area								
Son												
6:00-7:00	✓											
7:00-7:30												✓
7:30-8:00						✓						
8:00-12:00						✓						
12:00-12:30												✓
12:30-13:00	✓											
13:00-13:30												✓
13:30-16:00									✓			
16:00-16:30												✓
16:30-19:00					✓							
19:00-20:00	✓											
20:00-6:00	✓											
Sub Total	10:30	0.00	0:00	0:00	2:30	4:30	0.00	2:00	2.30	0.00	0.00	2:00

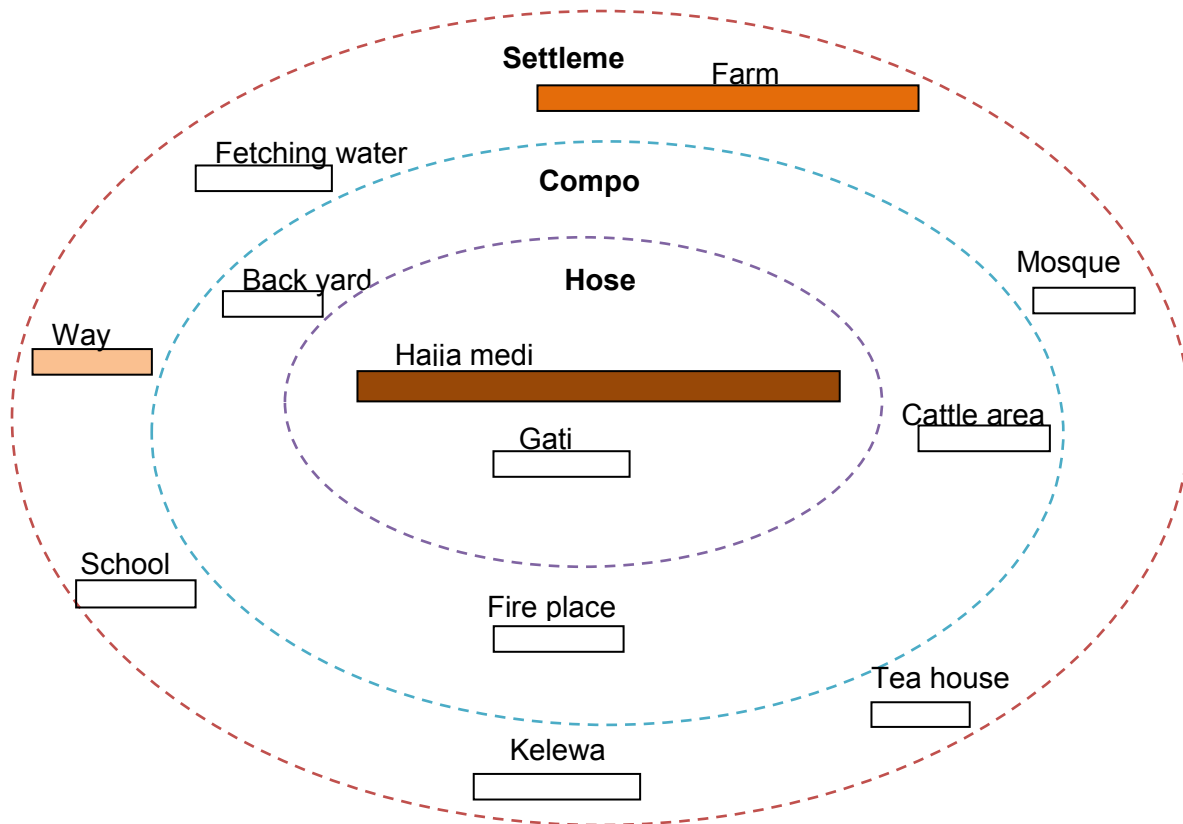


Fig. A5.3.14.2 Perception map of Ato Mehamud Mohamed Seid in relation to his space claim.

- Thirteen and half hours
- Seven and half hours
- Three hour
- Space used in settlement, compound and house

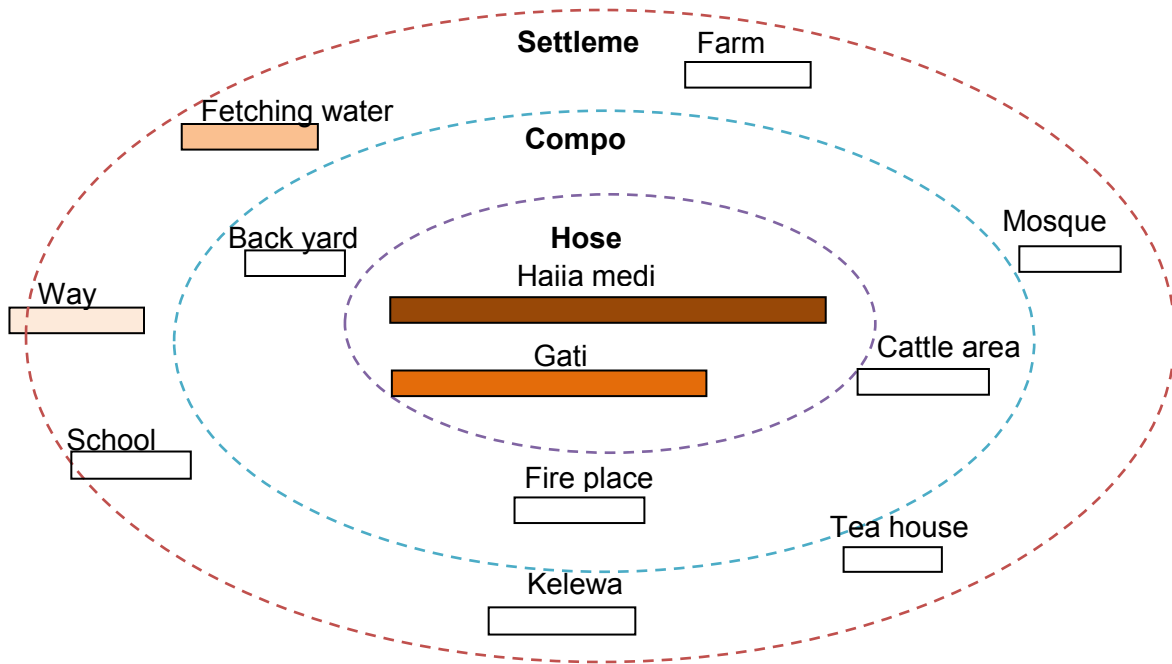


Fig. A5.3.14.3 Perception map of Ato Mehamud Mohamed Seid's wife in relation to her space claim.

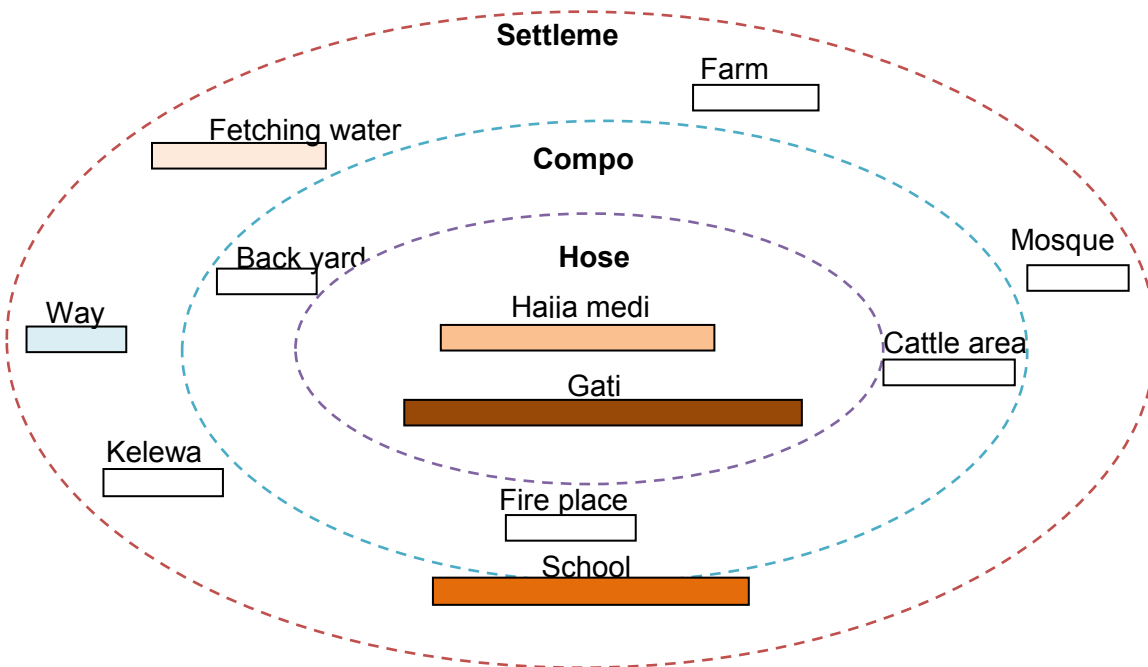
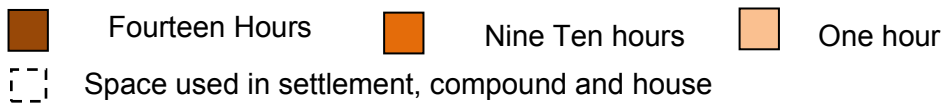


Fig. A5.3.14.4 Perception map of Ato Mehamud Mohamed Seid's Daughter in relation to her space claim.

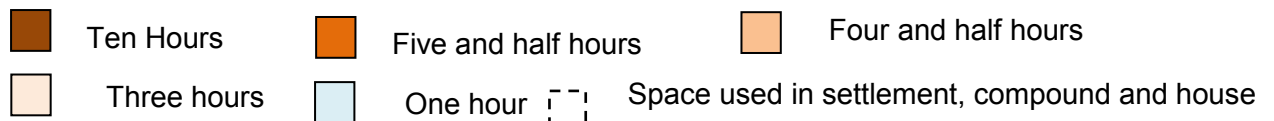


Table :A5.3.15.1 Domestic space use and claim of Ato Harun Mohamednur Esmail.

Time	Derb bet (dwelling)				Front yard	School	Kelewa	Fetchi ng	Farm area	Tea house	Market	Way
	Hajj a ma	Gati	Fire pla ce	Catt le area								
Son												
6:00-6:15							✓					
6:15-6:30												✓
6:30-8:30									✓			
8:30-9:00											✓	
9:00-9:30												✓
9:30-10:00	✓											
10:00-10:15												✓
10:15-12:30									✓			
12:30-12:45	✓											
12:45-13:00	✓											
13:00-13:30	✓											
13:30-14:30										✓		
14:30-14:45												✓
14:15-17:00									✓			
17:00-17:15									✓			
17:15-17:30												✓
17:30-19:00	✓											
19:00-20:00	✓											
20:00-21:00	✓											
21:00-6:00							✓					
Sub Total	7:00	0:00	0:00	0:00	0:00	0:00	9:15	0:00	4.45	0:30	0:00	1:30

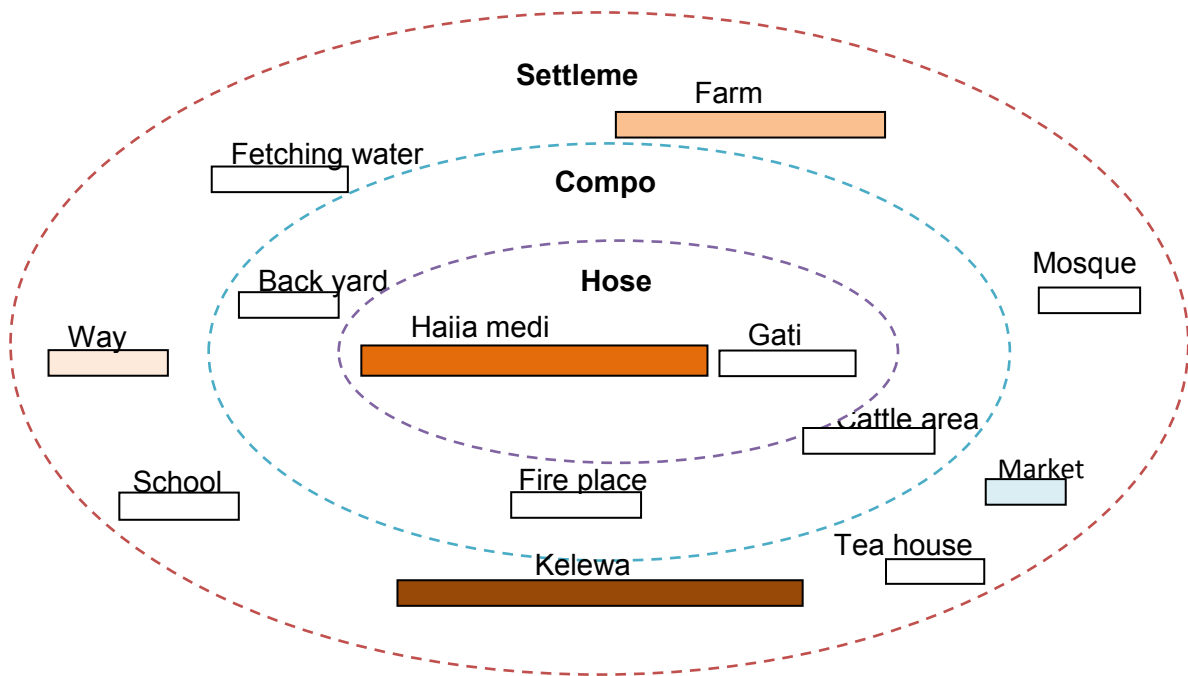


Fig.A5.3.15.2 Perception map of Ato Harun Mohamednur Esmail in relation to his space

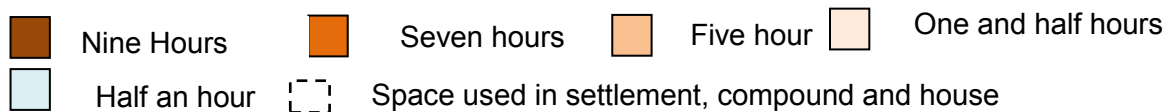


Table :A5.3.16.1 Domestic space use and claim of W/ro Merema Beshir Ahimed's family

Time	Derb bet (dwelling)				Front yard	Grazing area	Market	Fetching water	Farm area	School	Mosque	way
	Hajjamedi	Gati	Fire place	Cattle area								
Ato Mehamud Mohamed Seid												
5:00-5:15		✓										
5:15-7:30		✓										
7:30-8:00	✓											
8:00-12:00	✓											
12:00-13:00		✓										
13:00-14:00	✓											
14:00-14:15	✓											
14:15-17:00	✓											
17:00-17:50	✓											
17:50-20:00		✓										
20:00-21:00	✓											
21:00-5:00		✓										
Sub Total	9:45	14:15	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
Daughter												
5:30-5:45		✓										
5:45-6:45								✓				
6:45-8:00	✓											
8:00-12:00	✓											
12:00-13:00		✓										
13:00-13:15	✓											
13:15-15:00	✓											
15:00-17:00	✓											
17:00-17:15	✓											
17:15-18:15								✓				
18:15-18:30	✓			✓								
18:30-19:00	✓											
19:00-20:00		✓										
20:00-21:00	✓											
21:00-5:30		✓										
Sub Total	11:45	10:15	0:00	0:00	0:0	0:00	0:0	2:00	0:00	0:00	0:00	0:00
Son												
7:00-7:30	✓											
7:30-8:00												✓
8:00-13:00									✓			✓
13:00-13:30									✓			✓
13:30-14:00	✓											✓
14:00-14:30												✓
14:30-18:00									✓			✓
18:00-18:30												✓
18:30-19:00					✓							
19:00-20:00	✓											✓
20:00-21:00	✓											✓
21:00-7:00	✓				✓							
Sub total	13:00	0:00	0:00	0:00	0:30	0:00	0:0	0:00	8:30	0:00	0:00	2:00

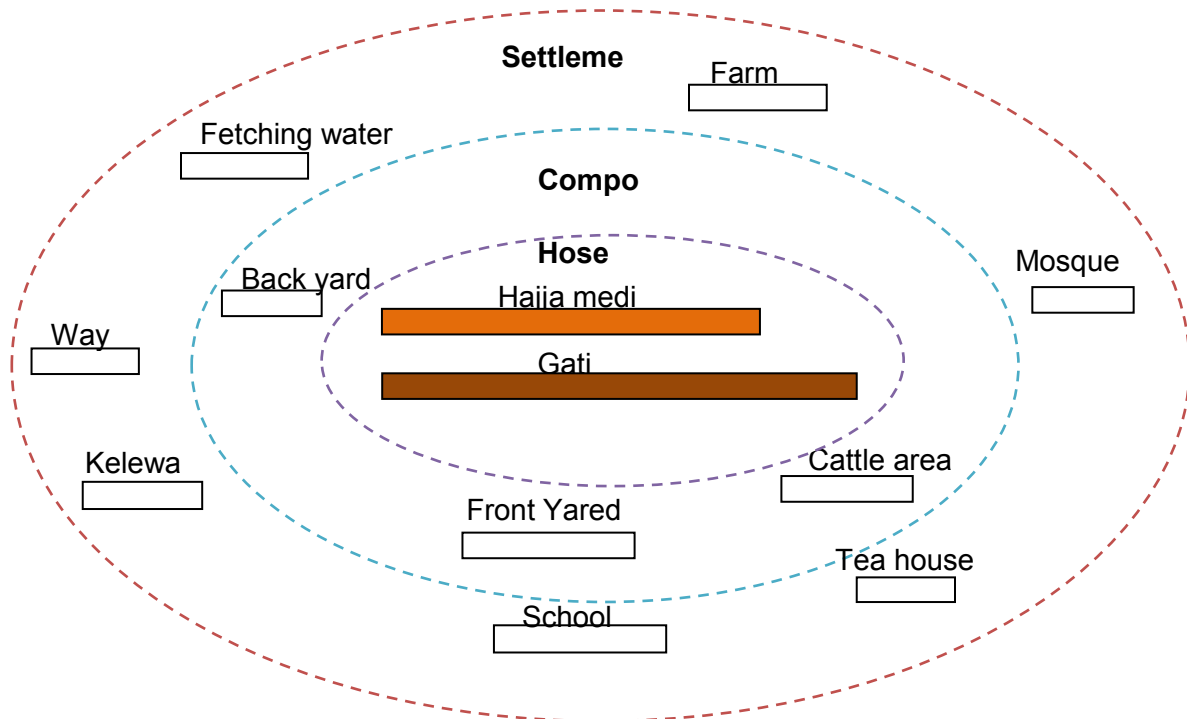


Fig. A5.3.16.2 Perception map of W/ro Merema Beshri Ahime in relation to her space claim.

Ten Hours
 Fourteen hours
 Space used in settlement, compound and house

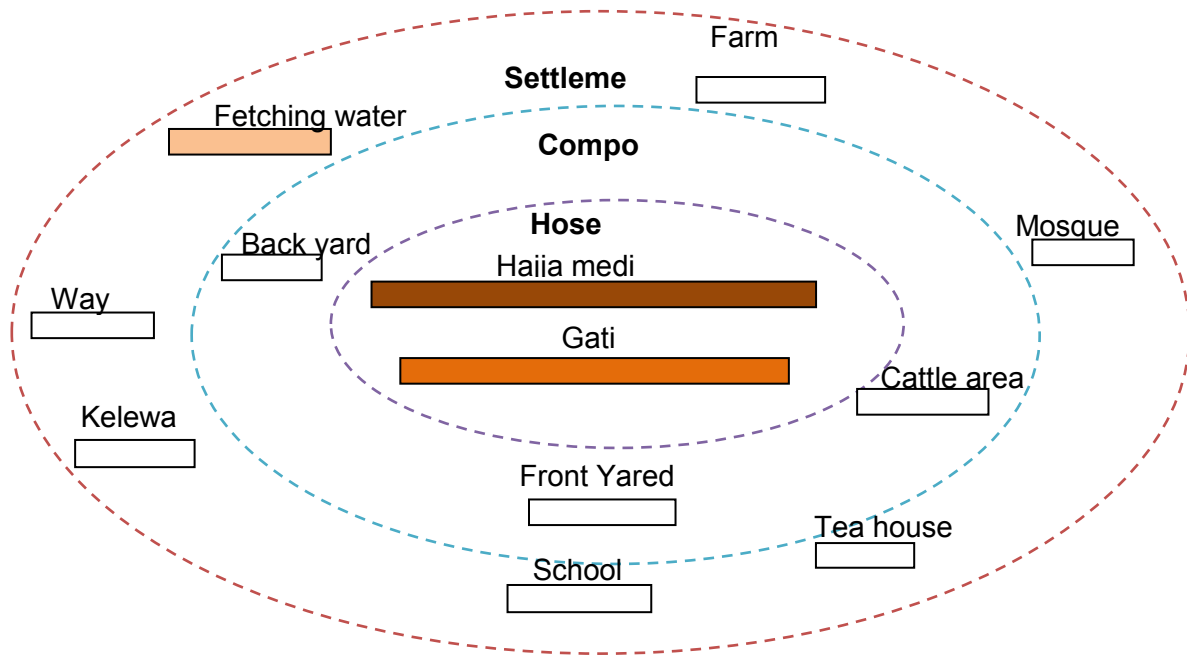


Fig. A5.3.16.3 Perception map of W/ro Merema Beshri Ahime's daughter in relation to her space claim.

Twelve Hours
 Ten hours
 Two hours
 Space used in settlement, compound and house

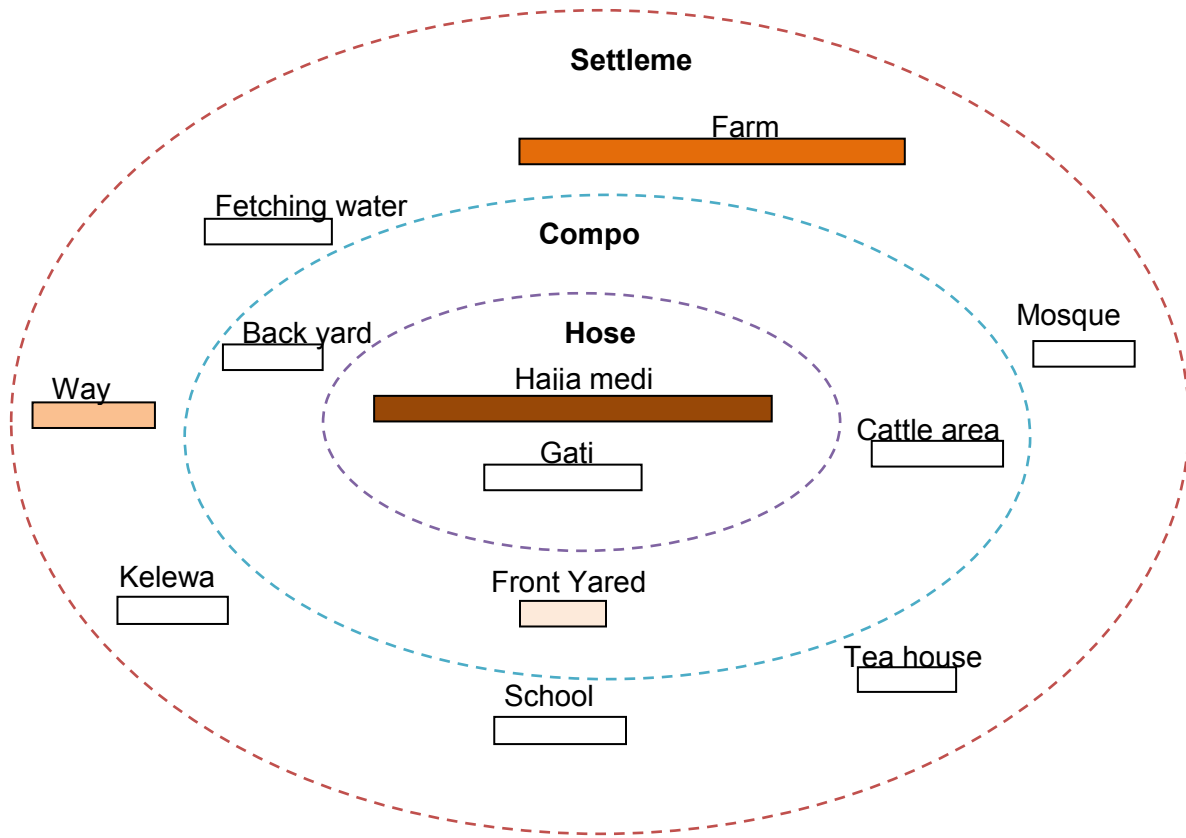


Fig. A5.3.16.4 Perception map of W/ro Merema Beshri Ahime's Son in relation to his space. claim.

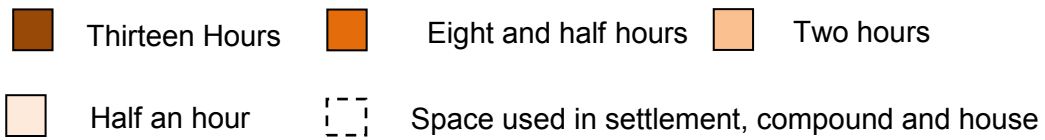


Table: A5.3.17.1 Domestic space use and claim of Ato Mohamednu Esmail's family

Time	Derb bet (dwelling)				Front yard	Grazing	Market	Fetching water	Farm area	School	Mosque	way
	Hajjia medi	Gati	Weret	Cattle area								
Ato Mohamednur esmaeil												
5:00-5:15	✓											
5:15-5:45												✓
5:45-7:30									✓			
7:30-8:00												✓
8:00-8:30							✓					
8:30-9:00												✓
9:00-9:15	✓											
9:15-9:45												✓
9:45-13:00									✓			
13:00-13:30												✓
13:30-13:45	✓											
13:45-14:00	✓											
14:00-14:30												✓
14:30-18:00									✓			
18:00-18:30												✓
18:30-19:30	✓											
19:30-20:00											✓	
20:00-21:00	✓											
21:00-5:00	✓											
Wife												
Sub Total	11:00	0:00	0:00	0:00	0:00	0:00	0:30	0:00	8.30	0:00	0.30	3:30
5:00-5:15	✓											
5:15-7:30			✓									
7:30-8:30	✓											
8:30-9:00	✓											
9:00-10:30									✓			
10:30-12:30			✓									
12:30-12:45		✓										
12:45-13:15	✓											
13:15-17:00	✓											
17:00-17:15		✓										
17:15-20:00			✓									
20:00-20:30	✓											
20:30-21:00		✓										
21:00-5:00		✓										
Sub Total	6:15	9:15	7:00	0:00	0:0	0:00	0:0	0:00	1:30	0:00	0:00	0:00
Daughter												
6:00-6:15		✓										
6:15-7:15								✓				
7:15-8:15								✓				✓
8:15-9:15					✓				✓			
9:15-9:30	✓											✓
9:30-10:00	✓				✓							
10:00-10:30												✓
10:30-17:00										✓		
17:00-17:30												✓
17:30-17:45	✓											
17:45-18:45								✓				
18:45-19:00	✓											
19:00-20:00	✓											
20:00-21:00	✓											
21:00-5:00		✓										
Sub total	4:15	8:15	0:00	0:00	1:00	0:00	0:0	3:00	0:00	6:30	0:00	1:00

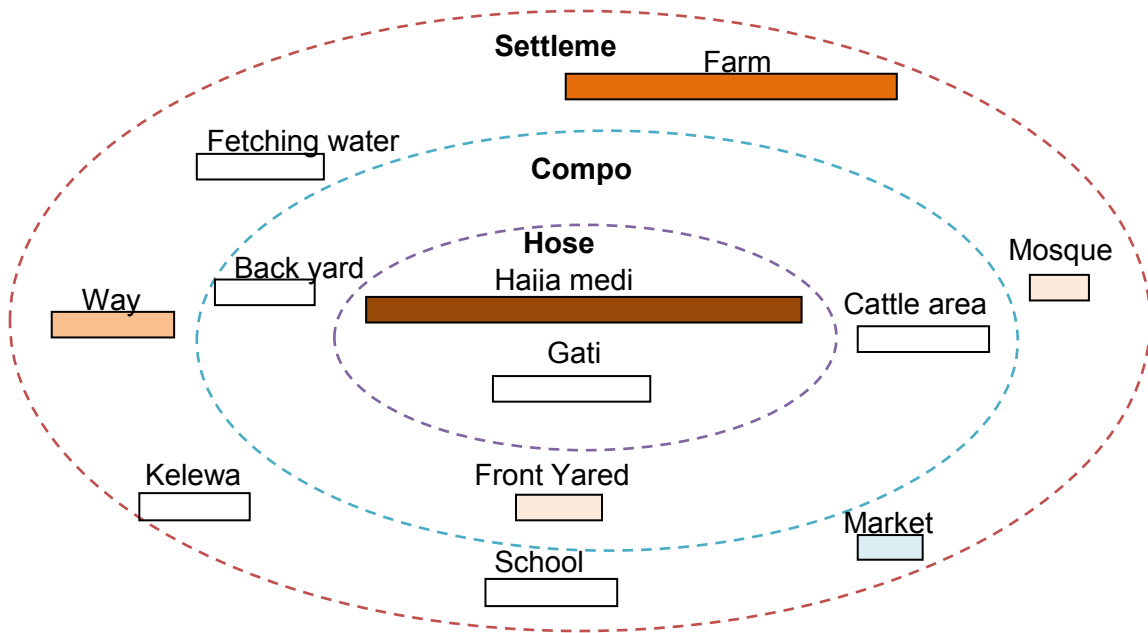


Fig. A5.3.17.2 Perception map of Ato Mohamednur Esmail in relation to his space claim.

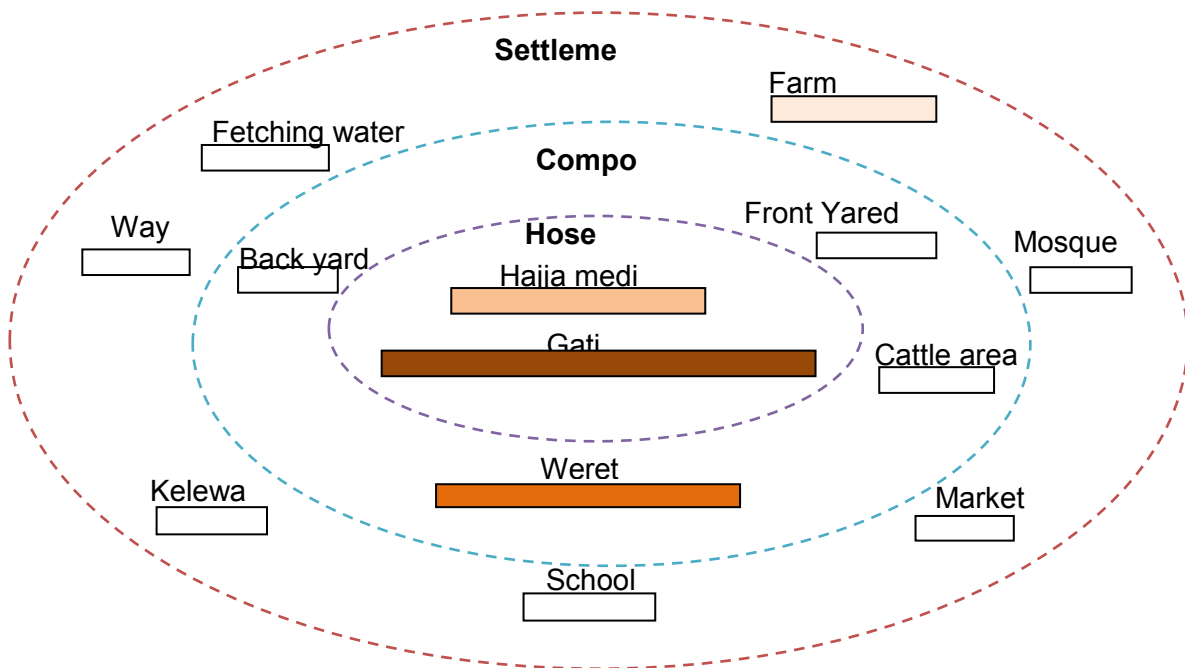
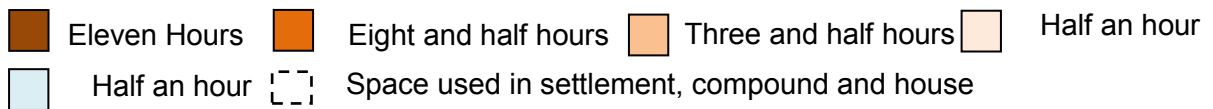
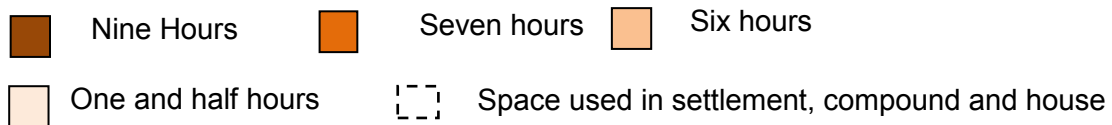


Fig. A5.3.17.3 Perception map of Ato Mohamednur esmaiel's Wife in relation to her space claim.



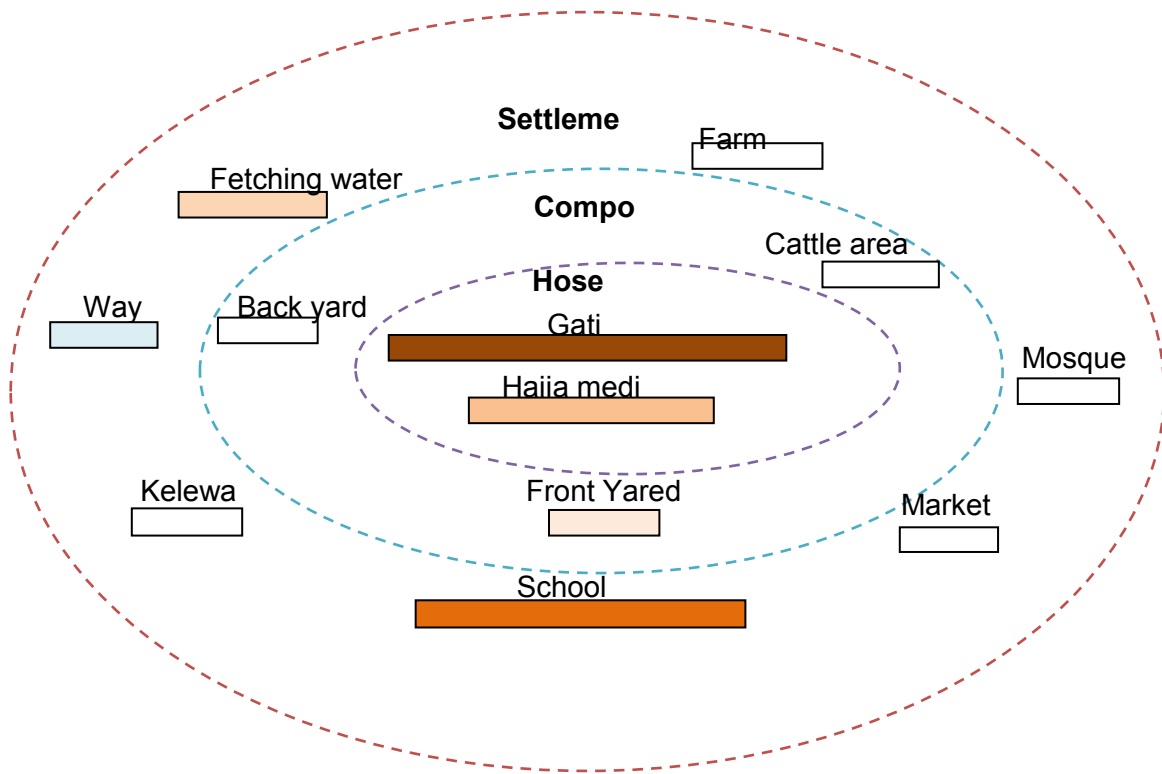


Fig. A5.3.17.4 Perception map of Ato Mohamednur esmaeil's daughter in relation to her space claim.

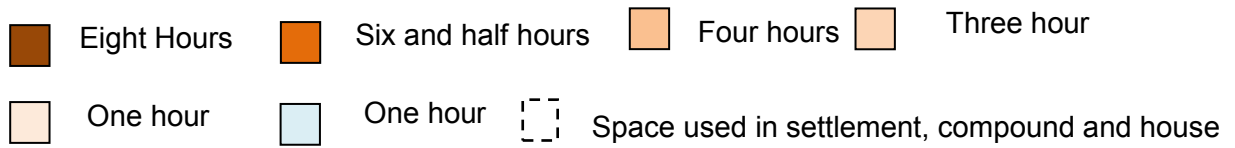


Table :A5.3.18.1 Domestic space use and claim of W/ro Sofiya Aliyu.

Time	Derb bet (dwelling)				Front yard	School	settleme nt	Fetching water	Farm area	Tea house	Market	Way
	Hajja medi	Gati	Fire place	Cattle area								
W/ro Sofiya Aliyu												
5:00-5:20	✓											
5:20-8:00	✓											
8:00-8:15												✓
8:15-9:00							✓					
9:00-10:00								✓				
10:00-13:00							✓					
13:00-13:15							✓					
13:15-17:00							✓					
17:00-17:15	✓											
17:15-20:30							✓					
20:30-5:00	✓											
Sub Total	11:30	0:00	0:00	0:00	0:00	0:00	11.15	1:00	0:00	0:00	0:00	0:15

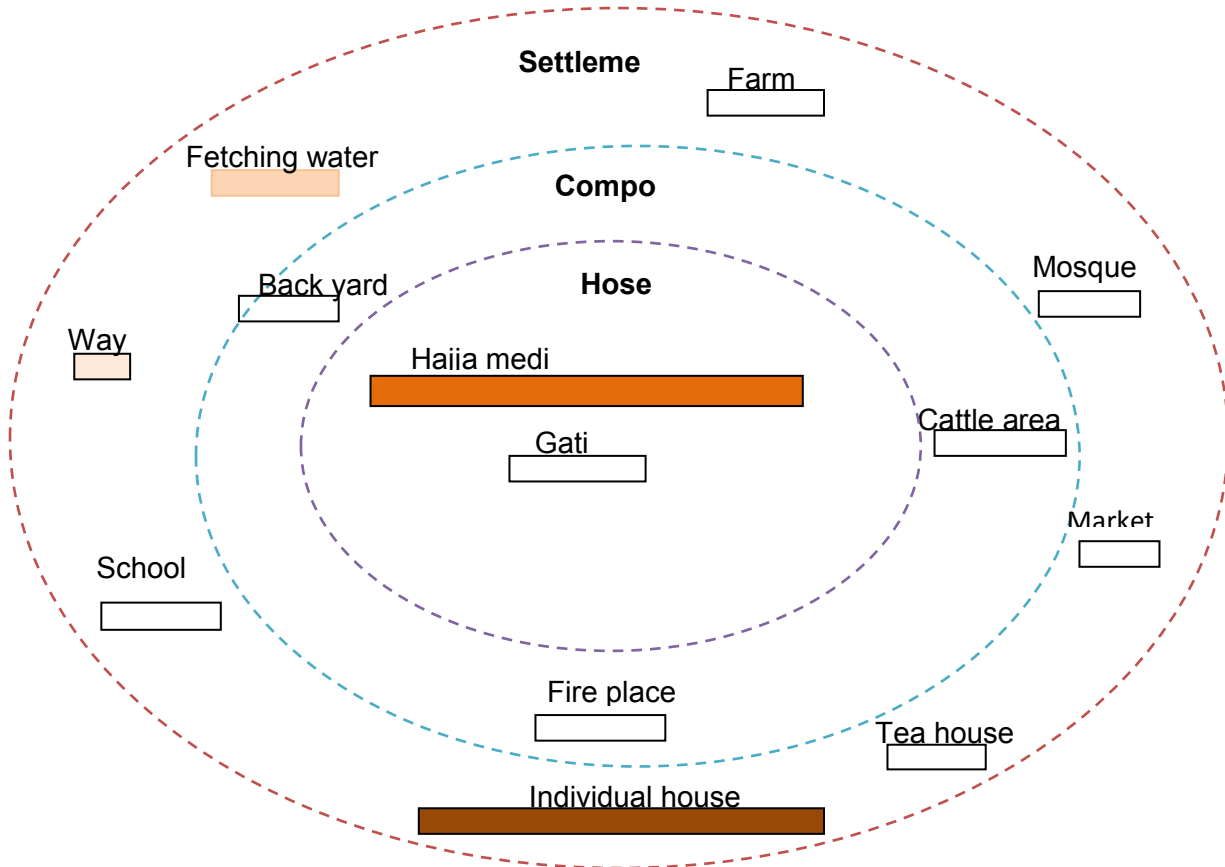


Fig. A5.3.18.2 Perception map of W/ro Sofiya Aliyu in relation to her space

- Eleven and half hours
 One hour
 Eleven hours
- Fifteen minute hour
 Space used in settlement, compound and house

Table: A5.3.19.1 Domestic space use and claim of Ato Ahimed Hasen yesuf's family

Time	Derb bet (dwelling)				Front yad	Grazing area	Market	Fetching water	Farm area	School	Mosque	way
	Hajja medi	Gati	Weret	Cattle area								
Ato Ahimed Hasen yesuf's												
5:00-5:15	✓											
5:15-7:00												✓
7:00-9:00									✓			
9:00-9:15									✓			
9:15-13:00									✓			
13:00-13:15									✓			
13:15-14:00									✓			
14:00-17:00									✓			
17:00-19:00												✓
19:00-20:00	✓											
20:00-21:00	✓											
21:00-5:00	✓											
Wife												
Sub Total	10:15	0:00	0:00	0:00	0:00	0:00	0:00	0:00	9.45	0:00	0:00	4:00
5:00-5:15		✓										
5:15-8:00			✓									
8:00-8:15	✓											
8:15-11:00	✓											
11:00-12:30			✓									
12:30-12:45		✓										
12:45-14:00	✓											
14:00-17:00	✓											
17:00-17:15		✓										
17:15-20:00			✓									
20:00-21:00	✓			✓								
21:00-5:00		✓		✓								
		✓										
Sub Total	8:30	8:30	7:00	0:00	0:0	0:00	0:0	0:00	0:00	0:00	0:00	0:00
Daughter												
5:00-5:15		✓										
5:15-6:15								✓				
6:15-7:15								✓				✓
7:15-7:30	✓								✓			
7:30-13:00	✓											✓
13:30-13:15		✓			✓							
13:15-14:00	✓											
14:00-17:00	✓											
17:00-18:00								✓				
18:00-18:15	✓											
18:15-20:00	✓											
20:00-21:00	✓											
21:00-5:00		✓										
Sub total	12:30	8:30	0:00	0:00	0:00	0:00	0:0	3:00	0:00	0:00	0:00	0:00

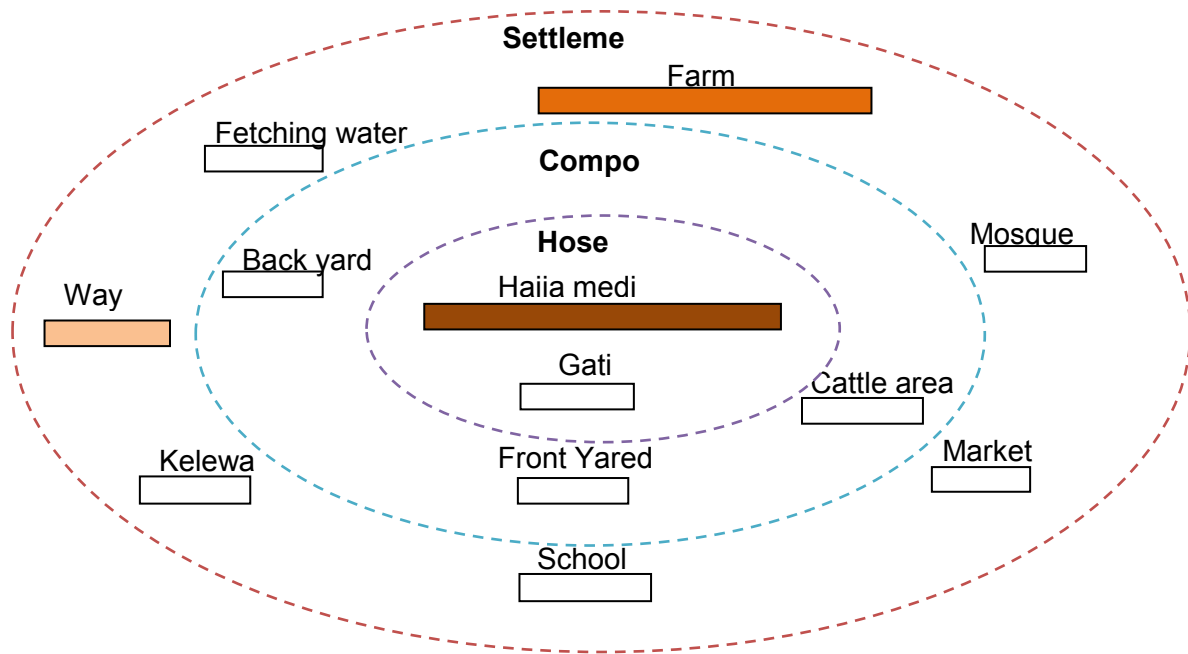


Fig. A5.3.19.2 Perception map of Ato Ahimed Hasen yesuf in relation to his space claim.

Ten hours
 Ten hours
 Four hours
 Space used in settlement, compound and house

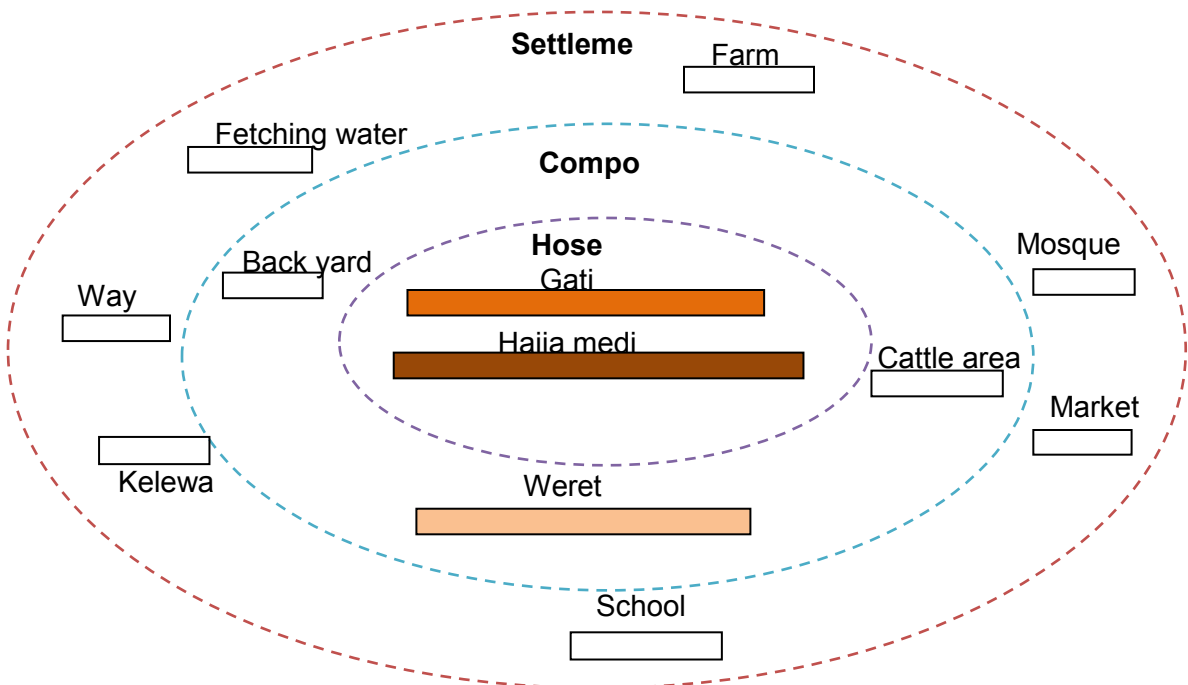


Fig. A5.3.19.3 Perception map of Ato Ahimed Hasen yesuf's wife in relation to her space claim.

Eight and half hours
 Eight and half hours
 Seven hours
 Space used in settlement, compound and house

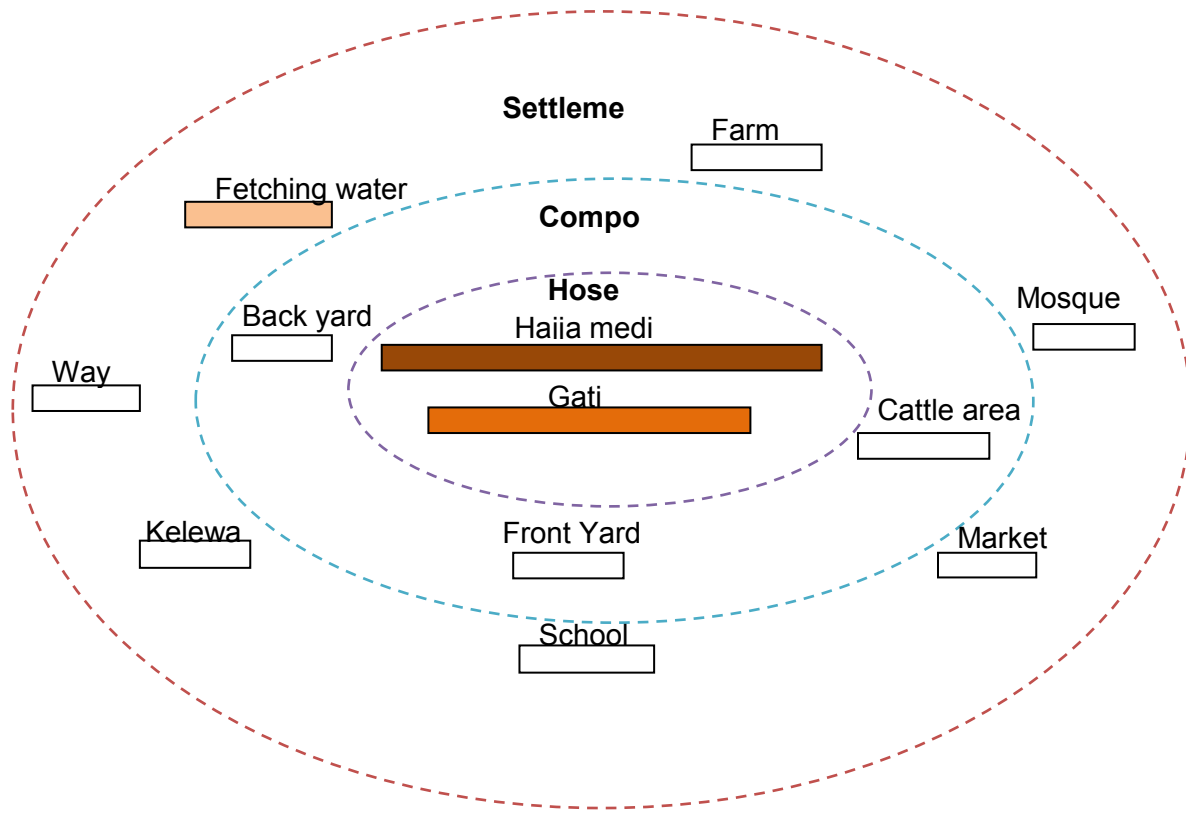


Fig. A5.3.19.4 Perception map of Ato Ahimed Hasen yesuf's daughter in relation to her space claim.





-  Twelve and half hours
-  Eight and half hours
-  Three hours
-  Space used in settlement, compound and house

Table: A5.3.20.1 Domestic space use and claim of W/ro Fatuma Mohamed Nuru's family

Time	Derb bet (dwelling)				Front yard	Grazing area	Market	Fetching water	Farm area	School	Mosque	way
	Hajja medi	Gati	Weret	Cattle area								
W/ro Fatuma Mohamed Nuru												
5:00-5:15		✓										
5:15-8:00		✓										
8:00-9:00	✓											
9:00-10:00							✓					
10:00-12:00	✓											
12:00-13:00		✓										
13:00-13:15	✓											
13:15-15:00	✓											
15:00-20:00	✓											
20:00-21:00		✓										
21:00-5:00		✓										
Daughter												
Sub Total	10:00	13:00	0:00	0:00	0:00	0:00	0:00	1:00	0:00	0:00	0:00	0:00
5:00-5:15		✓										
5:15-6:00		✓										
6:00-7:00							✓					
7:00-8:30		✓										
8:30-9:00	✓											
9:00-13:00	✓											
13:00-14:00	✓											
14:00-17:00	✓											
17:00-17:15	✓											
17:15-20:00		✓										
20:00-20:30	✓			✓								
20:30-5:00		✓		✓								
Sub Total	9:45	13:15	0:00	0:00	0:00	0:00	0:00	1:00	0:00	0:00	0:00	0:00
Son												
5:00-5:15	✓											
5:15-6:00	✓											
6:00-6:30	✓											✓
6:30-8:00									✓			✓
8:00-12:00									✓			✓
12:00-14:00					✓				✓			
14:00-17:00									✓			
17:00-18:30												✓
18:30-20:00	✓											
20:00-20:30	✓											
20:30-5:00	✓											
Sub total	12:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	9:00	0:00	0:00	3:00

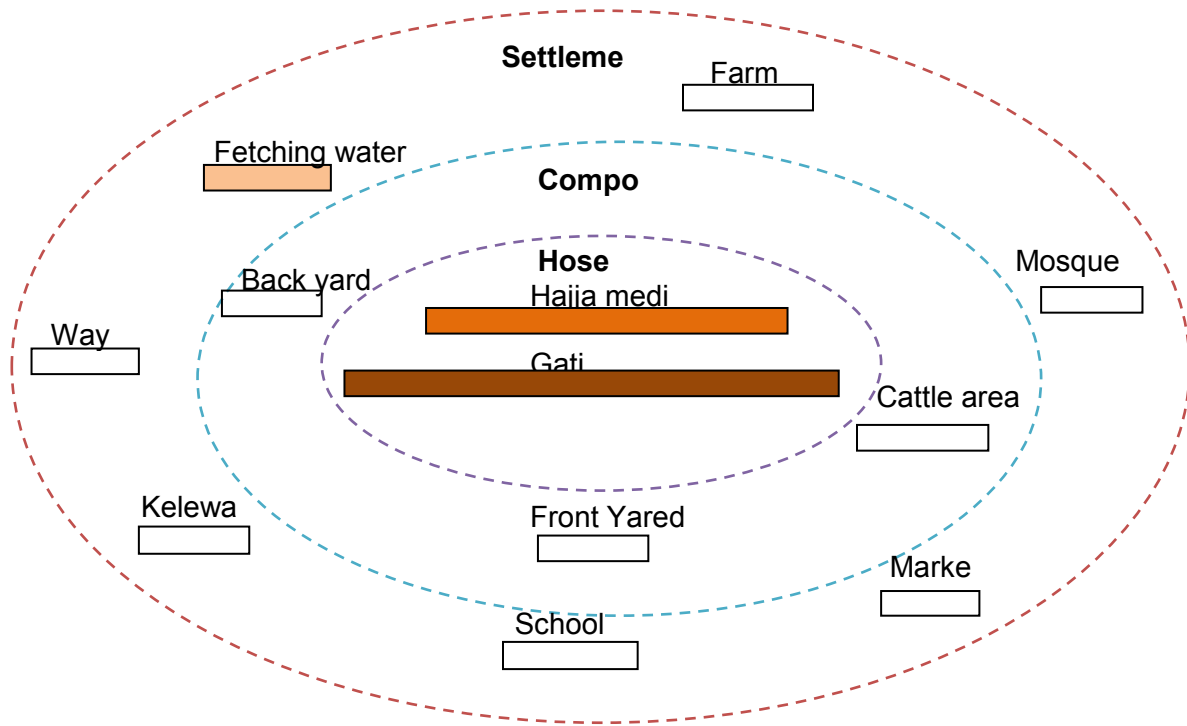


Fig. A5.3.20.2 Perception map of W/ro Fatuma Mohamed Nuru in relation to her space claim.

Thirteen hours
 Ten hours
 One hour
 Space used in settlement, compound and house

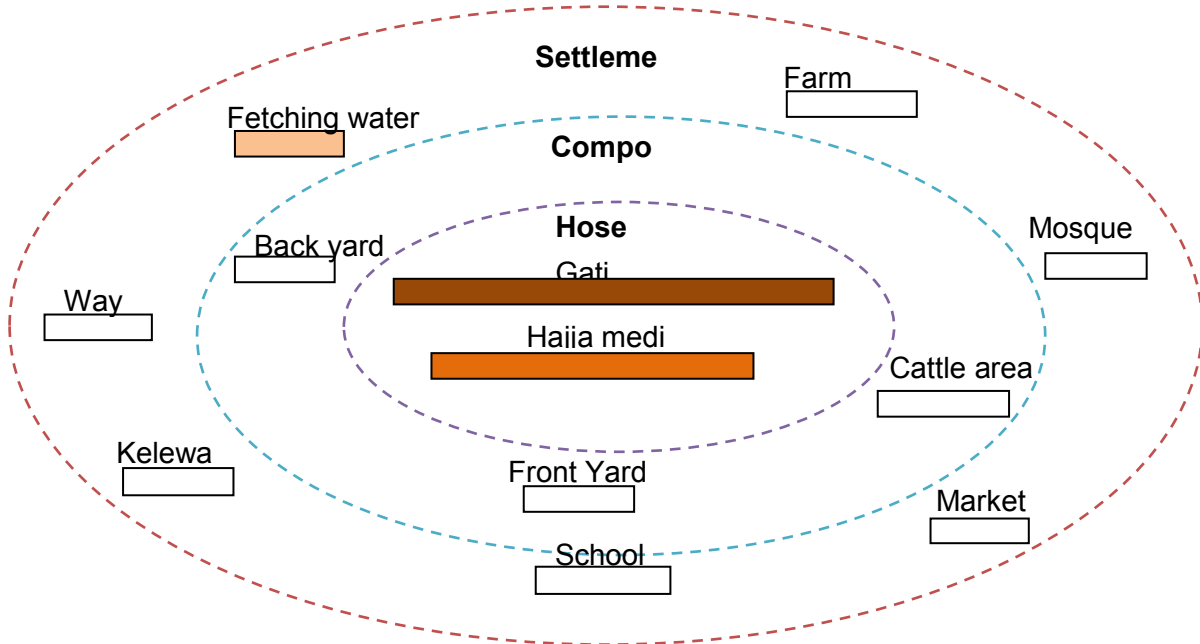


Fig. A5.3.20.3 Perception map of W/ro Fatuma Mohamed Nuru's daughter in relation to her space claim.

Thirteen hours
 Ten hours
 One hour
 Space used in settlement, compound and house

Table :A5.3.21.1 Domestic space use and claim of Sheikh Mohamed Yasin Kemal's family

Time	Derb bet (dwelling)				Front yard	Grazing area	Market	Fetchin g water	Farm area	School	Mosqu e	way
	Hajja medi	Gati	Weret	Cattle area								
Sheikh Mohamed Yasin Kasim												
3:00-4:00	✓											
4:00-4:20												✓
4:20-5:00											✓	
5:00-5:45											✓	
5:45-6:00												✓
6:00-8:00	✓											
8:00-8:30	✓											
8:30-9:00	✓											
9:00-12:30	✓											
12:30-13:00												✓
13:00-13:30											✓	
13:00-20:00											✓	
20:00-20:20											✓	
20:20-20:45												✓
20:45-21:00	✓											
21:00-3:00	✓											
Daughter												
Sub Total	15:20	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	7:20	1:20
5:00-5:30	✓											
5:30-6:30							✓					
6:30-7:30							✓					
7:30-8:00	✓											
8:00-10:00	✓											
10:00-11:00	✓											
11:00-11:30	✓											
11:30-12:00												✓
12:00-17:00										✓		
17:00-17:30												✓
17:30-17:45	✓											
17:45-20:00	✓											
20:00-21:00	✓											
21:00-5:00	✓											
Sub Total	16:00	00:00	0:00	0:00	0:00	0:00	0:00	2:00	0:00	5:00	0:00	1:00

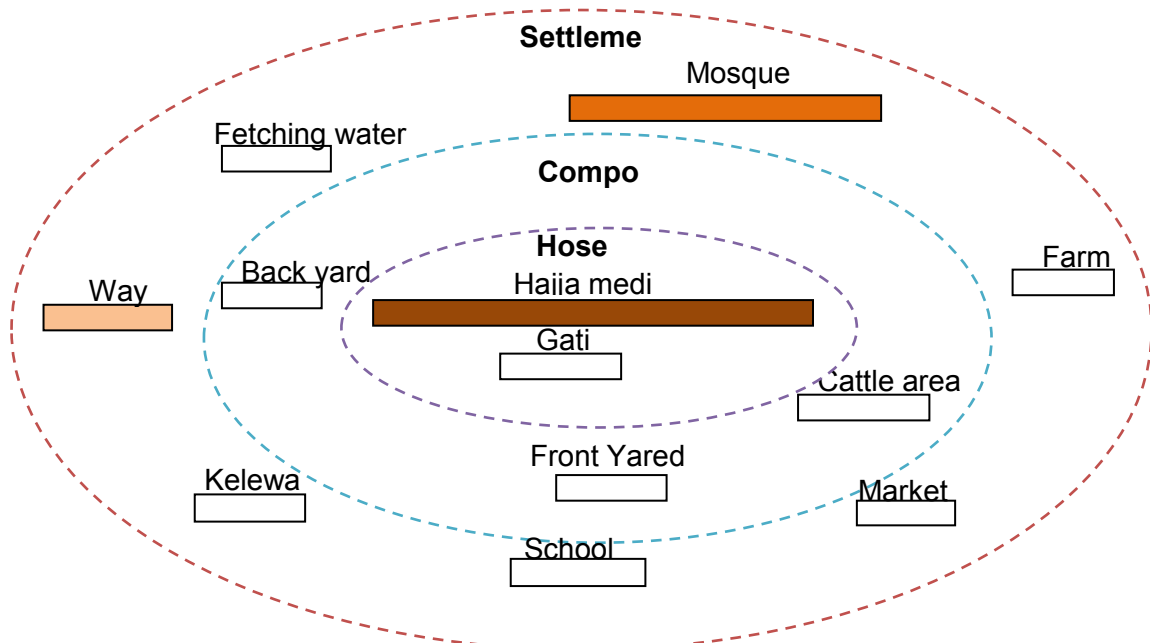


Fig. A5.3.21.2 Perception map of Sheikh Mohamed Yasin Kasim in relation to his space claim.

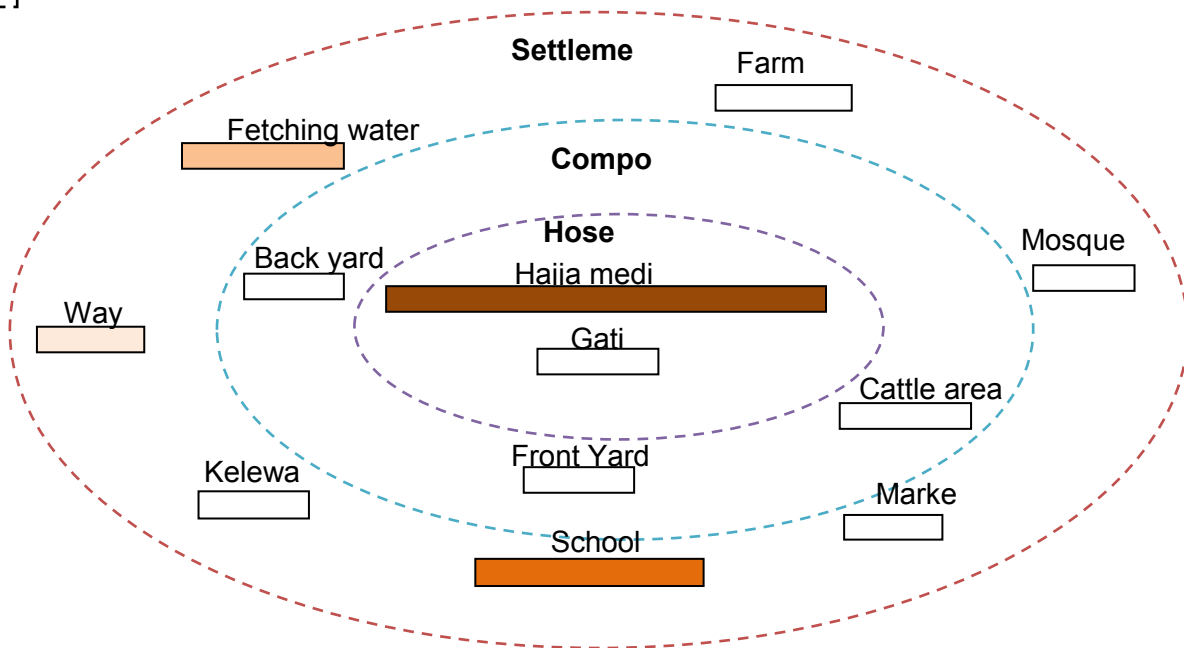
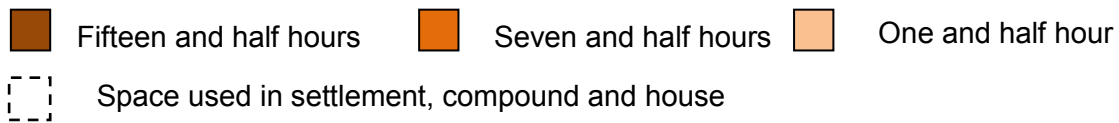


Fig. A5.3.21.3 Perception map of Sheikh Mohamed Yasin Kasim's daughter in relation to her space claim.

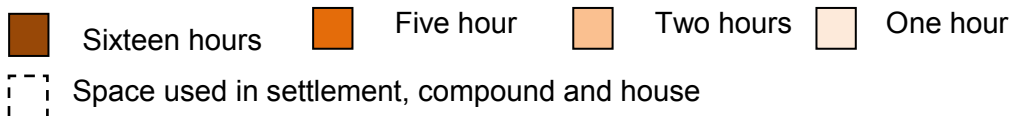


Table A2: Total Recorded of Activity and Space Used within the settlement; Time in Day, Hour and Munities for the case study sampling.

sampling	Hija	Medi	Gati	Fire place	Cattle area	Back yard	Front yard	Market	Fetching water	Farm area	School	Way	Mosque	Kelewa	Borkena River	relative house	Tea house
3.1.1	9:15	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	5:30	0:00	0:55	1:55	0:00	0:00	0:00	0:00
3.1.2	3:55	9:15	6:50	0:45	0:00	0:00	0:00	0:00	1:00	2:15	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.1.3	4:00	8:45	0:00	0:00	1:00	0:00	0:00	0:00	0:00	3:45	4:00	2:30	0:00	0:00	0:00	0:00	0:00
3.2.1	14:15	4:15	0:00	0:00	0:00	0:00	0:00	0:00	3:20	3:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.3.1	15:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	6:00	0:00	0:00	1:00	0:00	0:00	0:00	0:00
3.3.2	6:45	15:45	0:00	0:00	0:00	0:00	0:00	0:00	1:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.4.1	12:45	5:45	0:00	0:00	0:00	0:00	0:00	0:00	0:00	5:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.4.2	3:00	19:00	0:00	0:00	0:30	0:00	0:00	0:00	1:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.5.1	17:45	0:00	0:00	0:00	0:00	0:00	0:00	1:45	0:00	0:00	0:00	3:00	0:00	0:00	0:00	0:00	0:00
3.5.2	8:30	13:30	0:00	0:00	0:00	0:00	0:00	0:00	2:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.6.1	16:30	4:30	0:00	0:00	0:00	0:00	0:00	0:00	1:00	0:00	0:00	0:00	0:00	0:00	1:00	0:00	0:00
3.6.2	4:10	0:00	0:00	0:00	0:00	0:00	0:00	0:45	0:00	5:15	0:00	2:05	0:00	11:45	0:00	0:00	0:00
3.6.3	14:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	2:00	0:00	6:30	1:00	0:00	0:00	0:00	0:00	0:00
3.7.1	15:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	8:30	0:00
3.8.1	17:00	0:00	7:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.8.2	15:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	6:40	0:00	1:50	0:00	0:00	0:00	0:00	0:00
3.8.3	1:20	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:30	0:00	1:00	0:00	18:00	0:00	0:00	3:00
3.8.4	13:30	7:30	1:00	0:00	0:00	1:30	0:00	0:00	1:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.9.1	4:00	20:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	2:15	0:00	0:00	0:00	0:00	0:00
3.9.2	0:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	8:00	0:00	0:00	0:00	11:15	0:00	0:00	2:00
3.9.3	1:15	10:45	0:00	0:00	0:00	0:00	0:00	0:00	2:15	0:00	5:15	1:00	0:00	0:00	3:00	0:00	0:00
3.10.1	10:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	6:30	0:00	2:00	5:00	0:00	0:00	0:00	0:00
3.10.2	8:30	13:30	0:00	0:00	0:00	0:00	0:00	0:00	2:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.11.1	14:45	4:45	0:00	0:00	0:00	0:00	0:00	0:00	2:00	2:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.12.1	2:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	9:15	0:00	2:00	0:00	11:05	0:00	0:00	0:30
3.12.2	22:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	2:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.13.1	14:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	9:00	0:00	1:00	0:00	0:00	0:00	0:00	0:00
3.13.2	6:45	9:30	0:00	0:00	0:00	0:00	0:00	0:00	1:00	0:00	0:00	0:30	0:00	0:00	0:00	6:15	0:00
3.14.1	13:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	7:30	0:00	3:00	0:00	0:00	0:00	0:00	0:00
3.14.2	14:00	9:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.14.3	4:00	10:00	0:00	0:00	0:00	0:00	0:00	0:00	3:00	0:00	5:30	1:00	0:00	0:00	0:00	0:00	0:00
3.14.4	10:30	0:00	0:00	0:00	0:00	0:00	2:30	0:00	0:00	0:00	4:30	2:00	0:00	0:00	0:00	0:00	0:00
3.15.1	7:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	4:45	0:00	1:30	0:00	9:15	0:00	0:00	0:00
3.16.1	9:45	14:15	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.16.2	11:45	10:15	0:00	0:00	0:00	0:00	0:00	0:00	2:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.16.3	13:00	0:00	0:00	0:00	0:00	0:30	0:00	0:00	0:00	8:30	0:00	2:00	0:00	0:00	0:00	0:00	0:00
3.17.1	11:00	0:00	0:00	0:00	0:00	0:00	0:30	0:00	0:00	8:30	0:00	3:30	0:30	0:00	0:00	0:00	0:00
3.17.2	6:15	9:15	7:00	0:00	0:00	0:00	0:00	0:00	0:00	1:30	0:00	0:00	0:30	0:00	0:00	0:00	0:00
3.17.3	4:15	8:15	0:00	0:00	0:00	1:00	0:00	0:00	3:00	0:00	6:30	1:00	0:00	0:00	0:00	0:00	0:00
3.18.1	11:30	0:00	0:00	0:00	0:00	0:00	1:00	0:00	1:00	0:00	0:00	0:15	0:00	0:00	0:00	11:15	0:00
3.19.1	10:15	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	9:45	0:00	4:00	0:00	0:00	0:00	0:00	0:00
3.19.2	8:30	8:30	7:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.19.3	12:30	8:30	0:00	0:00	0:00	0:00	0:00	0:00	3:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.20.1	10:00	13:00	0:00	0:00	0:00	0:00	0:00	0:00	1:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.20.2	9:45	13:15	0:00	0:00	0:00	0:00	0:00	0:00	1:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
3.20.3	12:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	9:00	0:00	3:00	0:00	0:00	0:00	0:00	0:00
3.21.1	15:20	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:20	7:00	0:00	0:00	0:00	0:00
3.21.2	16:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	2:00	0:00	5:00	1:00	0:00	0:00	0:00	0:00	0:00
Sub Total	489:15:00	251:00	28:50	0:45	1:30	6:30	3:00	38:35	123:40	37:15	44:40	15:55	61:20	4:00	26:00	5:30	
Average	10:11:34	5:13:45	0:36:02	0:00:56	0:01:52	0:08:08	0:03:45	0:48:14	2:34:35	0:46:34	0:55:50	0:19:54	1:16:40	0:05:00	0:32:30	0:06:52	

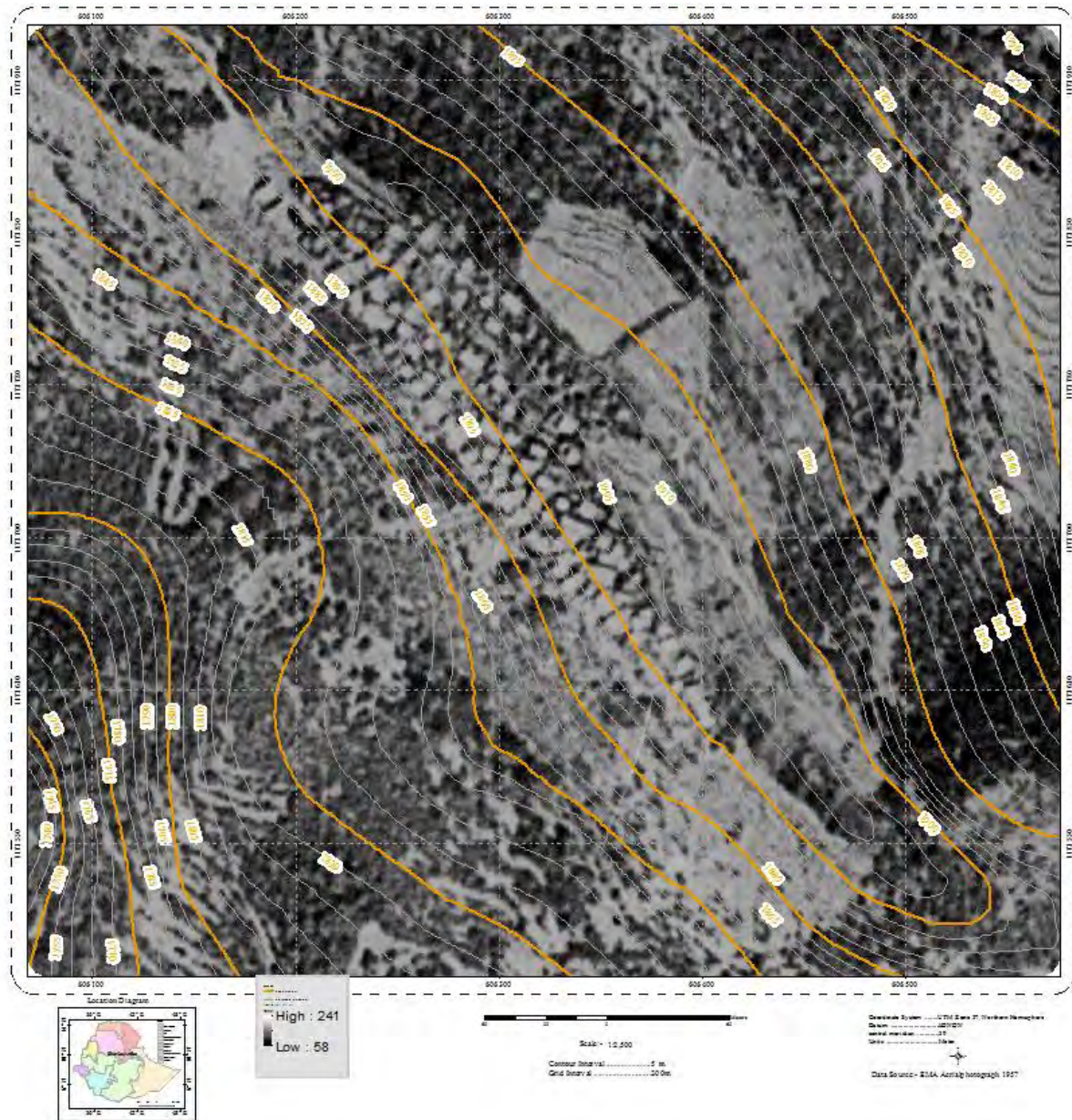


Fig. A2 Shonke Amba Aerial photo Image of 1957 Map with Elevations.

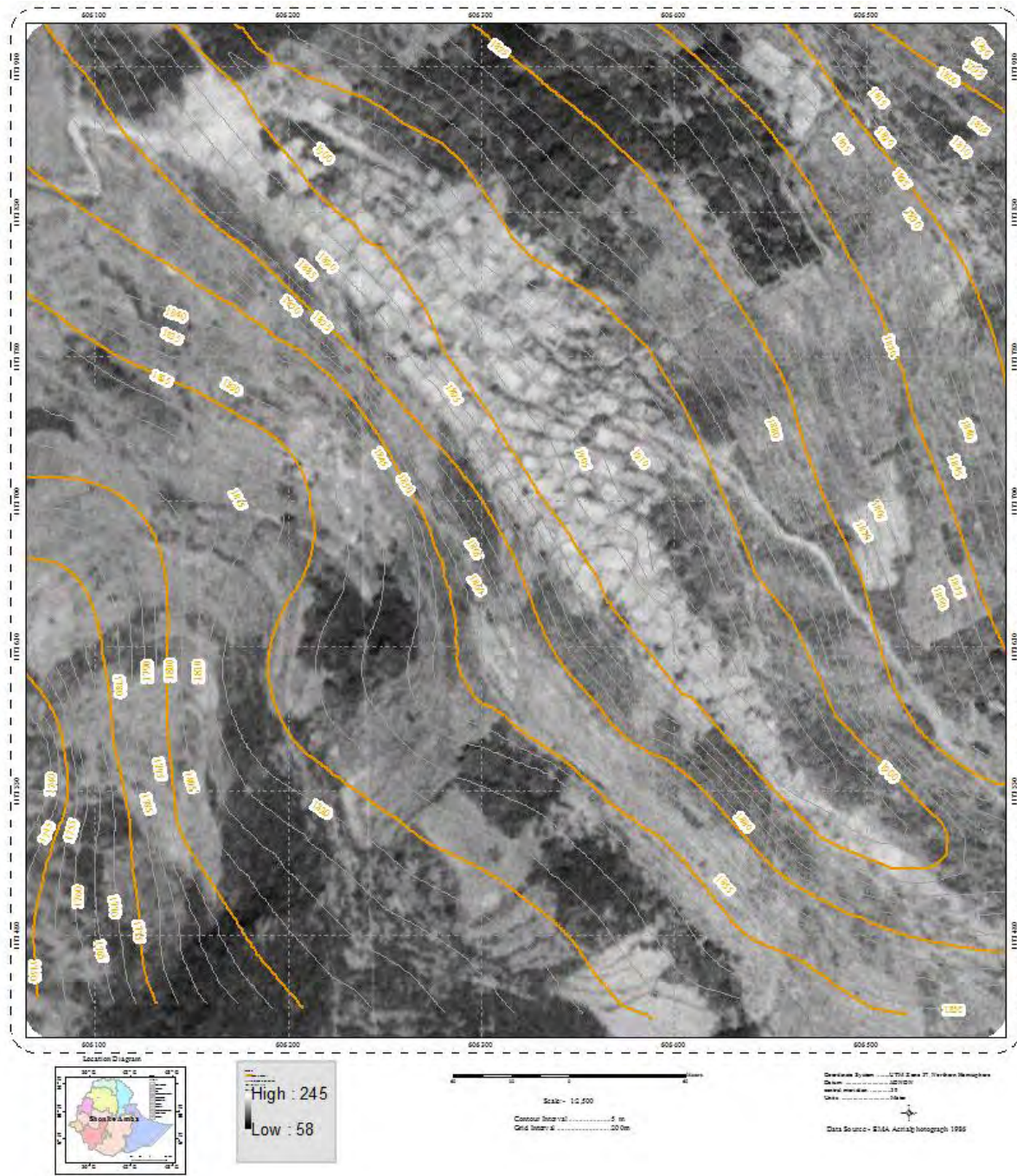


Fig. A3 Shonke Amba Aerial photo Image of 1968 Map with Elevations.

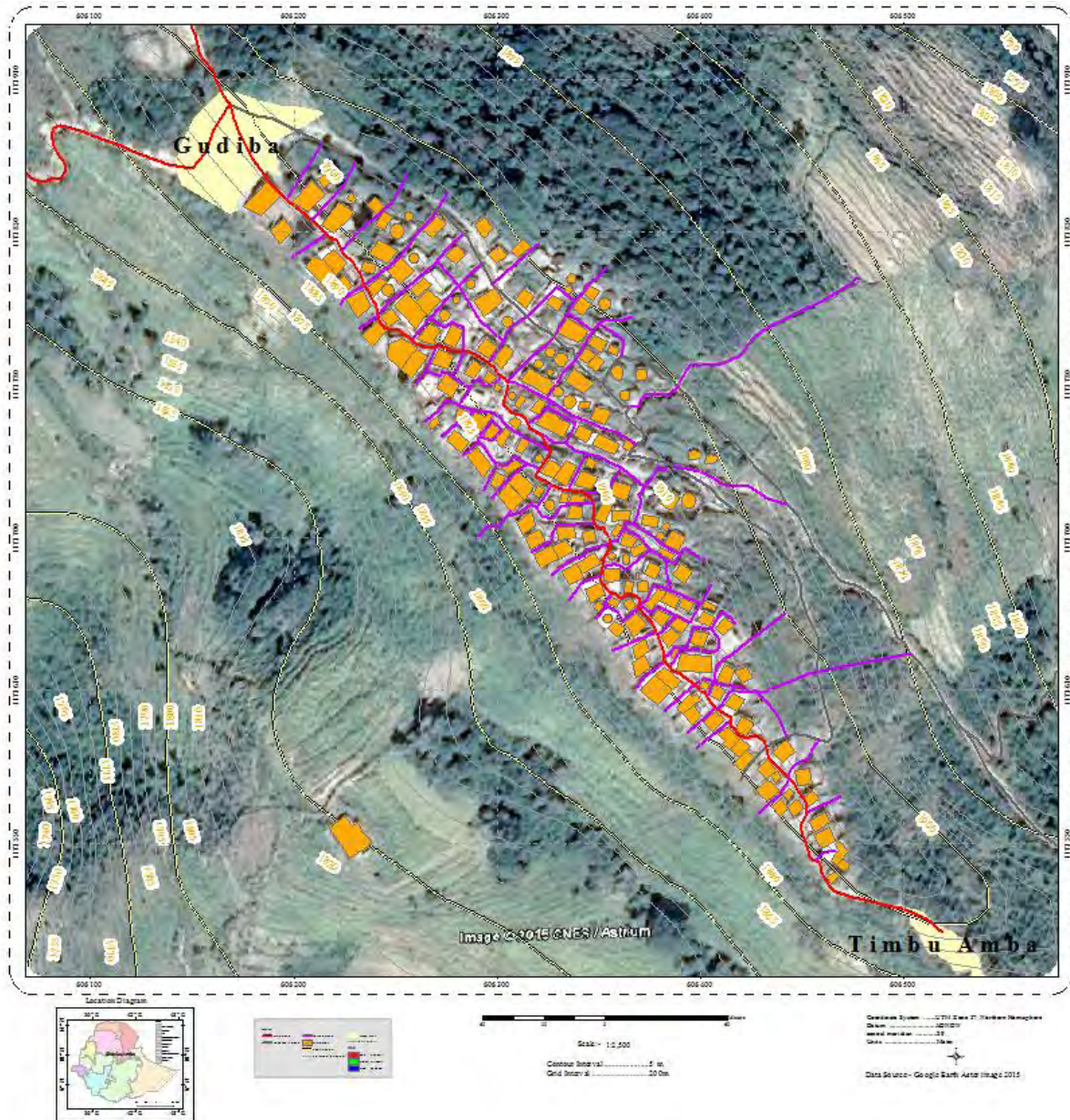


Fig. A4 Digitized Shonke Amba, 2015 Google Earth Image Map with Elevation.

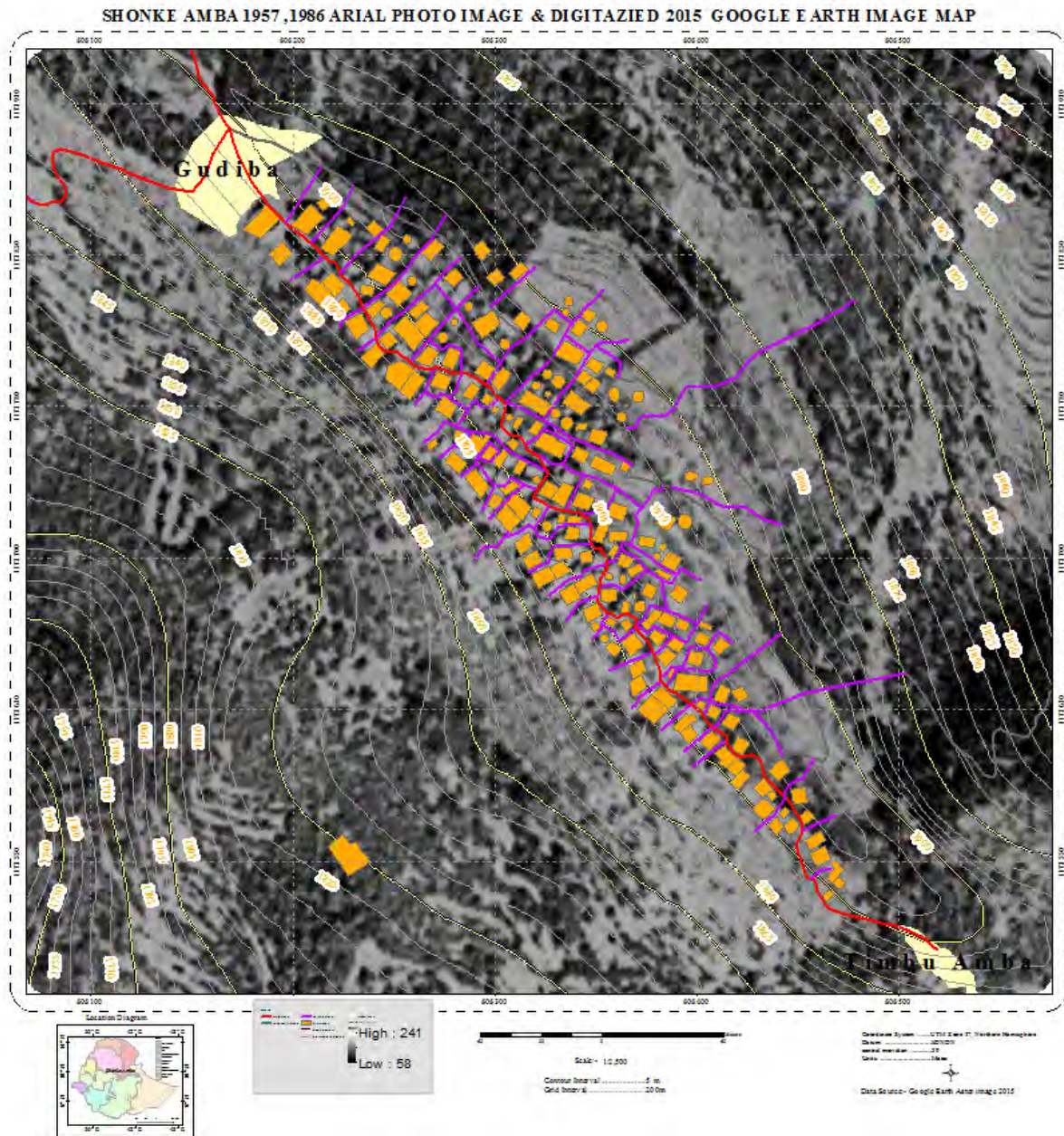


Fig. A5 Over lay of Shonke Amba 1957 &1968 EMA Aerial Photo and 2015 Google Earth Image Map with elevations



Fig. A6: View of Shonke Amba settlement



Fig. A7 Hajja Genda, sub settlement



Fig. A8: Terefo Genda, sub settlement



Fig. A9: Aresho Genda, sub settlement



Fig. A10: Terefo Genda during the sine rise



Fig. A11: Terefo Genda during the sine rise



Fig. A12: Aresho Genda



Fig. A13: Partial view of the settlement



Fig. A14: Hajja Genda



Fig. A15: Hajja Genda



Fig. A16: Hutuba Mosque



Fig. A17: Interior of Hutuba Mosque and its fire space



Fig. A18: Interior of Hutuba Mosque



Fig. A19: Kelewa converted to Bee Hive



Fig. A20: Topography of the settlement



Fig. A21: *Debo* at house *bet* construction



Fig. A22: 110 years old W/ro Sinte looking for potable water



Fig. A23: 110 years old W/ro Sinte looking for potable water



Fig. A24: W/ro Shemshu on her way to home after searching daily food



Fig. A25: Girls At shonke Amba



Fig. A26: Gudiba Open Space



Fig. A27: Colourful dressing of Argobba Woman's



Fig. A28: Traditional cloth of Argobba



Fig. A29: The difficult terrain view of water fetching at Shonke Amba



Fig. A30: The difficult terrain view of water fetching at Shonke Amba



Fig. A31: Potable rain water harvesting from flat roof of house



Fig. A32: Potable rain water harvesting from flat roof of house



Fig. A33: Chilata water Point



Fig. A34: Steep slope of farm area at Shonke Amb



Fig. A35: Serving Coffee to the resident's



Fig. A36: Having coffee with the resident's



Fig. A37: Masonry work of house



Fig. A38: Masonry work of house



Fig. A39: Cutting and shaping of stone for house



Fig. A40: Activity at Gudba open space



Fig. A41: Married and divorced girls at Shonke Amba



Fig. A42: Activity at the settlement



Fig. A43: Activity at the settlement



Fig. A44: Activity at the settlement



Fig. A45: Check point at the entrance of the settlement.



Fig. A46: Way to home from school at Gudba open space



Fig. A47: Children's at settlement



Fig. A48: Sheikh Endris Freda the owner of Argobba family tree script with Hajji Mohamed Esmail



Fig. A49: Access road construction



Fig. A50: Narrow access road at Shonke Amba



Fig. A51: Bee hive at the settlement



Fig. A52: Service road (toilet and dry waste disposal)



Fig. A53: Service road (toilet and dry waste disposal)



Fig. A54: Road to Toleha Amba



Fig. A55: Refined masonry works at Toleha Amba



Fig. A56: G+1 house
masonry work at Toleha Amba



Fig. A57: G+1 masonry works at Toleha Amba.



Fig. A58: Kelewa at Toleha Amba.



Fig. A59: Woman's space furniture's



Fig. A60: Chatting with the resident at *medeb* of the living area



Fig. A61: Interview of the key informants at the settlement.



Fig. A62: Door lock system at *house*



Fig. A63: Door lock system at *main gate*



Fig. A64: Women's space furniture's



Fig. A65: Women's space furniture's



Fig. A66: Cooking space



Fig. A67: Olive tree management to harvest at 4th year



Fig. A68: Olive tree management to harvest at 4th year



Fig. A69: Olive tree management at farm land.



Fig. A70: Transportation system to Market place at Chefa Robit & Kemise town



Fig. A71: Market at Chefa Robit town



Fig. A72: Smoke bath wood at market



Fig. A73: Chefa Robit open market



Fig. A74: Chefa Robit open market



Fig. A75: Chefa Robit open market



Fig. A76: Chefa Robit open market (salt cutting using saw)



Fig. A77: Chefa Robit jewelleries open market



Fig. A78: Chefa Robit open market



Fig. A79: Demolished *house* for the ned of columns & other wooden elements



Fig. A80: Demolished house for the ned of columns & other wooden elements



Fig. A81: Demolished for the need of *columns a* & other wooden elements



Fig. A82: Demolished for the in need of columns & other wooden elements



Fig. A83: Activity on main access road



Fig. A84: Activity on main access road



Fig. A85: Abila primary school



Fig. A86: Abila primary school



Fig. A87: Providing to the artisans basic construction tools



Fig. A88: Showing the artisans how to use the tools.

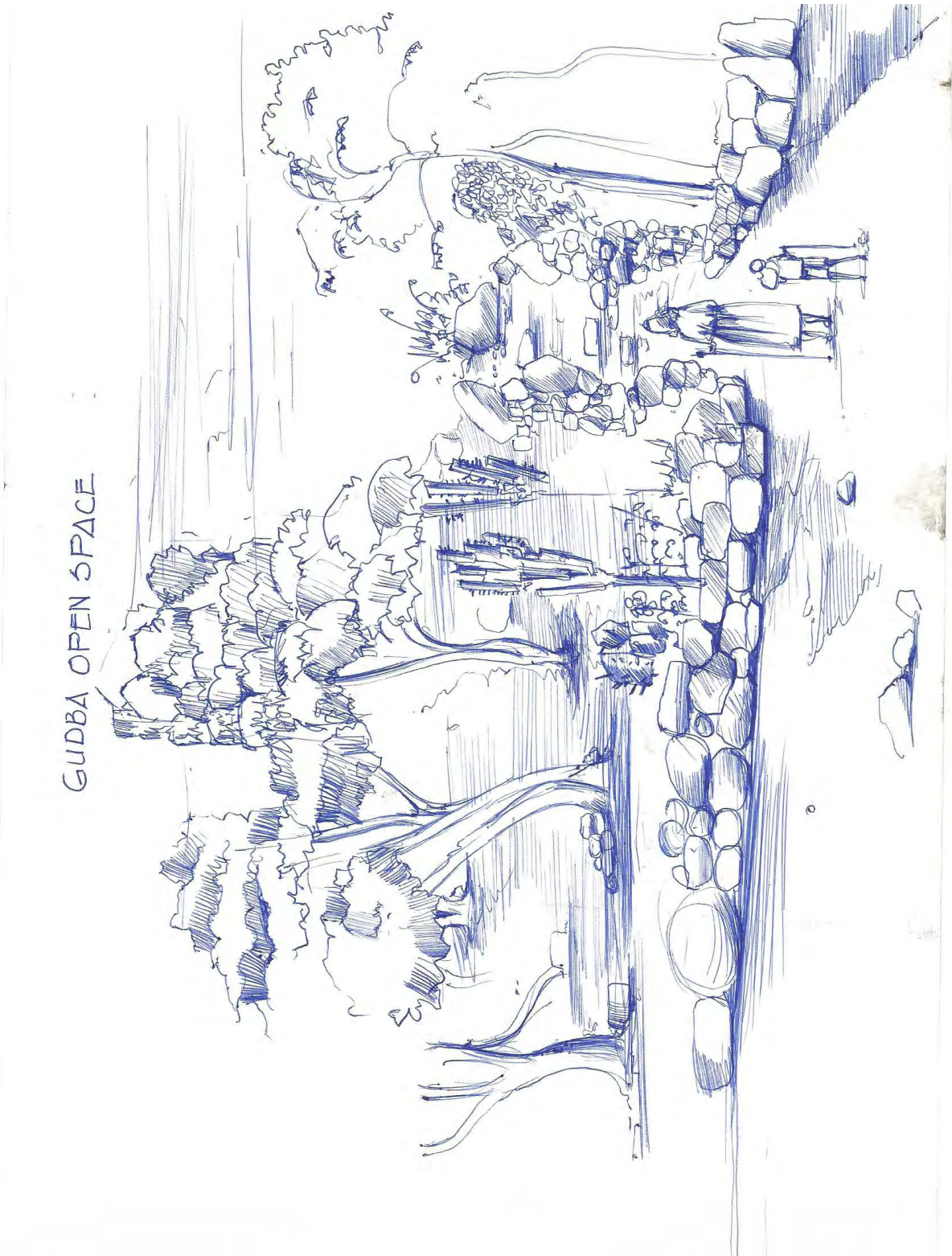


Fig. A89: Gudba Open space sketch

GUDBA OPEN SPACE

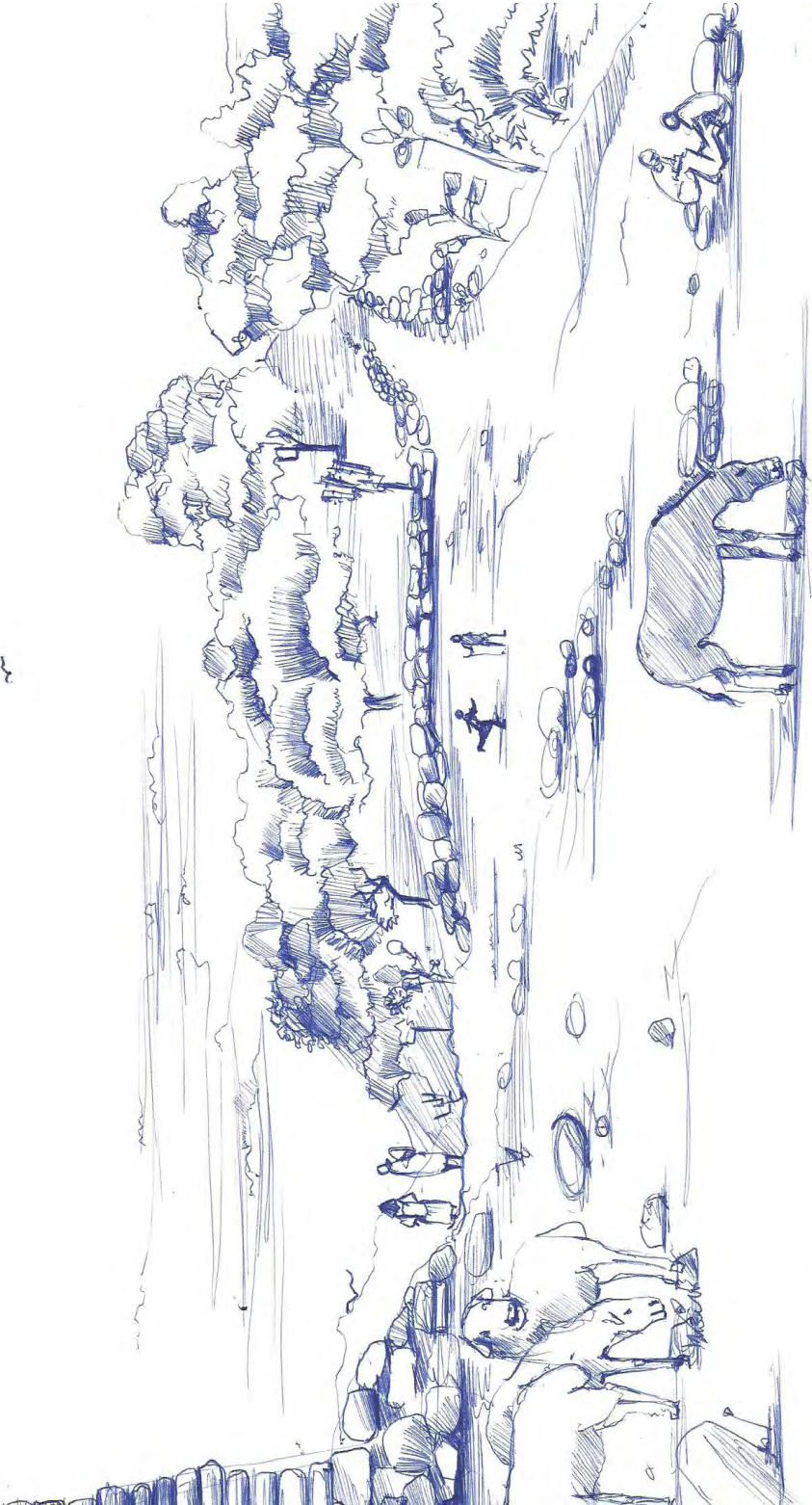


Fig. A90: Gudba Open space sketch

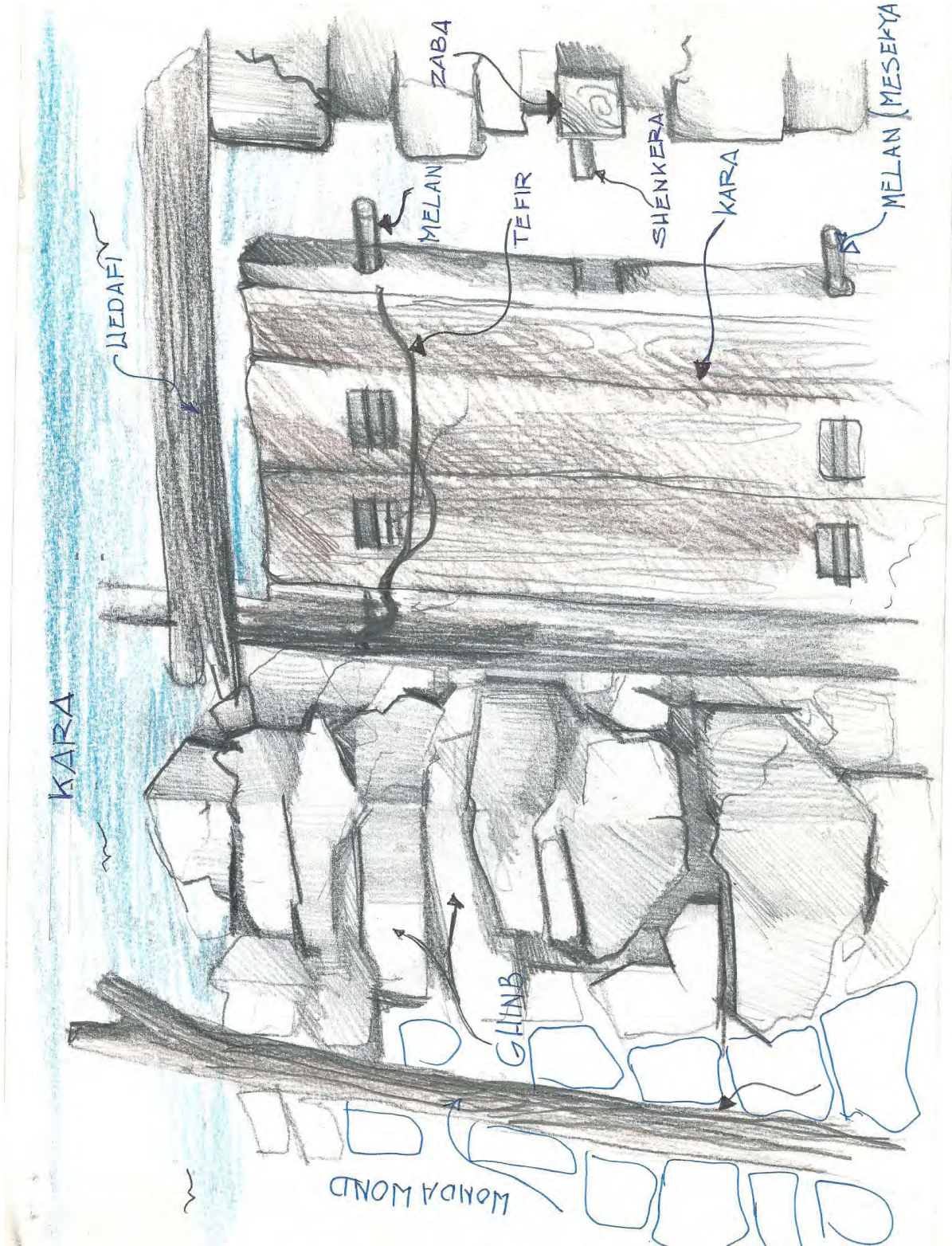


Fig. A91: Main entrance get sketch

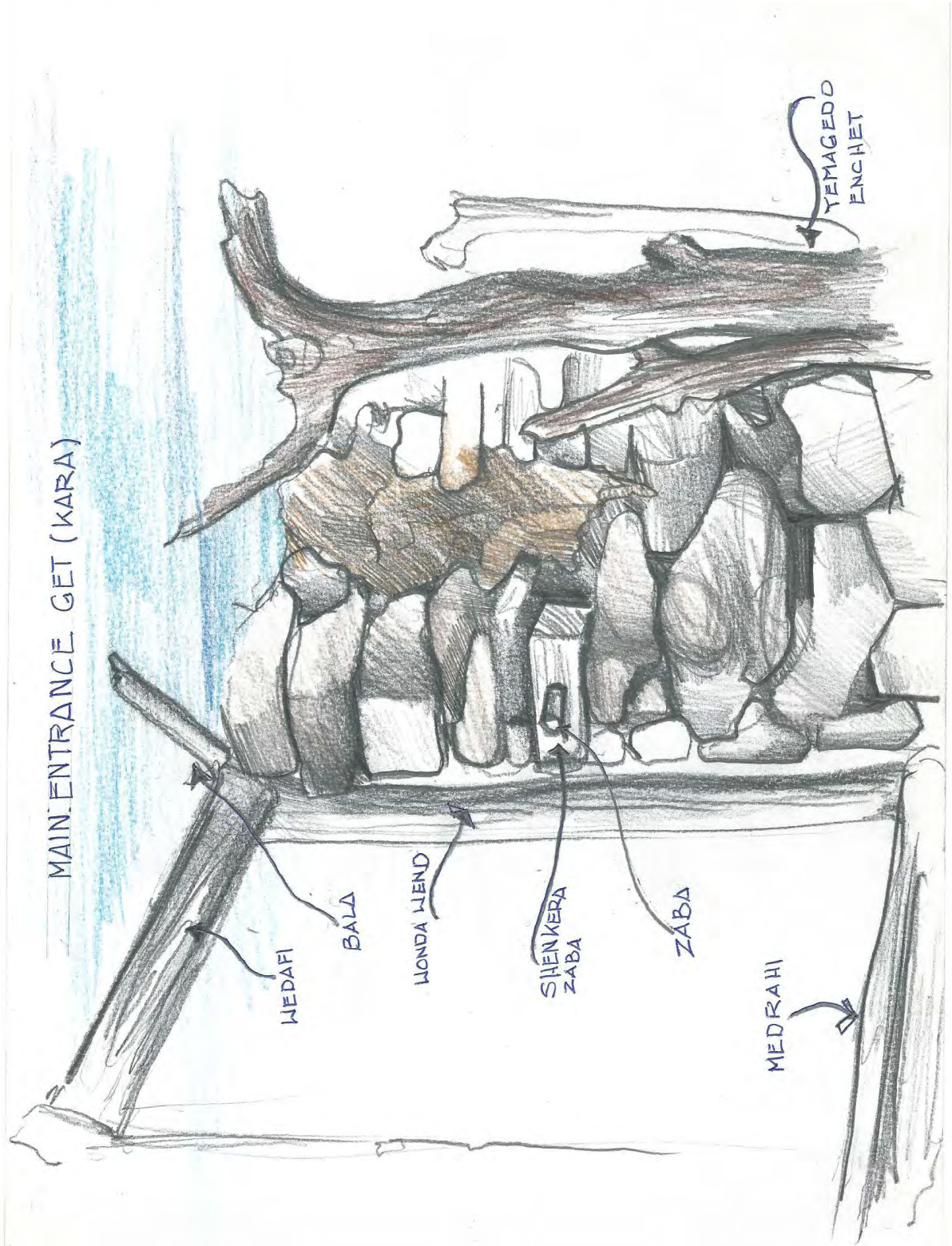


Fig. A92: Main entrance get sketch

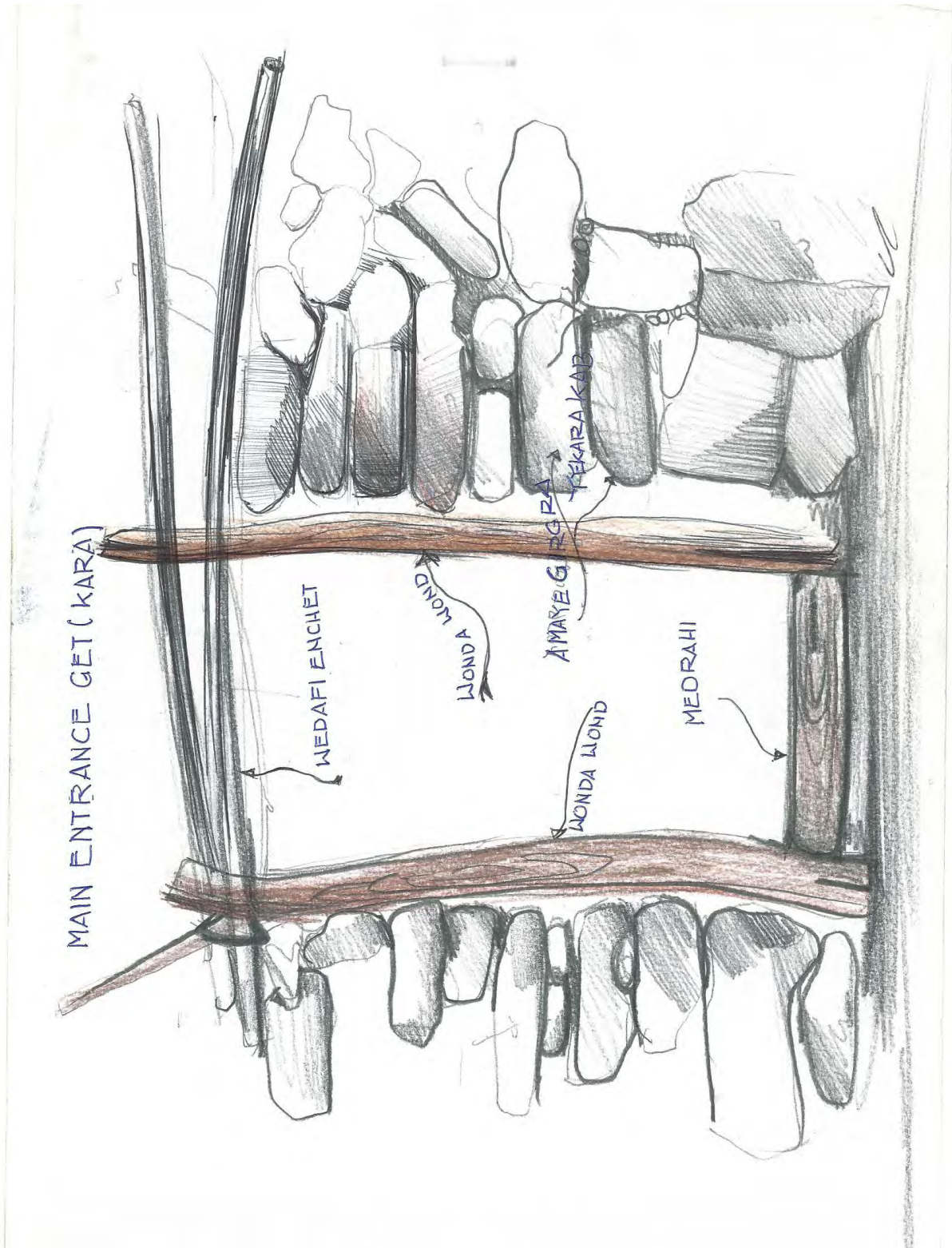


Fig. A93: main entrance get sketch

PARTIAL VIEW OF SHONKE AMBA SETTLEMENT FROM
TEREFO GENDA

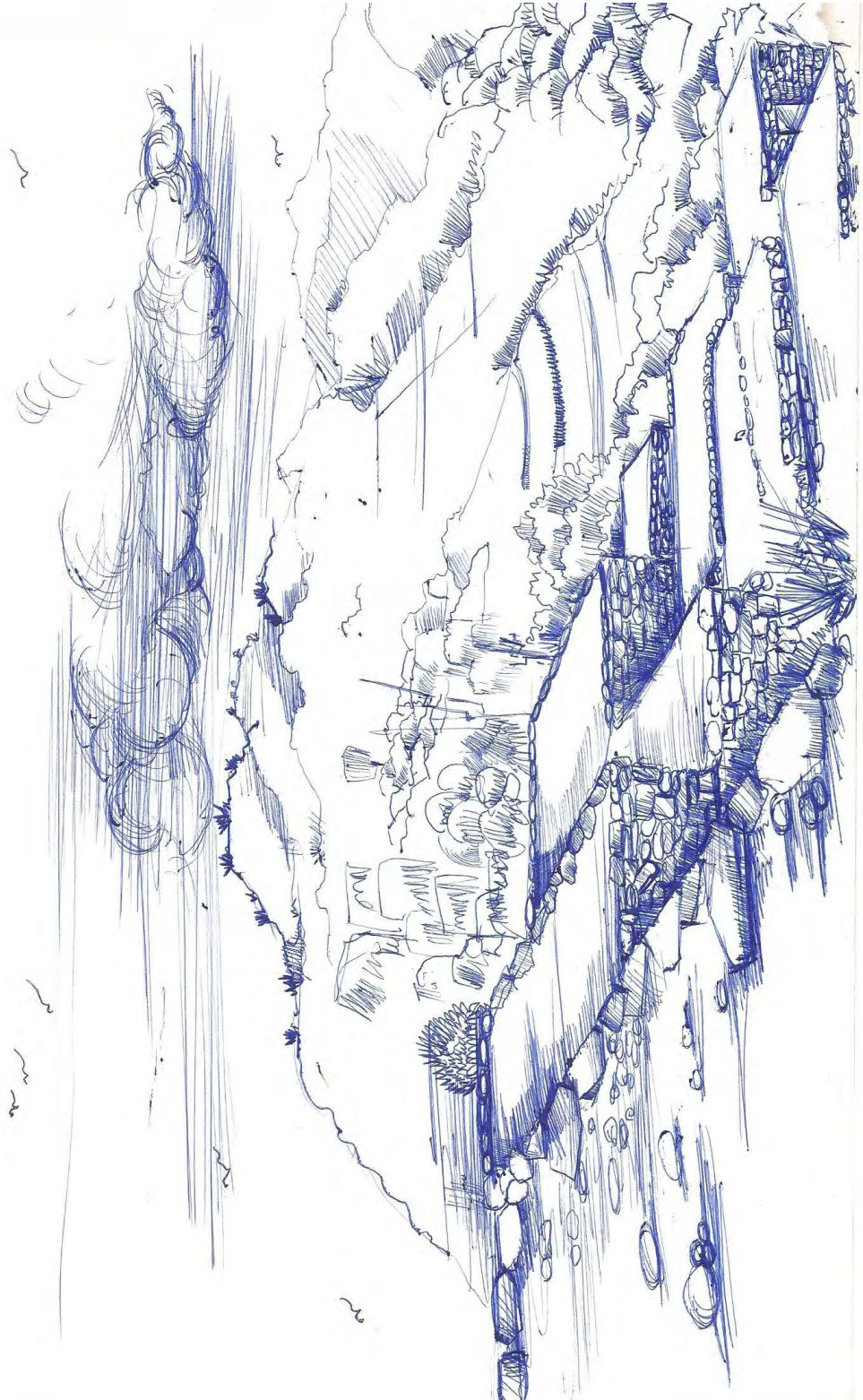


Fig. A94: Partial view sketch of Shonke Amba settlement



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4.3: Life story questionnaire

Name of Interviewer: _____

Names of interviewee: _____ Date _____ Time _____

Location (GPS) coordinates _____

1. Major life events

1.1. Place and date of birth _____

1.2. Places lived in time frame: _____

1.3. Job experiences in place and time frame - _____

1.4. Education and trainings in place and time frame: _____

2. Time diary

2.1. What are your daily activities?

2.2. During regular days

Time	Activity	Place	Remark



Time	Activity	Place	Remark

2.3 During special days (weekends or other)

2.4 Activity, space and time during (Monthly)

Time	Activity	Place	Remark

2.5 Activity, space and time during yearly



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3.1 How do you understand the different domestic spaces and activities in these spaces? (Open spaces, streets, space usage, activity and meaning)

Spaces	Activity or usage	Meaning	Feeling about the space	Livability



Spaces	Activity or usage	Meaning	Feeling about the space	Livability



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4. Where do you see yourself in five years? And how?

5. Do you plan you need your house form is to be modified Yes No. If yes, How

5.1 Do you need internal space usage of your house is to be modified Yes No. If yes, why?

How?
