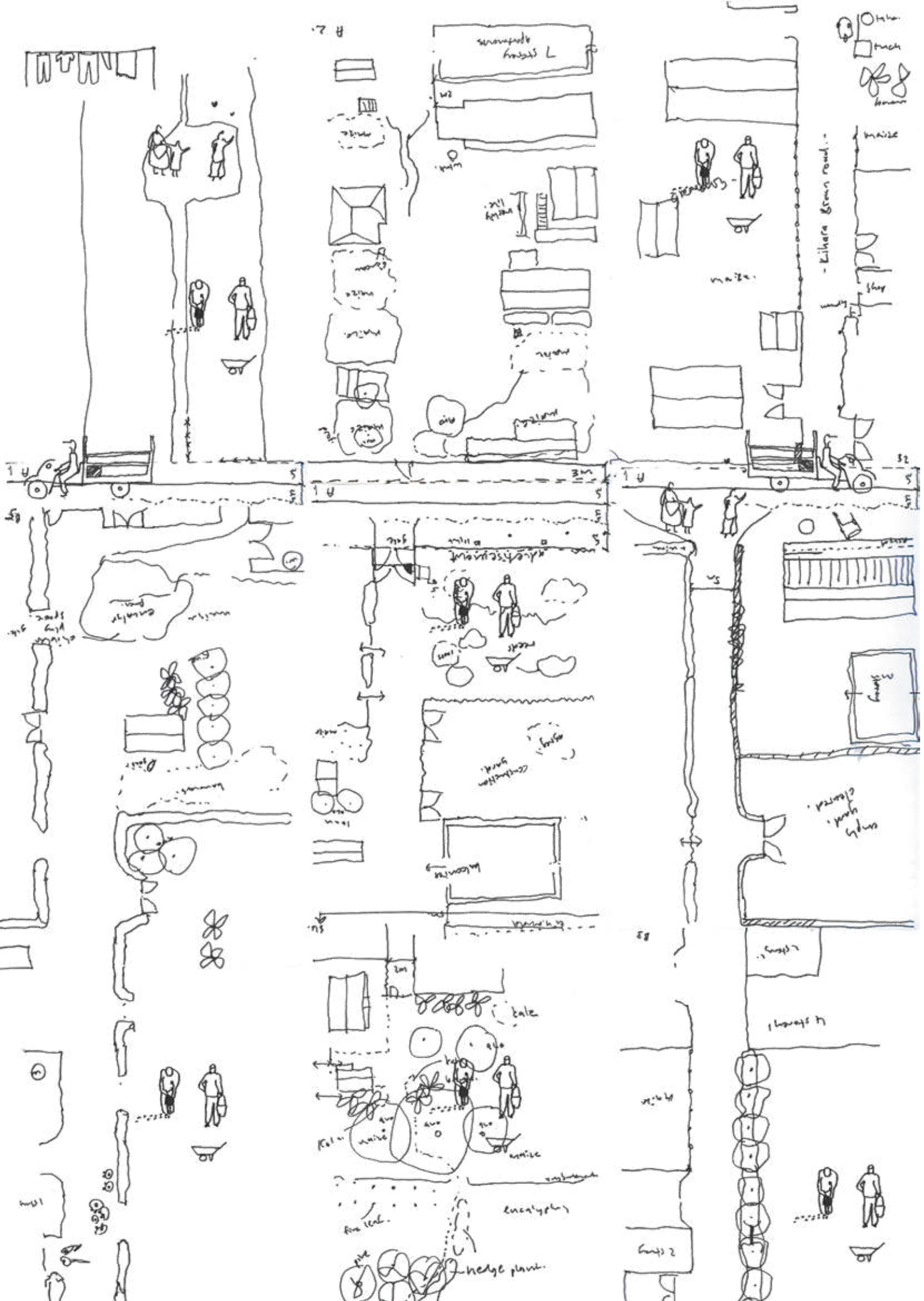
LEARNING FROM TRANSITIONS OF COMMON SPACE IN KENYA

A Study Stretching from Rural to Urbanized Contexts

2021
Master of Urban Design
Research Report



RESEARCH REPORT

LEARNING FROM THE TRANSITIONS OF COMMON SPACE IN KENYA

A STUDY STRETCHING FROM RURAL TO URBANIZED CONTEXTS

by
EMMA BRECHER

A research report submitted to the
Faculty of Engineering and the Built Environment, University of the Witwatersrand, in partial fulfilment of the requirement for the degree of Master of Urban Design Johannesburg 2021

Supervisor: Solam Mkhabela

Previous page:
Fieldwork sketches capturing spatial aspects of the Ndenderu Valley in Kenya. (Author, 2020)
This area showed great potential and looming threats in regards to urbanization. From here my thoughts developed and the study its focus towards common spaces of Kenya, and how they transition from rural to urbanised contexts.

UNIVERSITY OF THE WITWATERSRAND
JOHANNESBURG

ACKNOWLEDGEMENTS

Many thanks go out to the people who shared their knowledge and the fieldwork experience in Kenya, the enabler: Ludwig Hansen, my supervisor: Solam Mkhabela and the other fieldwork tutor's and contributors:
David Njenga (TUK), Jeroen Stevens (KUL), Khalda El Jack (KUL), Professor Jason Mochache (TUK), Dr. Lawrence Esho (TUK), Brenda Kamande (Kiambu County), Christine Muchiri (TUK), Denis Abuya (Limuru Municipality), James Mworia (TUK) and Marion Mukolwe (JKUAT).

Most of all I thank the students from Wits, KUL & TUK. It was a great experience to traverse Kenya as we did with enthusiasm and with excitement to explore endlessly. Thank you to my supervisor for getting me to talk about what interests me most and finding ways to express this. To my parents for their support and encouragement, and lastly to my class mates for inspiration, checking in and motivating each other.

PLAGIARISM DECLARATION

I declare that this research report is my own unaided work. It is being submitted to the degree of Master of Urban Design to the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other university.

I, Emma Brecher (915237), am a student registered for the degree of Master of Urban Design in the academic year 2020-2021.

I hereby declare the following:

- I am aware that plagiarism (the use of someone else's work without their permission and / or without acknowledging the original source) is wrong.
- I confirm that the work submitted for assessment for the above degree is my own unaided work except where I have explicitly indicated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.

Signature:  Date: 26 / 04 / 2021

COPYRIGHT

The copyright of this research report vests in the University of the Witwatersrand, Johannesburg, South Africa, in accordance with the University's Intellectual Property Policy.
No portion of the text may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, including analogue and digital media, without prior written permission from the University.
Extracts of or quotations from this research report may, however, be made in terms of Sections 12 and 13 of the South African Copyright Act No. 98 of 1978 (as amended), for non-commercial or educational purposes.
Full acknowledgment must be made to the author and the University. An electronic version of this research report is available on the Library webpage (www.wits.ac.za/library) under "Research Resources".
For permission requests, please contact the University Legal Office or the University Research Office (www.wits.ac.za).

CONTENTS

ABSTRACT 9

1. THE VALUE OF COMMON SPACE 10
DEFINITIONS 10

2. HOW THIS STUDY CAME ABOUT 18
FIELD-TRIP 18
FIELDWORK EXERCISES & METHODOLOGY 18
STUDY AREA EXTENTS 18
EXPOSURE TO THE OVERALL EFFECTS OF URBAN GROWTH 22

3. OBSERVATIONS 26

4. REFLECTIONS-THE POTENTIAL OF THIS STUDY 30
AIMS AND OBJECTIVES 30
QUESTIONS SHAPING THE WAY FORWARD 30
EXPECTED FINDINGS 30

5. COMMON SPACE ANALYSIS 31
APPROACH 31
SCALES OF ANALYSIS 31
MAPPING 32
SELECTION CRITERIA 32

THE 8 STUDY REGIONS-FROM URBAN TO RURAL 34
THE 8 STUDY REGIONS-FROM URBAN TO RURAL-COMPARATIVE ANALYSIS 44
THE 8 STUDY REGIONS-WITH COMMON SPACES STUDIED ASSOCIATED 48
PUBLIC SPACE / COMMON SPACE PERFORMACE INDICATOR 52

A: NAIROBI-CIVIC CENTRE FOCUS AREA-OVERVIEW 54
A: NAIROBI-CIVIC CENTRE FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS 55
A: NAIROBI-CIVIC CENTRE FOCUS AREA-SPATIAL ANALYSIS 56
A: NAIROBI-UHURU PARK ANALYSIS 58
A: NAIROBI-UHURU PARK PHOTOGRAPHS 60
UHURU PARK OBSERVATIONS / LESSONS LEARNED 61
A: NAIROBI-AGA KHAN PARKING LOT & PEDESTRIAN WALKWAY ANALYSIS 62
A: NAIROBI-AGA KHAN PARKING LOT & PEDESTRIAN WALKWAY PHOTOGRAPHS 64
AGA-KHAN PARK/PARKING OBSERVATIONS / LESSONS LEARNED 65

B: NAIROBI-DISTRIBUTION FOCUS AREA-OVERVIEW 66
B: NAIROBI-DISTRIBUTION FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS 67
B: NAIROBI-DISTRIBUTION FOCUS AREA-SPATIAL ANALYSIS 68
B: NAIROBI-KARIOKOR MARKET ANALYSIS 70
B: NAIROBI-KARIOKOR MARKET PHOTOGRAPHS 72
KARIOKOR MARKET OBSERVATIONS / LESSONS LEARNED 73

C: ONGATA RONGAI-MAIN ROAD FOCUS AREA-OVERVIEW 74
C: ONGATA RONGAI-MAIN ROAD FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS 75
D: ONGATA RONGAI-INTERSECTION FOCUS AREA-OVERVIEW 76
D: ONGATA RONGAI-INTERSECTION FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS 77
C&D: ONGATA RONGAI FOCUS AREA-SPATIAL ANALYSIS 78
C: ONGATA RONGAI-KWARE MARKET ANALYSIS ANALYSIS 82

C: ONGATA RONGAI-KWARE MARKET PHOTOGRAPHS 84
KWARE MARKET OBSERVATIONS / LESSONS LEARNED 85
D: ONGATA RONGAI-OPEN AIR MARKET ANALYSIS 86
D: ONGATA RONGAI-OPEN AIR MARKET PHOTOGRAPHS 88
ONGATA RONGAI OPEN AIR MARKET OBSERVATIONS / LESSONS LEARNED 89

E: NDENDERU-INTERSECTION FOCUS AREA-OVERVIEW 90
E: NDENDERU-INTERSECTION FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS 91
F: NDENDERU-VALLEY FOCUS AREA-OVERVIEW 92
F: NDENDERU-VALLEY FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS 93
E&F: NDENDERU FOCUS AREA-SPATIAL ANALYSIS 94
F: NDENDERU-OPEN AIR MARKET ANALYSIS 98
E: NDENDERU-INTERSECTION ANALYSIS 100
E: NDENDERU-INTERSECTION PHOTOGRAPHS 102
NDENDERU OPEN AIR MARKET OBSERVATIONS / LESSONS LEARNED 103
NDENDERU TRAFFIC INTERSECTION OBSERVATIONS / LESSONS LEARNED 103
F: NDENDERU-VALLEY ANALYSIS 104
F: NDENDERU-VALLEY PHOTOGRAPHS 106
NDENDERU VALLEY OBSERVATIONS / LESSONS LEARNED 107

G: KISERIAN-FOCUS AREA-OVERVIEW 108
G: KISERIAN-NGONG-FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS 109
H: NGONG-FOCUS AREA-OVERVIEW 110
H: NGONG-FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS 111
G&H: NGONG-KISERIAN FOCUS AREA-SPATIAL ANALYSIS 112
G: KISERIAN-GOODS MARKET ANALYSIS 116
G: KISERIAN-GOODS MARKET PHOTOGRAPHS 118
KISERIAN GOODS MARKET OBSERVATIONS / LESSONS LEARNED 119
G: KISERIAN-LIVESTOCK MARKET ANALYSIS 120
G: KISERIAN-LIVESTOCK MARKET PHOTOGRAPHS 122
KISERAIN LIVESTOCK MARKET OBSERVATIONS / LESSONS LEARNED 123
H: KISERIAN-GOODS MARKET ANALYSIS 124
G: KISERIAN-GOODS MARKET PHOTOGRAPHS 124
H: NGONG-OPEN AIR MARKET PHOTOGRAPHS 126
NGONG OPEN AIR MARKET OBSERVATIONS / LESSONS LEARNED 127

6. THE WAYS FOUND TO ANALYSE AND ENGAGE 128

7. LEARNING FROM ELSEWHERE 129
PRECEDENT 1:URBAN-MEXICO CITY MARKET FOCUS AREA: LA MERCED 130
PRECEDENT 2:URBAN-MORELIA FOCUS AREAT: SAN AGUSTIN SQUARE 132
PRECEDENT 3:URBAN/RURAL-XOCHIMILCO FOCUS AREA: CIVIC CENTRE & AGRICULTURE 134
PRECEDENT 4:RURAL-MIXQUIC FOCUS AREA: CIVIC CENTRE AND AGRICULTURE 136

8. THE NDENDERU VALLEY AREA AS FOCUS AREA FOR THE APPLICATION OF LESSONS LEARNED 138
FOCUS AREA-STATUS QUO PLAN 139
WALKING DISTANCES 140
PROPOSAL CONSIDERATIONS 141
STATUS QUO VALLEY CROSS SECTION WITH INFORMANTS 142
ANALYSIS- LAND PARCEL EDGE TYPOLOGIES 144
ANALYSIS- LAND PARCEL TYPOLOGIES 145
PROPOSAL-CONTROLLED AVENUES OF DEVELOPMENT, LAND PARCEL DEVELOPMENT STRATEGY AT THE LARGER SCALE 146
PROPOSAL-LAND USE INTENTIONS 147

PROPOSAL CONSIDERATIONS 148
LAND PARCEL FOCUS AREA 150
LAND PARCEL PROPOSAL 151

9. THE CONSIDERATIONS TO SUPPORT THE DEVELOPMENT OF A TOOL-KIT 152
THE FIRST INTENTION 152
THE SECOND INTENTION 152
THE THIRD INTENTION 153

10. CONCLUSION 155

11. LIST OF FIGURES 156

12. REFERENCES 159

ABSTRACT

This study explores a variety of common spaces from Nairobi towards the rural west of Kenya. Spatial aspects are drawn and captured to enable the reader to compare the spaces.

The study argues that there are different value associations often overlooked in design practice. The imbalance to both urban and rural common spaces can be associated to the natural environment, social, economic, infrastructural and spatial structures. The study analyses 10 identified spaces and their surrounds at different scales to illustrate their performances and weaknesses.

With rapid urbanization and planning departments falling behind, opportunities in creating successful common space networks are missed. Unfortunately, this affects the built, natural and social environments negatively.

The lessons learned through the analysis is used as the main informant to structure a way forward. This study proposes a tool-kit for the common landowner or community rather than a comprehensive spatial development framework to be implemented by a professional team. The aim is to extend the knowledge gained to the hands of the most influential city builders in rapid urbanizing environments in Kenya.

1. THE VALUE OF COMMON SPACE

DEFINITIONS
Common space: as the stage of life, the platform for exchange. Here we are exposed to aspects we can not measure or know the value of, where we encounter the unpredictable.

From supporting sources:

Urban Commons:
“Commons were traditionally defined as the elements of the environment – forests, atmosphere, rivers, fisheries or grazing land – that were shared, used and enjoyed by all. Today, the commons can also include public goods, such as public space, public education, health and the infrastructure that allows our society to function.” (UN Habitat, 2016, p. viii)

Public Space:
“Public spaces are all places publicly owned or of public use, accessible and enjoyable by all for free and without a profit motive. Public spaces are a key element of individual and social well-being, the places of a community’s collective life, expressions of the diversity of their common, natural and cultural richness and a foundation of their identity. [...] The community recognizes itself in its public places and pursues the improvement of their spatial quality.

Public Goods:
“Goods and services that are “non-rival” and “non-excludable”. In other words, no one can be excluded from their benefits and their consumption by one person does not diminish consumption by another. They range from street signs to a clean environment and they are provided by non-market mechanisms, such as the state or, sometimes, voluntary organizations. Because the benefits of a public good are available to everyone (no one can be excluded), there are diminishing incentives for private sector provision. Consumption by one individual or group does not reduce availability for others, so a price is difficult to set in a market context (non-rivalry)” (UN Habitat, 2016, p. viii)

Common spaces have multi-layered attributes contributing to the overall well-being of individuals and communities. The interest of this study is in spaces that have come about through common values that benefit individuals through community structures. Community structures and collective efforts transform as human settlements transform and become more urbanized over time.

It is essential to understand the relationships and conditions that enable or disable the survival of common spaces in urbanizing environments. Urban design principles and strategies could conserve and enhance community structures and prevent them from being lost over time. But, this responsibility it is not only in the hands of professionals and politicians. The role of educating communities and enabling their participation is essential to improve the chances for more sustainable development and the realisation of meaningful places.

The International Covid 19 Lockdown made us more aware of the values of common and we should ask why “it takes such a threat to our personal safety and our economy for basic human tendencies and instincts to become properly acknowledged, and why they have in the past been so easily brushed aside.” (Chipperfield, 2020) In Kenya, this also is true in the way that these basic needs are not being implemented in an equal way across different contexts.
A question we must confront, as posed by David Chipperfield, is: ”how the planning and design of our cities and the buildings and spaces they contain, can encourage connections and a sense of belonging?”

Descriptions:
- Spaces open to the public
- Places of gathering
- Places of learning and improving skills
- Places where goods are exchanged
- Places where the public partakes in recreational activities
- Spaces accessed at no cost
- Where one can be an observer
- Where there is a sense of possibilities of connections
- A platform where basic human tendencies and instincts occur
- A place where chance encounters take place

Typologies of common spaces as observed in the study area: ranging from universal to spaces specific to Kenya:

- Boulevards / Avenues
- Streets
- Sidewalks
- Squares
- Gardens
- Parks
- Public libraries
- Museums
- Markets
- Public amenities
- Parking Lots
- Pedestrian Walkways
- Pedestrian Streets
- Shared resources distribution points
- Pastoral land-grazing and water sources
- Courtyards
- Public transport nodes
- Commerce Stalls
- Water sources: dams, marches, rivers and river beds

Uses associated:

- Recreation
- Aesthetic enjoyment
- Walking
- Cycling
- Play
- Sport
- Culture
- Information

The definitions of common space and public space as defined in Public Places, Urban Spaces, illustrate similar aspects as observed in the contexts of Kenya. Even so, the need to re-address and define common space in the context of Africa persists. “The public realm has ’physical’ (i.e. space) and ‘social’ (i.e. activity) dimensions.” (Carmona, et al., 2010, p. 137)
Loukaitou-Sideris & Banerjee define the function of public space as cited in (Carmona, et al., 2010, p. 139):
“ a political stage/forum – for political representation, display and action; neutral or common ground – for social interaction, intermingling, and communications; and a stage for information exchange, personal development and social learning – that is, for the development of tolerance.” These functions are true, but not sufficient in the context rural to urbanized Kenya. Common space in rural areas have different qualities which this study hopes to define.

As the conceptual framework illustrates various relationships in social, economic and environmental factors with common space and common values being the central aspect of focus, social learning theories can inform strategies and the analysis approach from a different perspective. Economics theory is used as a tool to achieve better efficiencies in regards to common space and markets taking place in common space. Elinor Ostrom has found that a group of people on a local population scale were able to avoid the tragedy of the commons without requiring top-down regulations, when certain conditions were met. Her 8 Code Design Principles inform strategies and guidelines to enable communities to develop sustainably without depending entirely on top down governing structures. Any “group of people who have a common goal and must work together to achieve it, vulnerable to self-serving behaviours” can be assessed according to the Core Design Principle approach developed by Elinor Ostrom together with the “Multilevel selection theory”, which formulates public policy from an evolutionary perspective”. (Wilson, 2016) Through triangulating the principles defined by Ostrom, the approach to a common space performance criteria and analysis can be developed.

The programs associated to common space can be quite diverse. As spaces intended for recreational purposes, transactions and exchange, they are evolving as the needs and habits of people change. To assess common spaces and to be critical in regards to their performances, Responsive environments, a designer’s manual, gives parameters and aspects to consider. This source is not prescriptive in its methods, but rather suggestive. The principles covered relate to “democratic principles and aim to provide users with the maximum degree of choice available to them”. (Bentley, et al., 1985) Furthermore, this study will need additional perspectives on the developments between rural and urban transitions. Place making theory will be essential in shaping guidelines and principles towards a future vision.

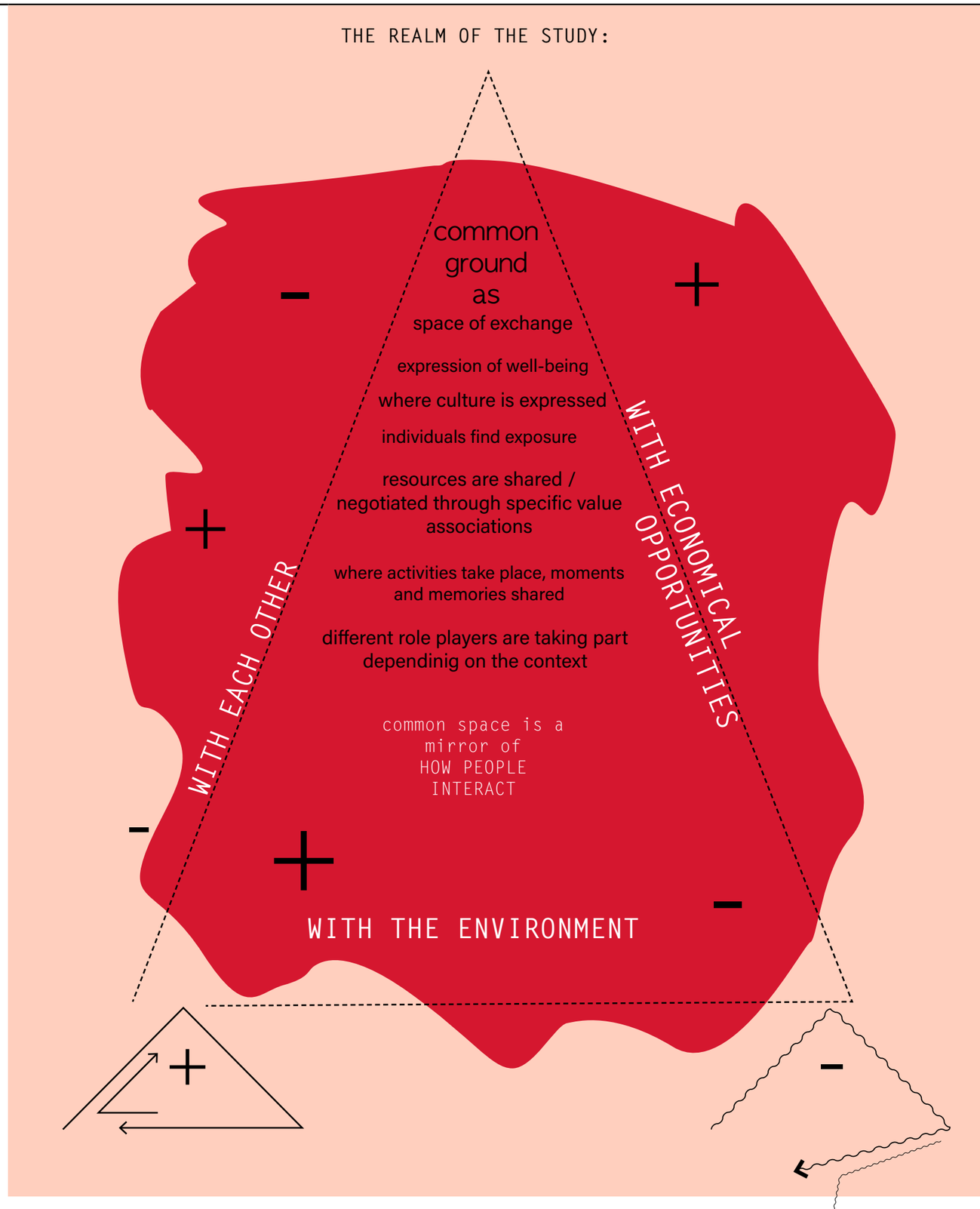


Fig.1 Conceptual frame of reference to support the study (Author, 2021)

COMMON SPACE & ASSOCIATIONS:

Considering the routes individuals take on a daily basis, the environment they are exposed to and how urban designers should aim to enrich these environments

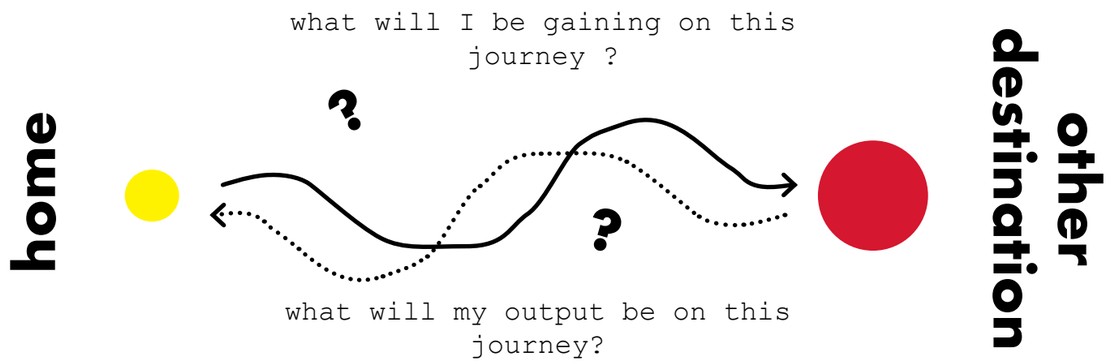
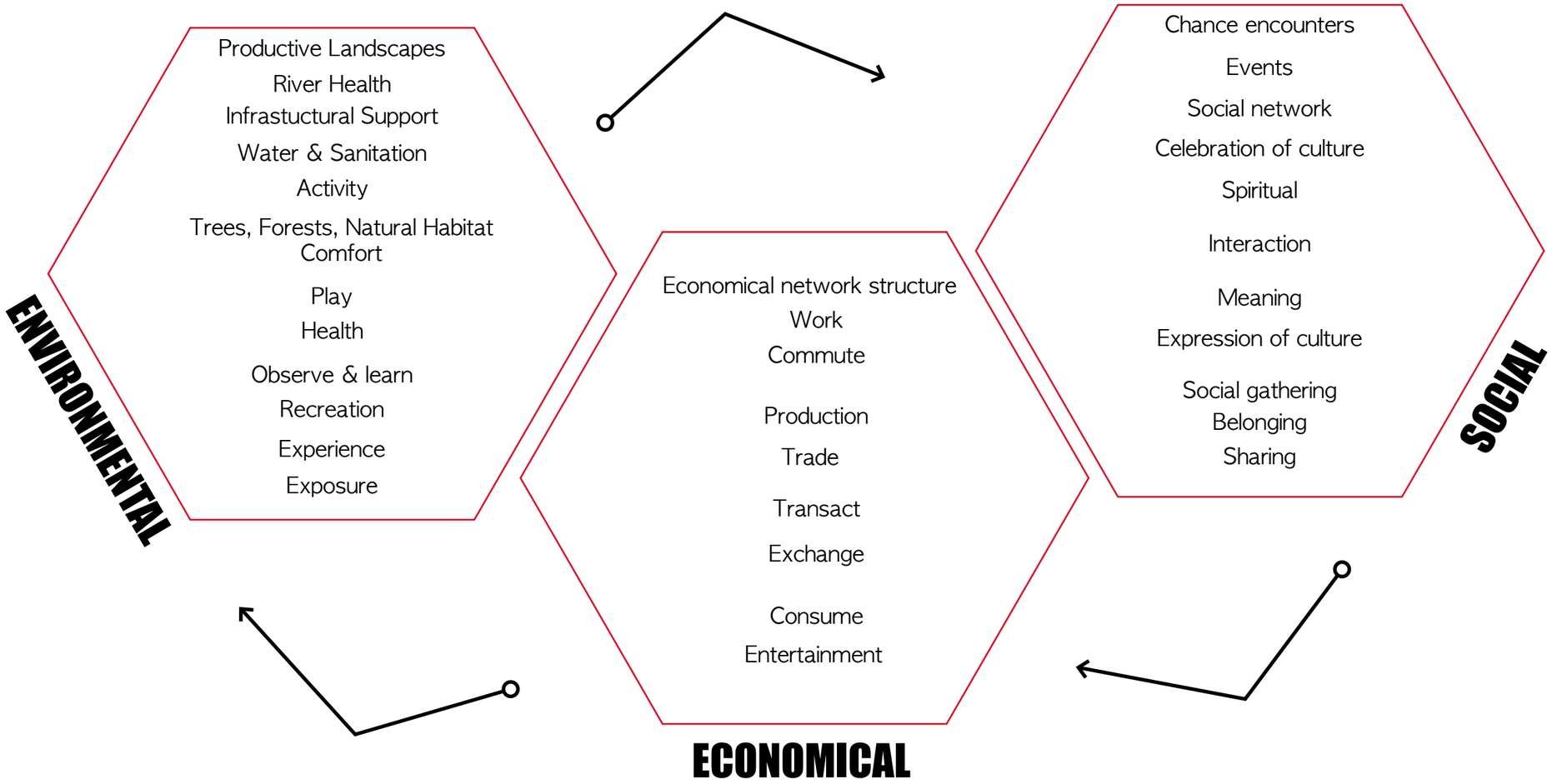


Fig.2 Common space as shaping agent (Author, 2021)

COMMON SPACE & ASSOCIATIONS:



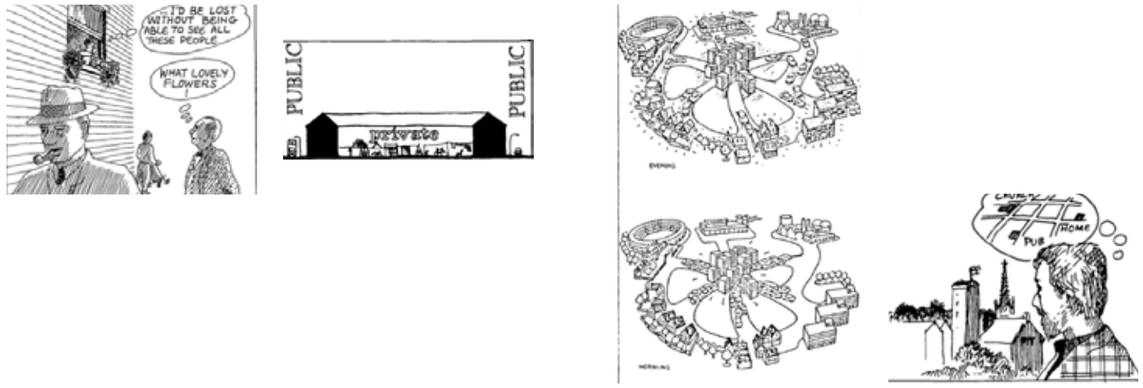


Fig.3 Bentley, Ian; Alcock, Alan; Murrain, Paul; McGlynn, Sue; Smith, Graham , 1985. *Responsive Environments A manual for designers*

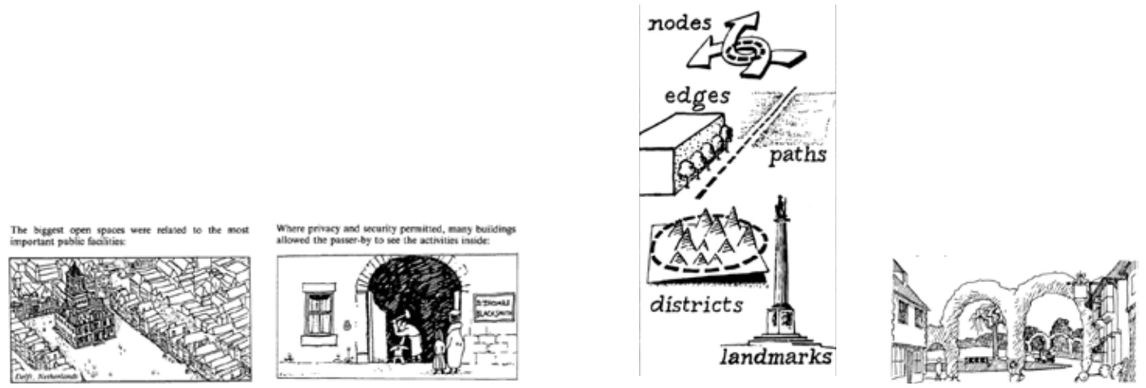


Fig.4 Bentley, Ian; Alcock, Alan; Murrain, Paul; McGlynn, Sue; Smith, Graham , 1985. *Responsive Environments A manual for designers*

2. HOW THIS STUDY CAME ABOUT

FIELD-TRIP

This study came about after having been part of a fieldtrip work shop in Kenya together with the Technical University of Kenya (TUK), the University of Leuven (KUL) from Belgium and the University of the Witwatersrand (Wits) from Johannesburg. The studio was held from 2020-02-15 until 2020-03-01, fifteen days where we investigated patterns of human settlement and the effects on forests and water sources.

FIELDWORK EXERCISES & METHODOLOGY

Three sites were identified west of Nairobi, Ndenderu, Kikuyu and Ongata Rongai, where a minimum of two days were spent at each site. The fieldwork was divided in group-work where each group investigated one of three categories through different lenses per site. The three categories include: Typologies, Consumptive Landscapes and Productive Landscapes. The three methodologies & or research approaches was communicated through collages, process diagrams or annotated plans and sections. See page15 as reference to the study area and the workshop matrix.

STUDY AREA EXTENTS

Even though the focus of the fieldwork was on Water and Forest Urbanism, the analysis and fieldwork was done with a wider perspective and included exposure to various human settlement patterns and typologies related to common space. Over the entire area we were exposed to, for me, observations in association to common spaces were the most significant. The spaces observed and captured express a variety of efforts that have shaped them. These spaces are where individuals change into a community and the other way around, where the events and happenings are defined by the people within the space.



Fig.5 Presentatios at TUK (Jeroen Stevens, 2020)



Fig.6 Team 9 in Ndenderu Valley (Zeeshan Javaid Ghani, 2020)



Fig.7 Team 9 in Ndenderu Valley(Author, 2020)



Fig.8 Team 9 in Ndenderu Valley (Zeeshan Javaid Ghani, 2020)

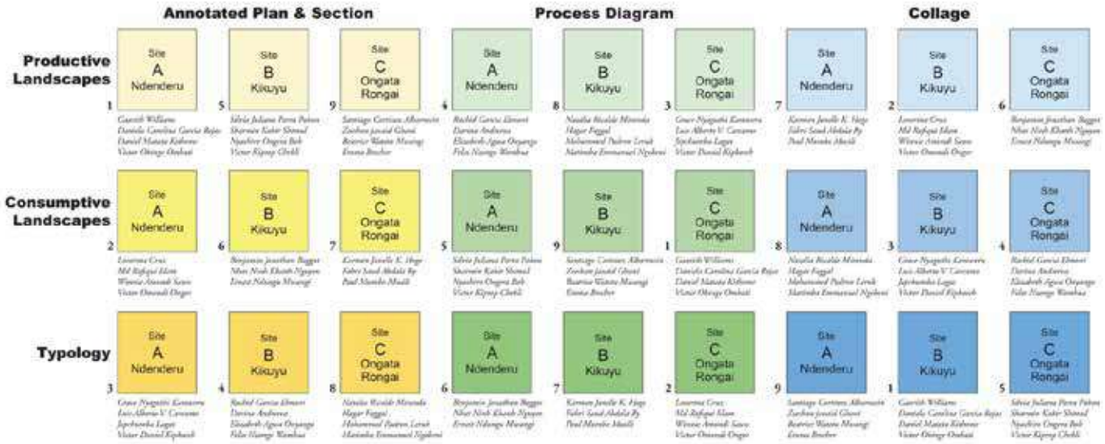


Fig.9 Fieldwork Teamwork / Tasks Matrix (Fieldwork Tutors: David Njenga (TUK), Jeroen Stevens(KUL), Khalda El Jack(KUL) & Solam Mkhabela(Wits), 2020)



Fig.10 Matrix Results (Fieldwork Tutors: David Njenga (TUK), Jeroen Stevens(KUL), Khalda El Jack(KUL) & Solam Mkhabela(Wits), 2020)



Fig.11 Team 9 at the Railway Museum (Jeroen Stevens, 2020)

urban — rural



Fig.12 Fieldwork moments from Urban to Rural Contexts in Kenya (taken by students of KUL & Wits, 2020)

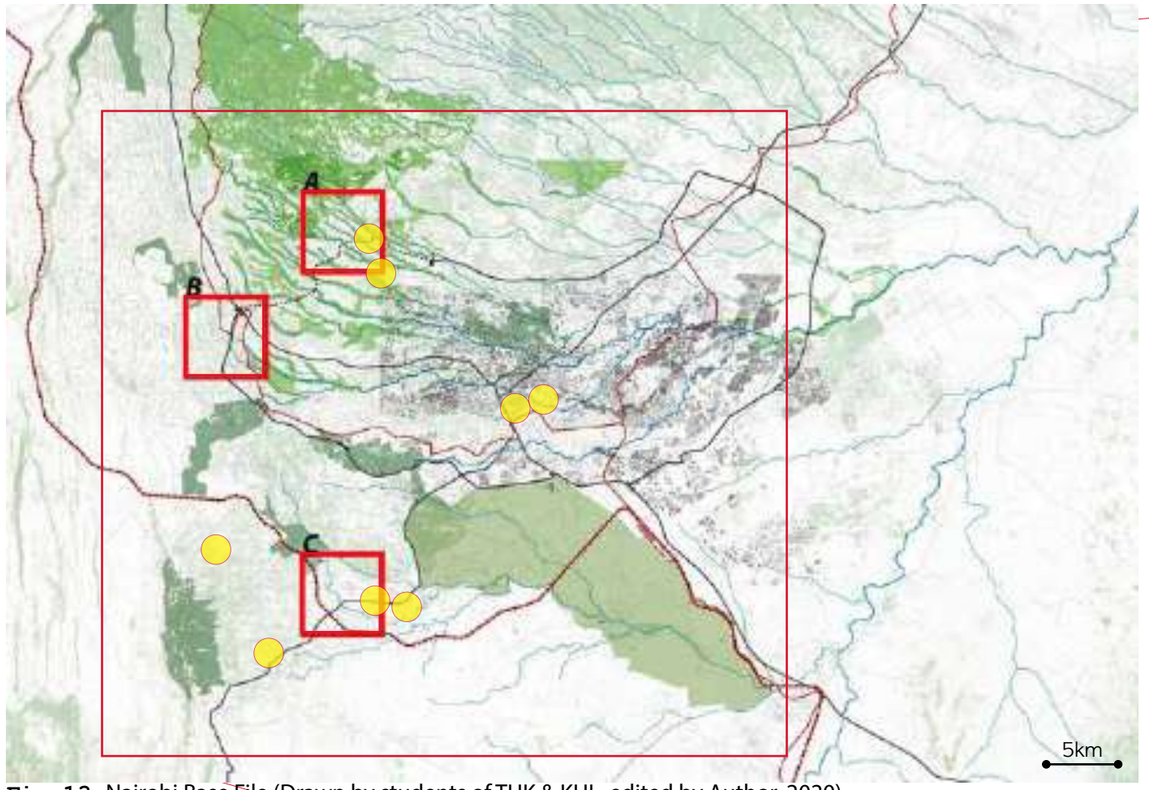
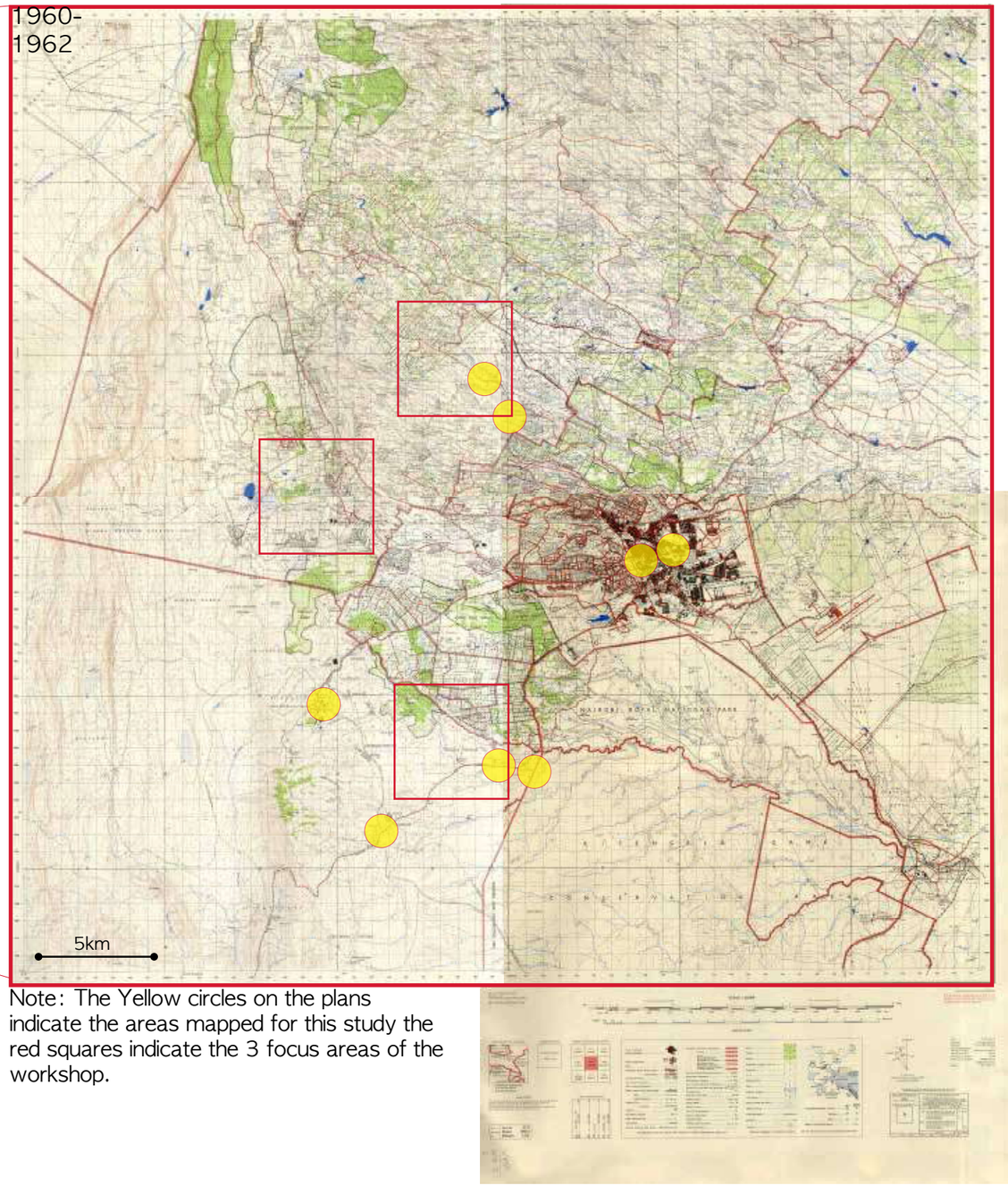


Fig.13 Nairobi Base File (Drawn by students of TUK & KUL, edited by Author, 2020)

This study is an attempt to capture all scales of shared spaces, from sidewalks to streets to markets, from communal courtyards to a building foyer, from rivers and water source collection points to shared boreholes. Spaces where people gather, and life and resources are shared or exchanged. The spaces of transactions.

EXPOSURE TO THE OVERALL EFFECTS OF URBAN GROWTH

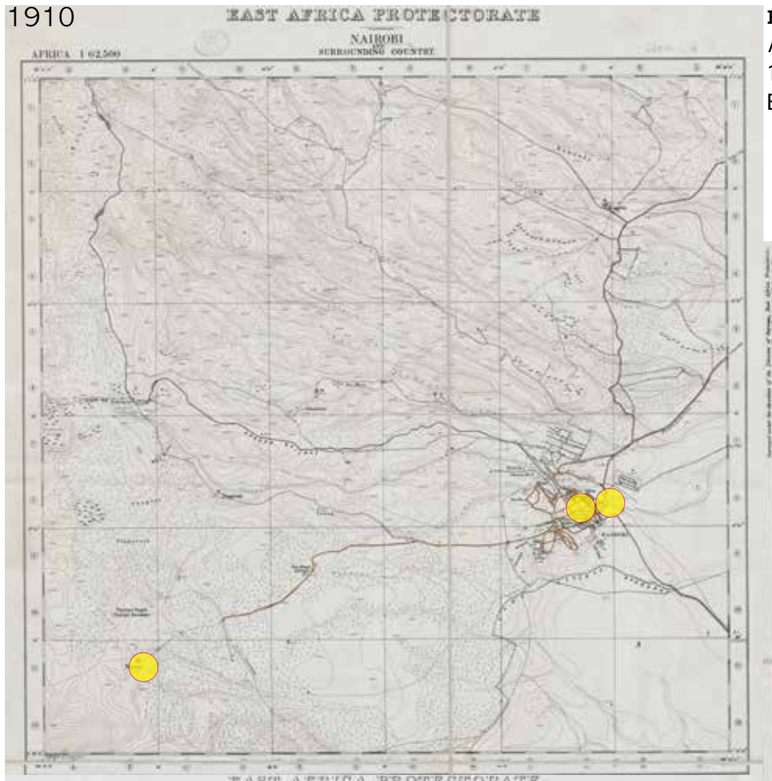
The overall region of the study stretches from rural communities to urbanized contexts. See figure17. The transitions of common space from rural contexts to urbanized contexts are quite significant. Not only in spatial character, but also with the various networks of infrastructure that enable them to function as they do, these include physical and social infrastructures, affecting the activities and programs taking place in common space as well as the items and or activities of trade. With rapid urbanization comes potential threats that could compromise the overall sustainability of these essential spaces. According to (Makworo & Mireri, 2011) “Public spaces in Nairobi have been increasingly threatened by congestion and deterioration as result of the rapid rate of urbanization.” In addition to uncontrolled urbanization, the “lack of approved planning policy have encouraged massive land use changes” , this is combined with the lack of support infrastructure, as observed in the rural –urban fringes of Nairobi. Furthermore, subdivisions and land use conversions are implemented without a guiding framework”. (Abuya, et al., 2020) Common space will not only be limited by planning strategies and principles, many unforeseen events and occurances will manifest in spaces that are merely available, thus common space.



Note: The Yellow circles on the plans indicate the areas mapped for this study the red squares indicate the 3 focus areas of the workshop.

Fig.14 Survey of Kenya. 1962. *Limuru, Kiambu, Ngong & Nairobi.* 1:50 000. Survey of Kenya, tiles (148/1-148/4)compiled by Author, 2021

1910



1912

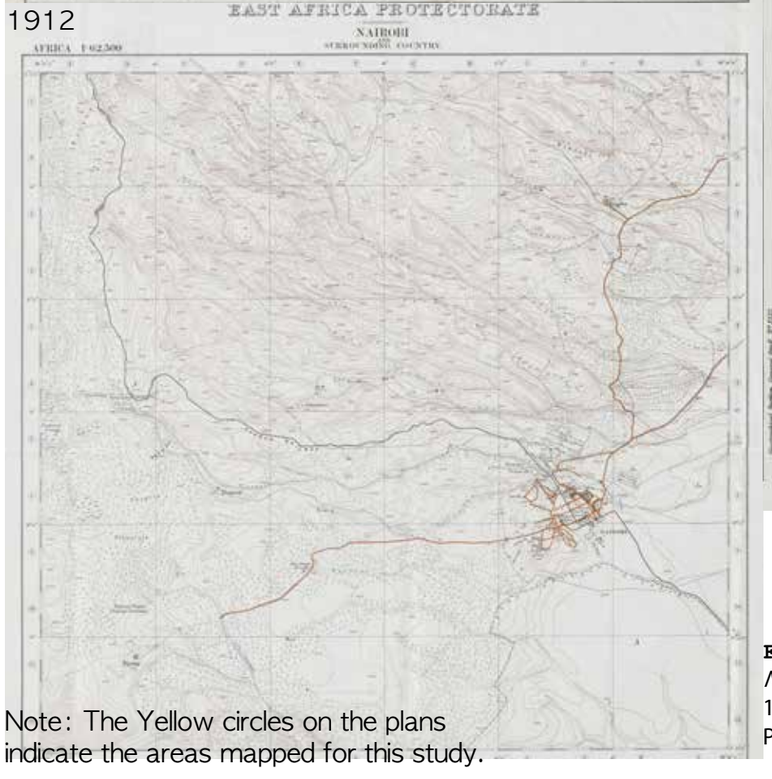




Fig.15 Staff no. 2527.1910. *Nairobi & Surrounding Country.* 1:62500. Southampton: East Africa Protectorate

Fig.16 Staff no. 2527.1912. *Nairobi & Surrounding Country.* 1:62500. Southampton: East Africa Protectorate

Note: The Yellow circles on the plans indicate the areas mapped for this study.

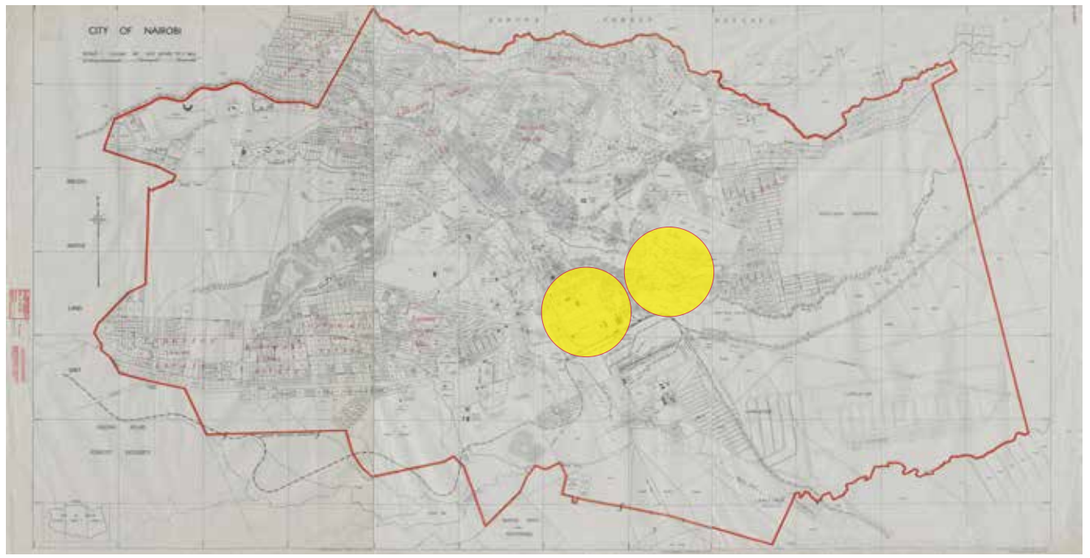


Fig.17 Survey of Kenya. 1950. *City of Nairobi.* 1:10000. Nairobi: Photo-Litho Government Printer

The maps above illustrate the first developments of infrastructure from Nairobi towards the west. The link between Nairobi and Ngong in the 1910's was calssified as a main connection road and the Uganda railway passed through Kikuyu.

Note: The Yellow circles on the plans indicate the areas mapped for this study.

3. OBSERVATIONS

Common spaces evolve not only through time but also in relationship to the environment and human needs. Aspects contributing to quality of life is at risk if development is not according to suitable strategies or not taking values and human rights of the present and future in consideration. With the development of new roads and supporting infrastructure, densification follows shortly. Kenya is subject to many of urbanization's uncontrolled spatial manifestations. Figures 13-15 illustrate examples of development and densification affecting common space.

The negative effects of urbanization in relation to common space as observed during the field trip:

- The repetition of certain building typologies, which have a weak relationship to the common space realm.
- Densification of properties without considering neighbouring properties, the relationship to the exterior, or the effect on the environment.
- Properties densifying without regulations along rivers / forests threaten the ecological role of the river system.
- Pastoral land for livestock grazing and movement from private land to the market spaces is being threatened by high density developments.
- Public spaces associated to markets or trading spaces are overwhelmed by the market growth and not maintained or managed with negative impacts on the surrounding environments.
- Support amenities such as benches, lighting and dustbins are only found in certain typologies of public spaces and is not facilitated on a wider scale.

It is not possible to predict the future, but one can take note of existing trends and study the effects they will have if they persist. Assessing the situation from a common space point of view allows a wide enough perspective but specific enough approach to deepen the understanding of the effects of urbanization across the study area. The challenges and opportunities identified could better inform approaches to development strategies moving forward.

As infrastructure is upgraded, urbanization and densification is happening faster than authorities can control. Kitur highlights the importance of an alternative way forward regarding implementation where she states that "although the importance of law was cited as crucial in aiding plan implementation, such implementation might best be achieved when the ideals of planning are entrenched in the values of people. In this case, it is not the law that compels people to do something, nor the fear of being penalized. The approach to planning needs to change to focus on making the benefits of planning so available and appealing that citizens see the urgency of planning and have a mindset that without planning, their living environment will not be good." (Kitur, 2020, p. 159)
With this in mind this study aims to not only communicate its findings to an academic audience, but also aims to include a section to share with community members as an initiative to share the lessons learned in the study. Since individual landowners are still the most responsible role-players in the current development trends, the idea is to share the lessons learned and possible solutions with the community directly as an educational effort to gather more input and community opinions regarding the development of their settlements. The approach is a bottom-up educational effort to encourage people to diversify in densification methods taking specific aspects in consideration that would improve on the overall common space realm and the collective well-being.
At the pace Kenya is being urbanized, people will need to adapt rapidly to survive and thrive in urban settlements. Major cities and urban development on the rural fringes share this dilemma. This phenomenon could be softened by incorporating the current lifestyle scenarios of rural Kenyans on a broader scale and taking the lessons learned into urban contexts. The same for lessons learned from urban contexts to incorporate in rural developments. The ideal would be to achieve a balance between a life in a rural setting and an urban life. Common spaces have this potential. By learning from both rural and urbanized contexts this study will reveal comparative assessments from which future strategies could develop.



Fig.18 Western Bypass in Construction-Ndenderu to Kikuyu (Author, 2020)



Fig.19 Kware market, Ongata Rongai-second hand books and clothes for sale (Author, 2020)



Fig.20 A boundary condition with a weak relationship to the street- Ndenderu(Author, 2020)

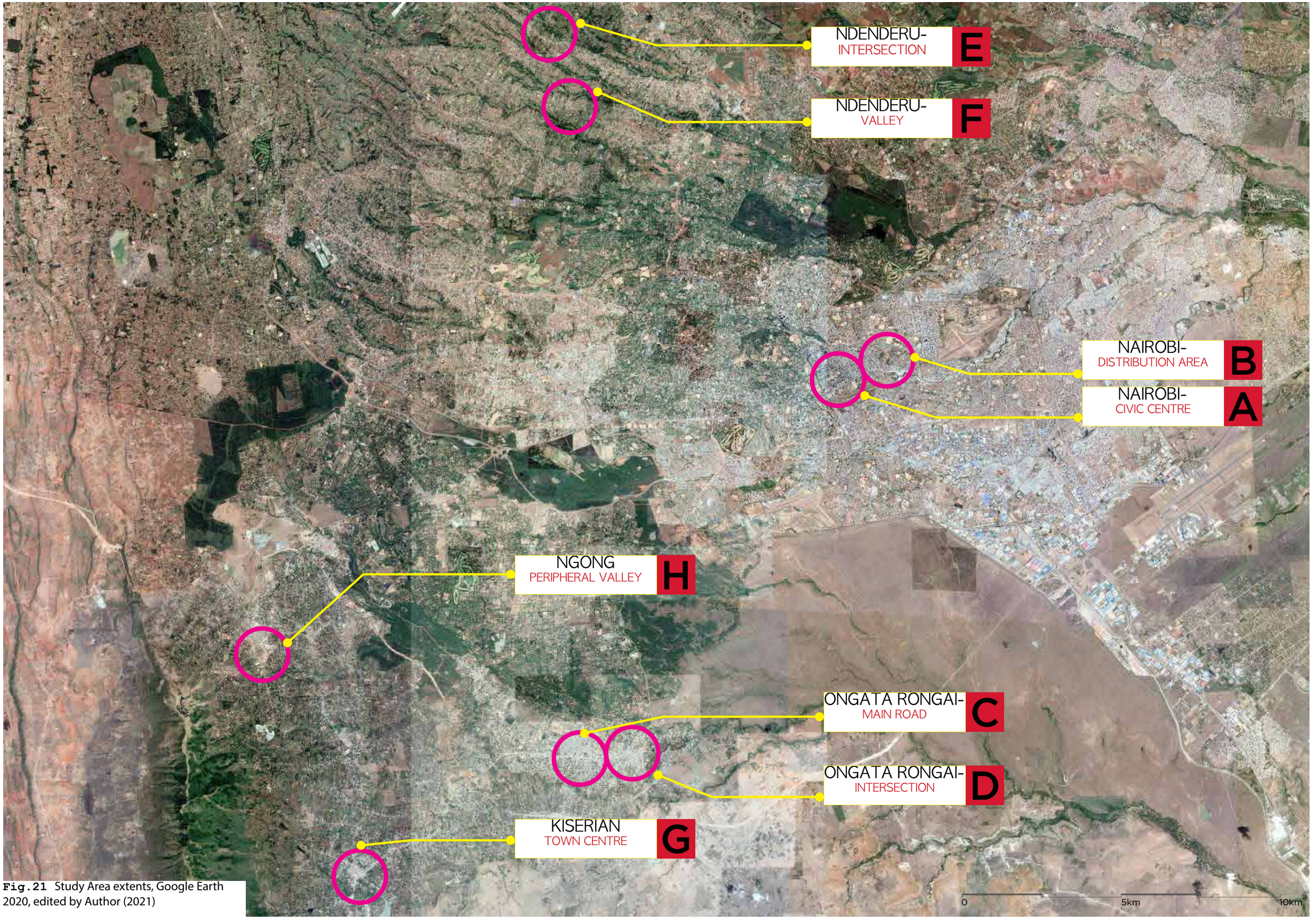


Fig.21 Study Area extents, Google Earth 2020, edited by Author (2021)

4. REFLECTIONS-THE POTENTIAL OF THIS STUDY

AIMS AND OBJECTIVES

This study aims to capture the effects of urbanization on the overall quality of life from rural to urbanized contexts through common space. The objective is to analyse case studies and to compare findings that relate to spatial performances through a structured method of analysis and illustrating how rich and enabling shared spaces are and how they impact the communities they serve.

It is the intention to protect existing culture, unique place qualities and the cultural values associated. To promote why common space matters through a document intended to be viewed by the community as an awareness strategy, this document will also focus on preserving existing natural resources as heritage which is essential to maintaining the health and well-being of Kenyans in their environment. A common space awareness pamphlet illustrating the effects of the continuation of bad practice vs. good practice, as observed in the study, can possibly influence localized development trends for the better.

The relationship between government and community structures can be improved to enable sustainable development and economic growth but not diminishing ownership structures or depriving communities of the efforts adding to their pride and identity.

QUESTIONS SHAPING THE WAY FORWARD

How are common spaces transitioning from rural to urbanized Kenya?

- What typologies of common space can be found along the study area?
- Which lessons can be learned from spatial trends and their main causes in order to imagine the future of these spaces?
- How are common values shaping common space?
- How do common spaces affect the quality of life of the communities associated?
- How are the community networks and or the common spaces associated threatened by rapid urbanization?
- What spatial principles and guidelines can improve or support the existing value structures and associations shaping common space?
- How can the profession of urban design contribute to the observations made?

EXPECTED FINDINGS

This study has the potential to give new definitions adding to what we know as common space. Unique features and functionalities of African common space can be captured possibly changing perspectives moving forward. Possible solutions to sustain economic growth, markets and community networks combined with solutions to protect and strengthen environmental heritage could be developed.
Opportunities to enhance and increase people's chances to exchange human values and to gain exposure have the potential to be unlocked through the successful development of common space structures throughout the different contexts. Taking heed of the lessons learnt from rural contexts combined with lessons from urban contexts could provide solutions towards more balanced strategies and implementation plans for future developments. The potential of stronger community participation can be unlocked through an awareness effort in sharing strategies towards shaping the environment to support common space according to the principles listed.

5. COMMON SPACE ANALYSIS

Common space is mainly defined by the relationships and balance between environmental, social and economic factors. Where balances shift, certain aspects become vulnerable and affect the ultimate sustainability and eventually survival of human settlements and the environment (United Nations, 2013).

The main variant in the study is the level of urbanization with its effect on the balance scale.

APPROACH

A scaled approach, from a broader context to specific was used to gather the necessary base information to inform the way forward. This approach seeks to find relationships between the different aspects that affect the development and sustainability of common spaces.

To know how to move forward, it is important to gain as much insight as possible in knowing why things are as they are first.

As this study aims to have a place specific response, 4 areas with each including 2 case study areas have been selected stretching from rural to urbanized contexts. The study captures observations at various scales.

SCALES OF ANALYSIS

- Scale 1: An overview of the entire study area-history to current (30 km x 30km)
- Scale 2: Mapping and analysis of the identified areas associated to the different degrees of urbanization x8 (A-H) (1,6km x 1,6km)
- Scale 3: Plans and Sections of common spaces experienced during the field-trip associated to the areas A-H above-as per the extents of the spaces identified. Drawn at scales 1:250 up to 1:1000 depending on the size of the identified sites.
- Scale 4: Photographs of the spatial elements affecting the quality of the common spaces identified.

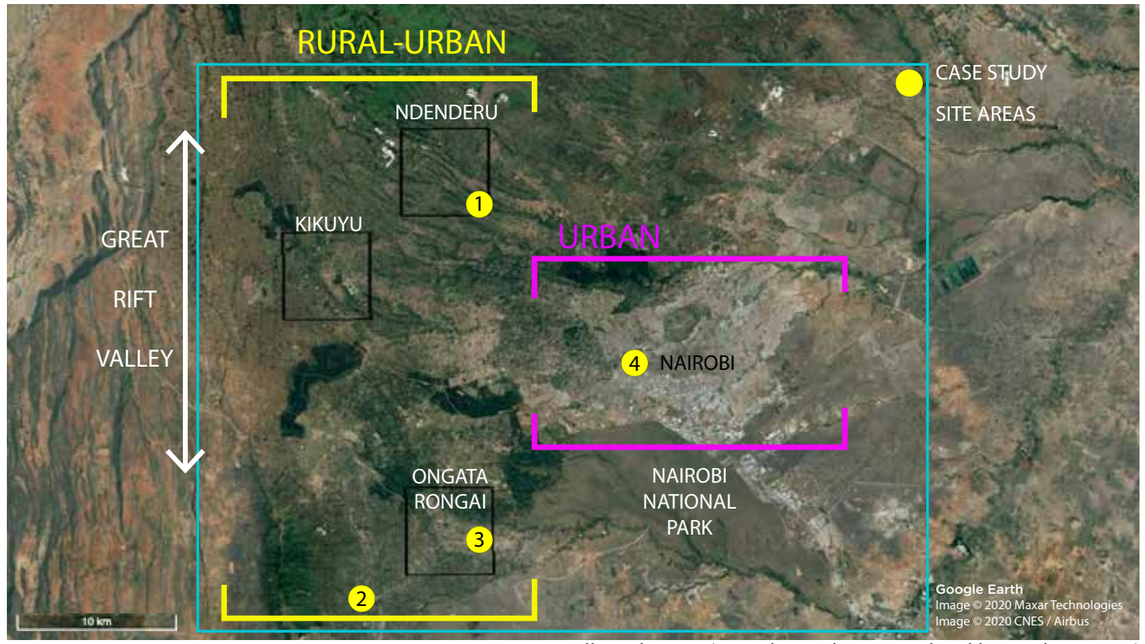


Fig.22 Overall study area (Google Earth 2020, edited by Author, 2020)

These sites were visited during the field-trip studio. Initial observations were sketched and documented through the use of photographs, short videos and drawings. The analysis of these case studies inform the comparative variables together with common space performance criteria from supporting literature. The analysis of the existing case studies include descriptive and categorical analysis of which the summaries of the findings will be compared. A thorough contextual mapping exercise will assist in conveying the observations made and establishing the various trends and development patterns.

This study relates specifically to the relationships between social, political, economic and environment structures. Additional analysis and data from other researchers and articles related to the study will need to be incorporated to support initial observations. The ultimate goal is to improve the existing conditions as they were observed and to find new strategies to improve both positive and negative practices identified. The solutions to the problems identified are not necessarily more important than the communication of the existing conditions as they are. Both research approaches are equal in importance and will carry an equal level of focus.

This sets the tone for the mapping of layers of informants affecting common space:

MAPPING
- Topography
- Movement linkages & urban blocks
- Building typologies and density
- Land-use distributions
- Limitation zones / Green resources / Water resources & Common Space Networks / typologies

SELECTION CRITERIA
The study areas were chosen ensuring they include:

- A common space of note which was visited and experienced during the field-trip
- A relationship to the wider water network
- A relationship between the built environment and the natural environment
- A main road

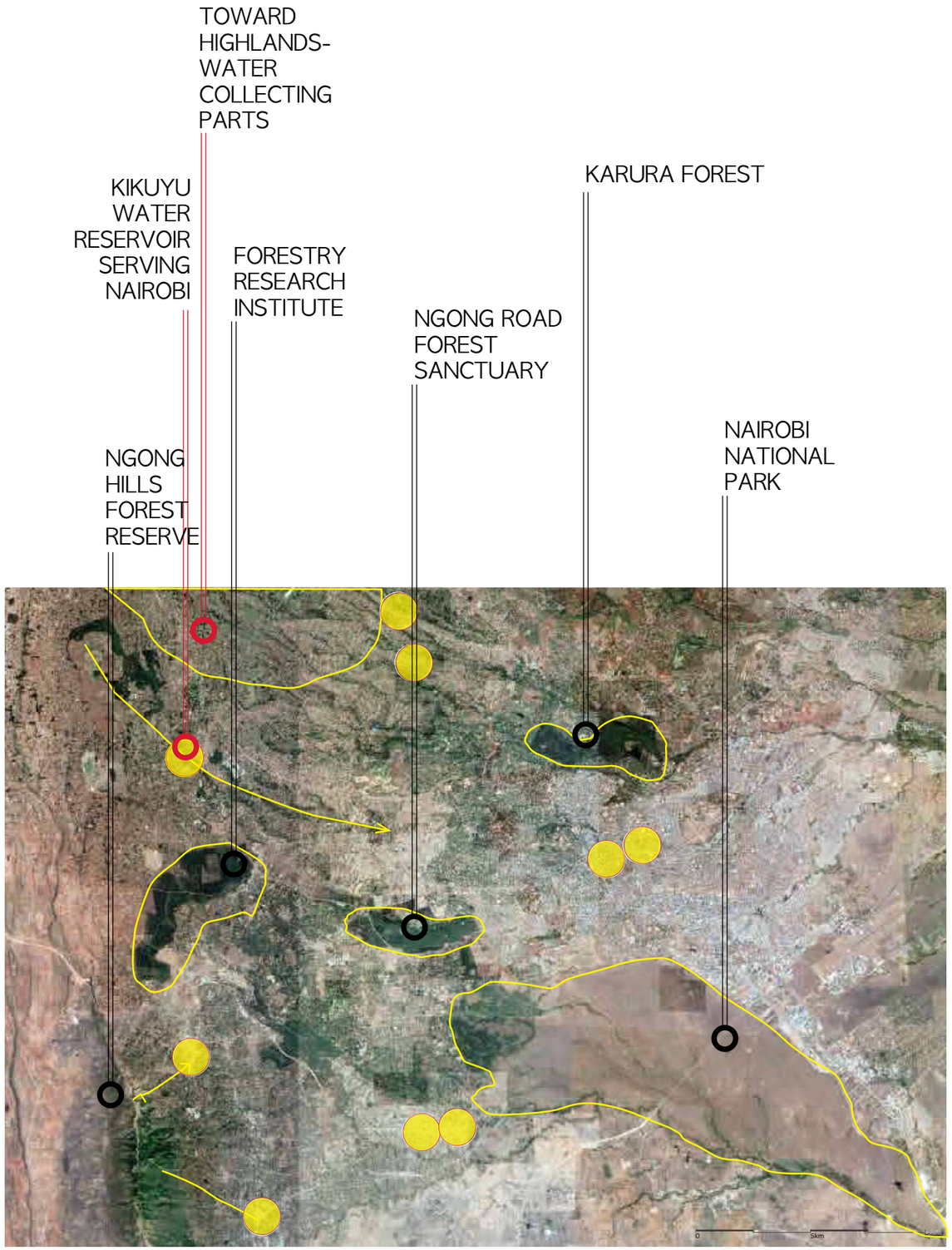


Fig.23 Remaining Natural Heritage Sites (Google Earth 2020, edited by Author, 2020)

THE 8 STUDY REGIONS-FROM URBAN TO RURAL

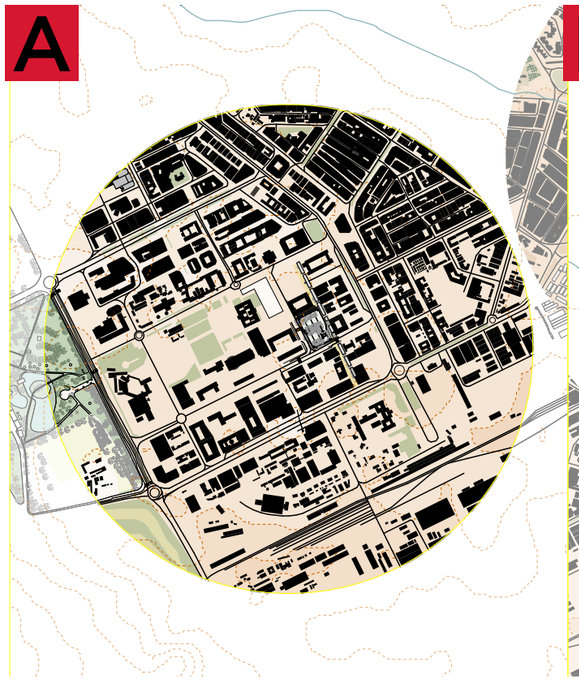


Fig.24 Nairobi-Civic Centre Focus Area (Author, 2021)



Fig.25 Nairobi-Distribution Focus Area (Author, 2021)

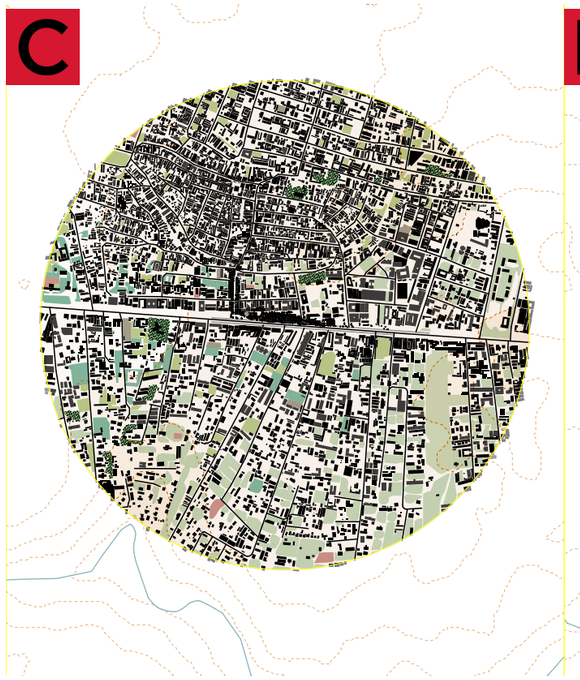


Fig.26 Ongata Rongai- Main Road Focus Area (Author, 2021)



Fig.27 Ongata Rongai- Intersection Focus Area (Author, 2021)



Fig.28 Ndenderu- Intersection Focus Area (Author, 2021)



Fig.29 Ndenderu- Valley Focus Area (Author, 2021)



Fig.30 Kiserian- Focus Area (Author, 2021)

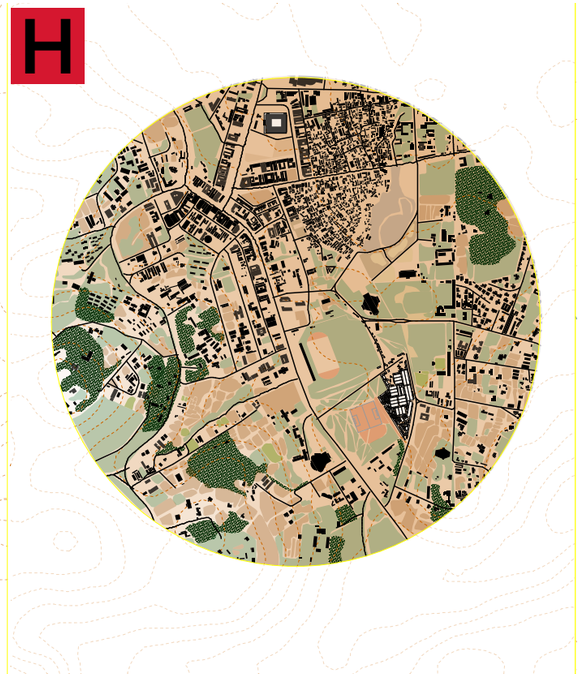
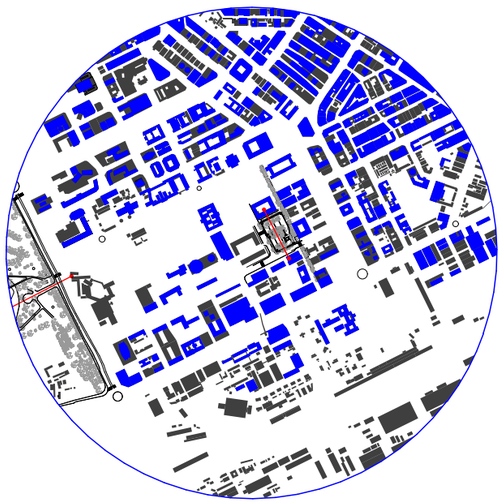


Fig.31 Ngong- Focus Area (Author, 2021)

A NAIROBI-
CIVIC CENTRE

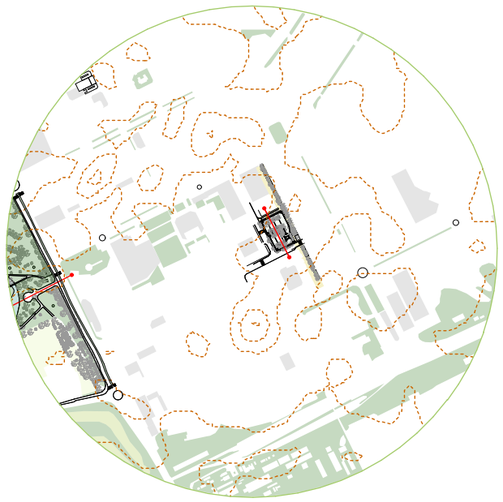
DENSITY



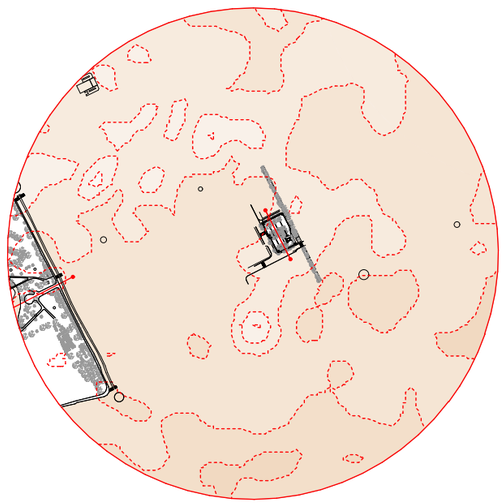
USE STRUCTURES



GREEN STRUCTURES



TOPOGRAPHY



MOVEMENT & GRID STRUCTURES

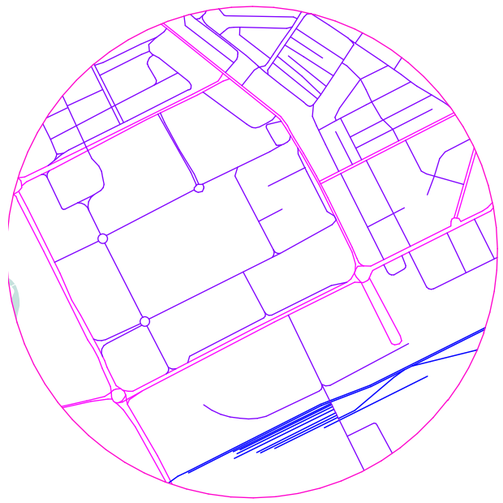


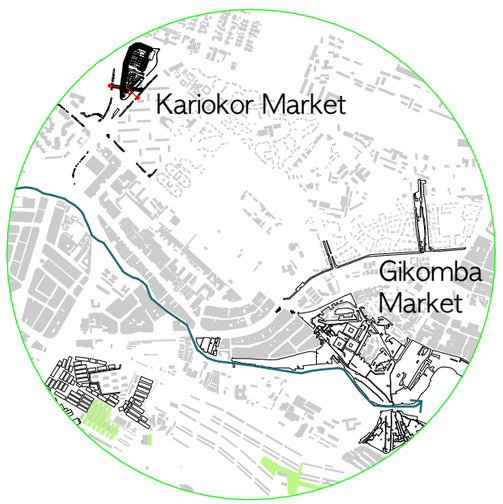
Fig.32 Nairobi-Civic Centre Focus Area Mapping Analysis (Author, 2021)

B NAIROBI-
DISTRIBUTION AREA

DENSITY



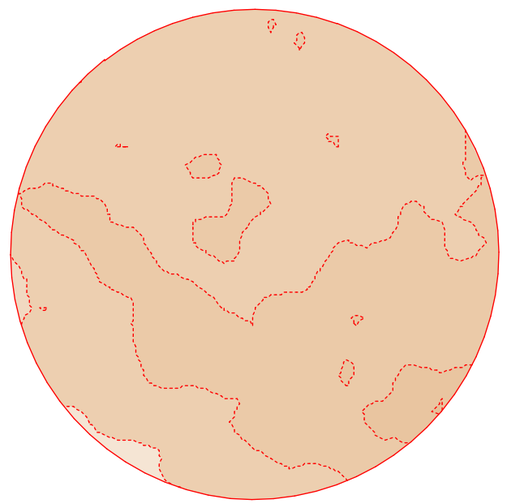
USE STRUCTURES



GREEN STRUCTURES



TOPOGRAPHY



MOVEMENT & GRID STRUCTURES

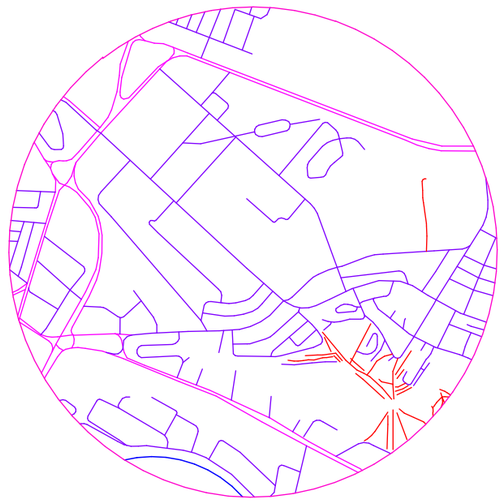


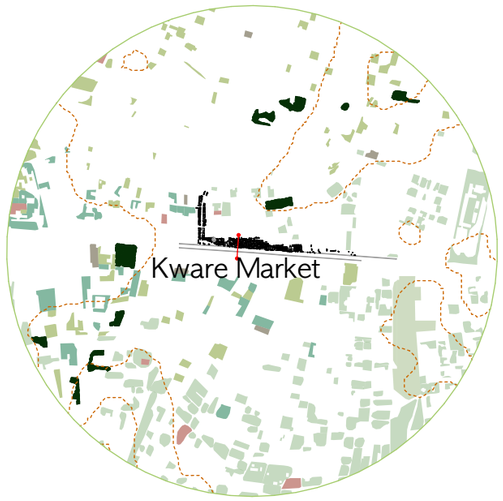
Fig.33 Nairobi-Distribution Focus Area Mapping Analysis (Author, 2021)

ONGATA RONGAI-
MAIN ROAD

DENSITY



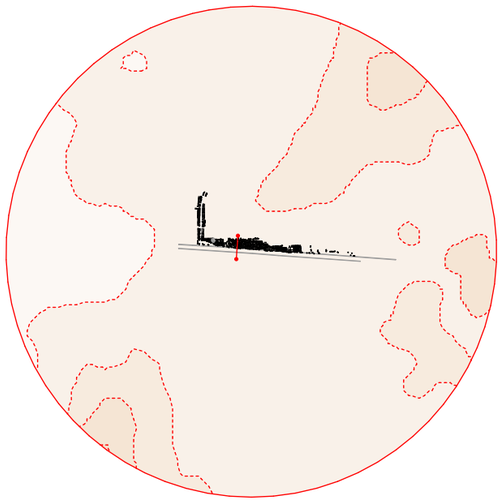
USE STRUCTURES



GREEN STRUCTURES



TOPOGRAPHY



MOVEMENT & GRID STRUCTURES

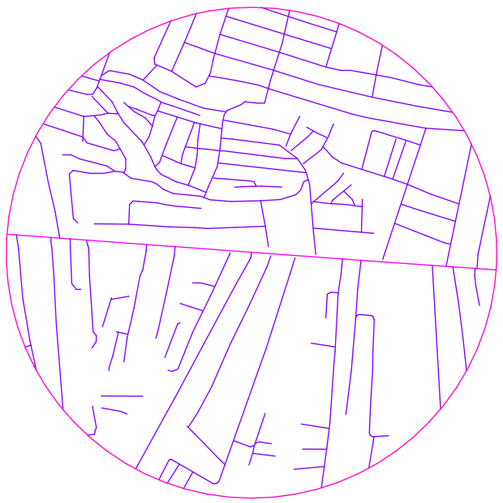
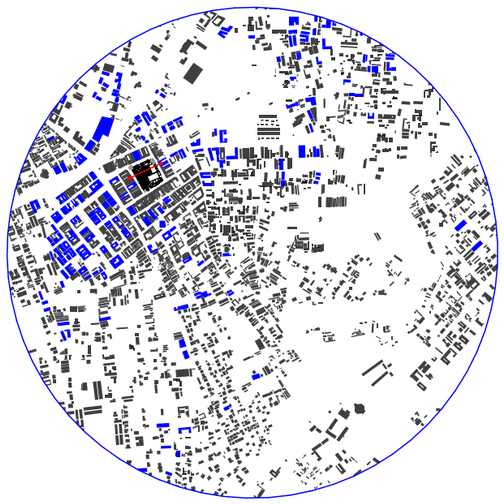


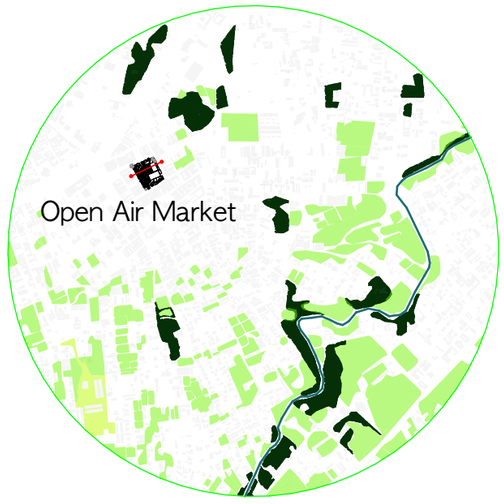
Fig.34 Ongata Rongai- Main Road Focus Area Mapping Analysis (Author, 2021)

ONGATA RONGAI-
INTERSECTION

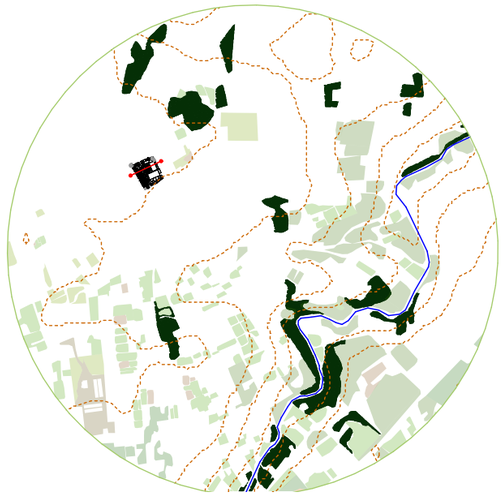
DENSITY



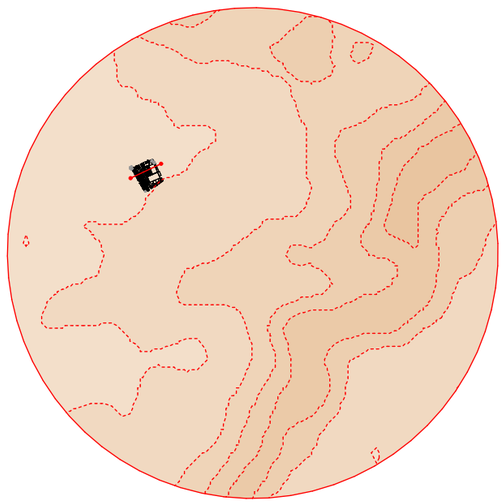
USE STRUCTURES



GREEN STRUCTURES



TOPOGRAPHY



MOVEMENT & GRID STRUCTURES

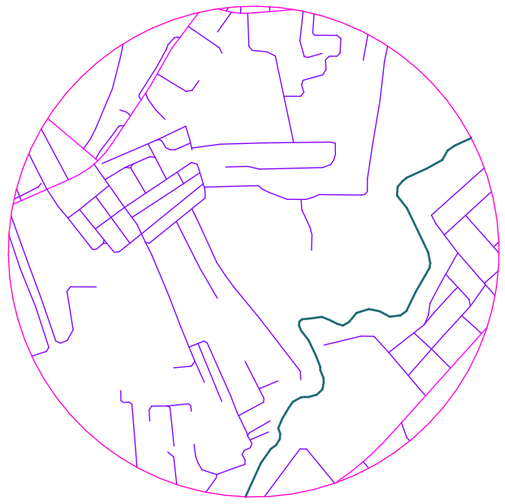
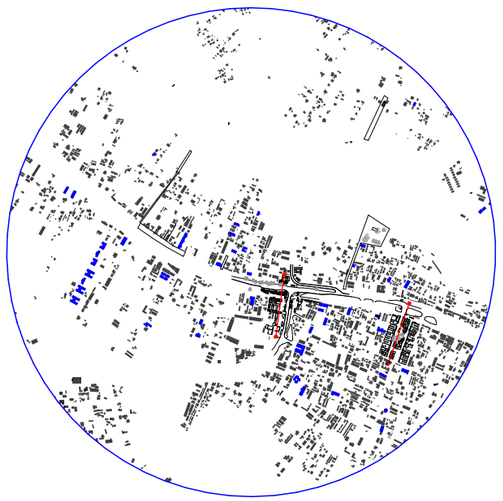


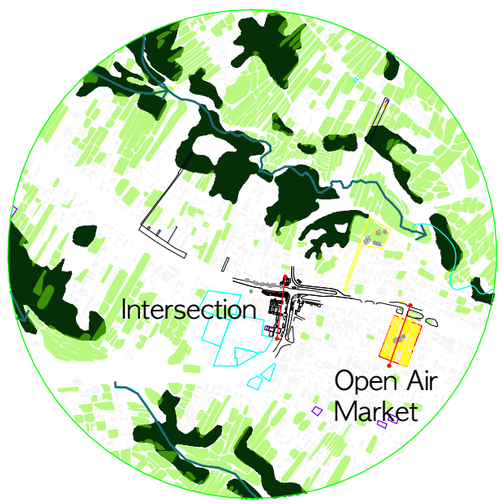
Fig.35 Ongata Rongai- Intersection Focus Area Mapping Analysis (Author, 2021)

E NDENDERU-
INTERSECTION

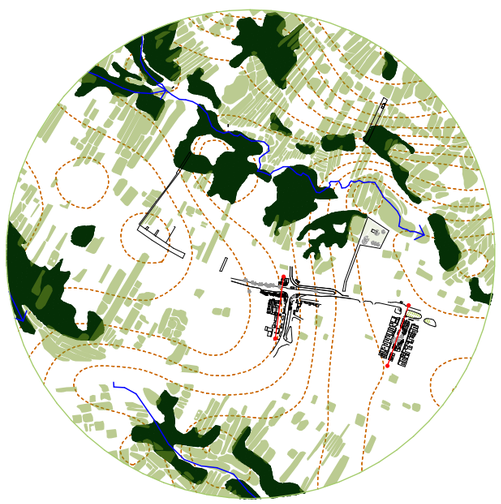
DENSITY



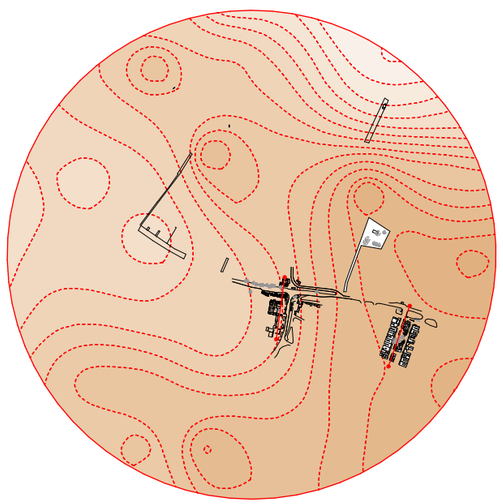
USE STRUCTURES



GREEN STRUCTURES



TOPOGRAPHY



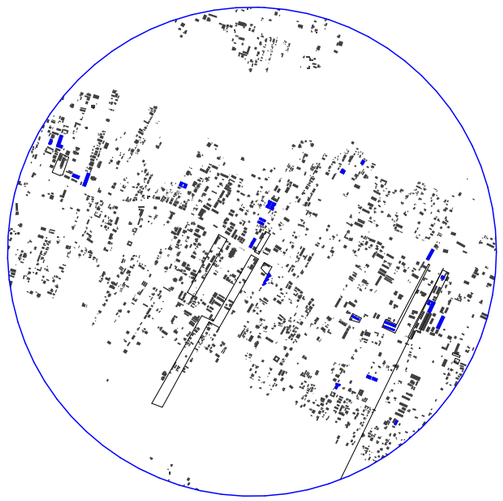
MOVEMENT & GRID STRUCTURES



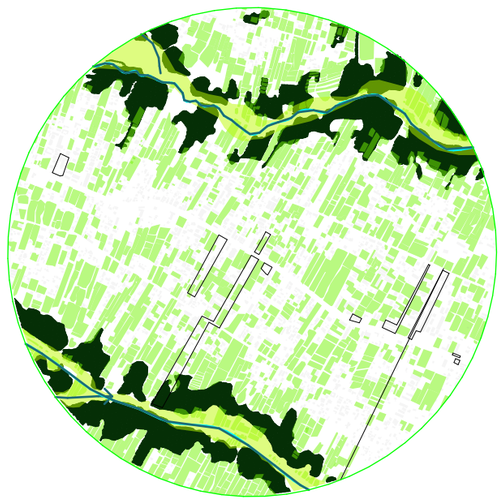
Fig.36 Ndenderu- Intersection Focus Area Mapping Analysis (Author, 2021)

F NDENDERU-
VALLEY

DENSITY



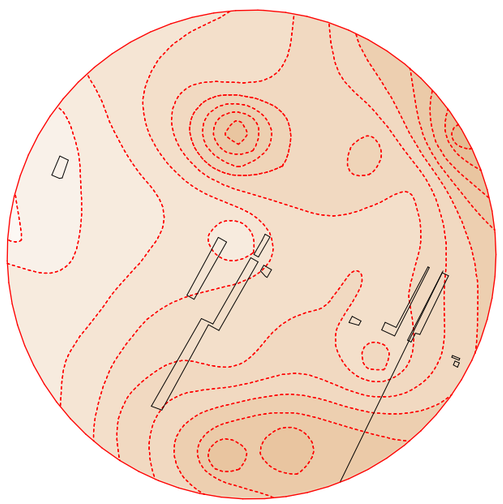
USE STRUCTURES



GREEN STRUCTURES



TOPOGRAPHY



MOVEMENT & GRID STRUCTURES

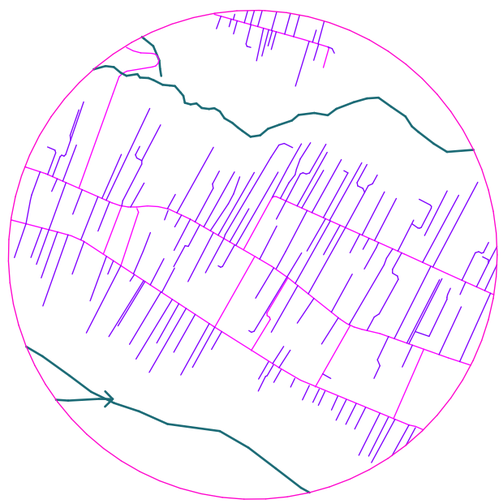
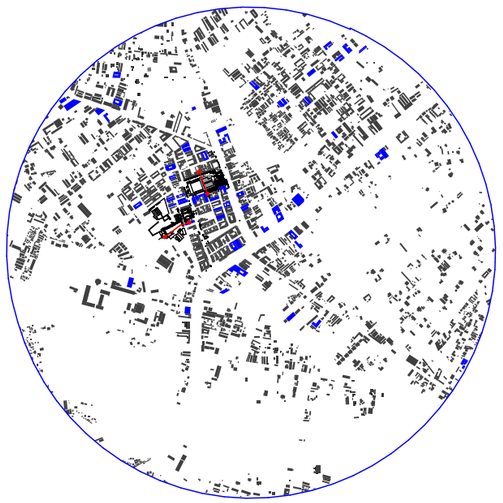


Fig.37 Ndenderu- Valley Focus Area Mapping Analysis (Author, 2021)

G KISERIAN
TOWN CENTRE

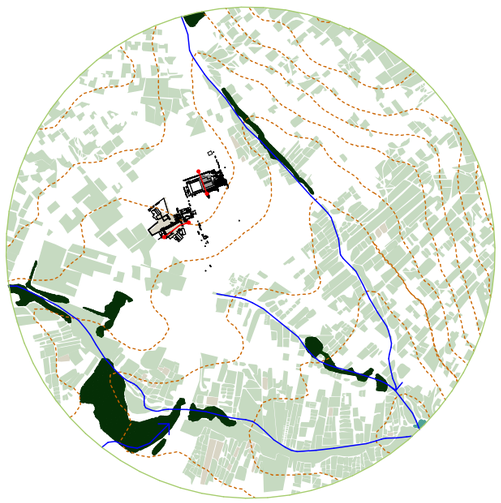
DENSITY



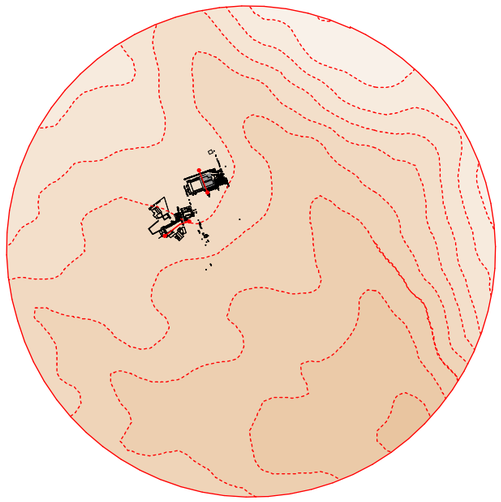
USE STRUCTURES



GREEN STRUCTURES



TOPOGRAPHY



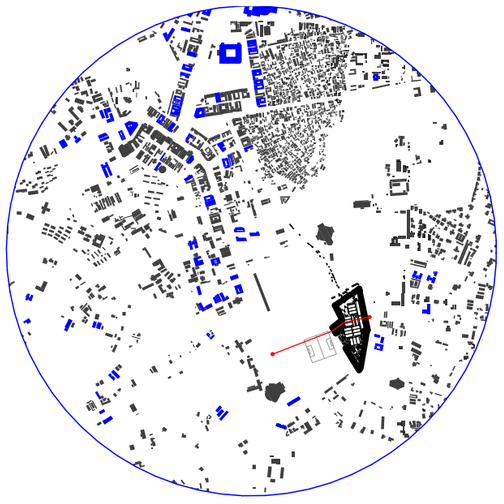
MOVEMENT & GRID STRUCTURES



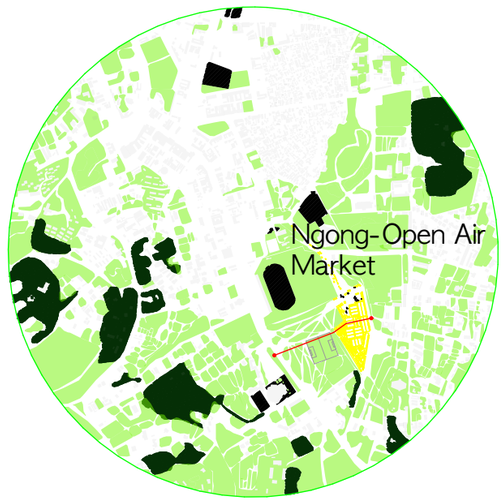
Fig.38 Kiserian- Focus Area Mapping Analysis
(Author, 2021)

H NGONG
PERIPHERAL VALLEY

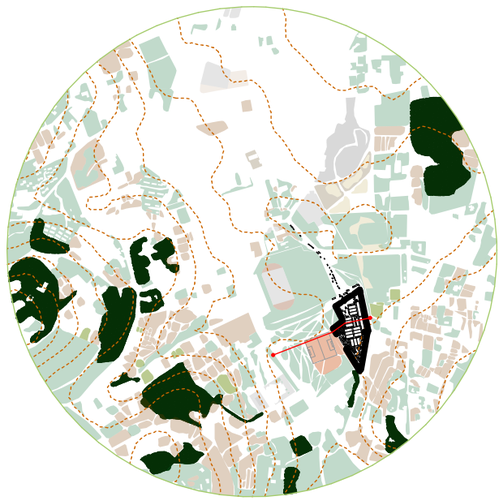
DENSITY



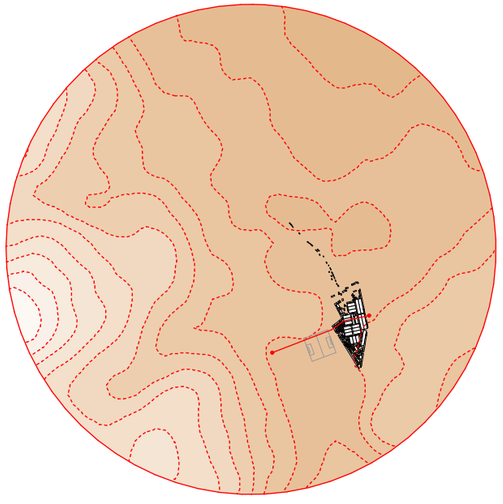
USE STRUCTURES



GREEN STRUCTURES



TOPOGRAPHY



MOVEMENT & GRID STRUCTURES

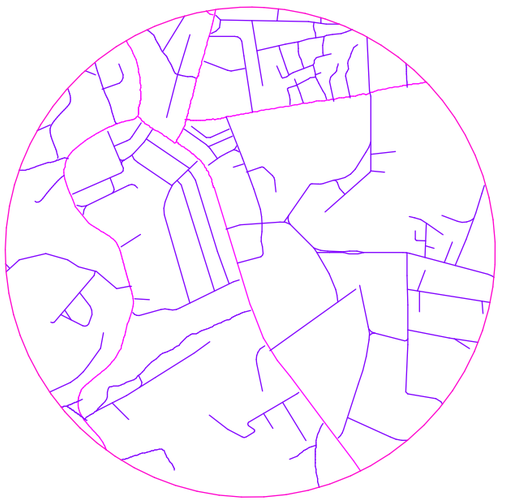


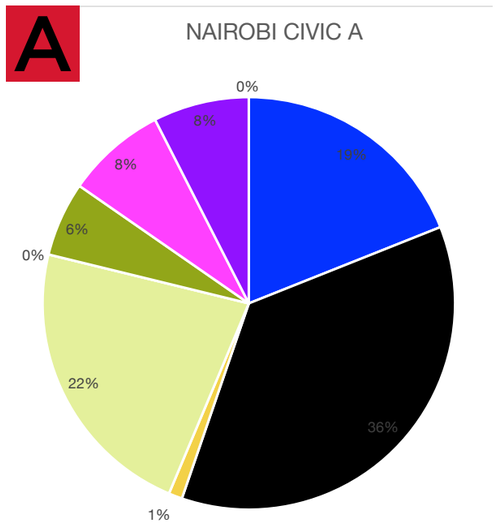
Fig.39 Ngong- Focus Area Mapping Analysis
(Author, 2021)

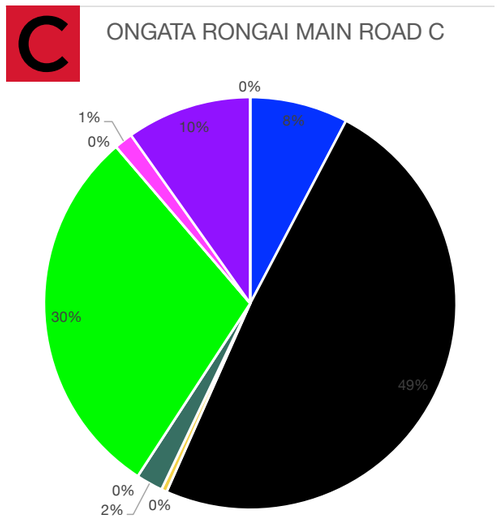
THE 8 STUDY REGIONS-FROM URBAN TO RURAL-COMPARATIVE ANALYSIS

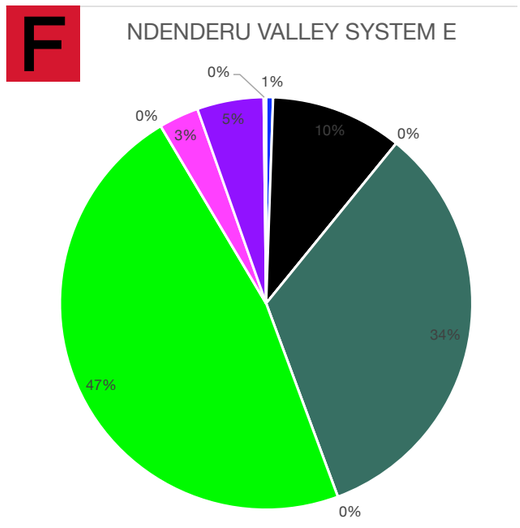
	Aspect Measured	Area	NAIROBI	NAIROBI2	ONGATA RONGAI	ONGATA RONGAI2	NDENDERU	NDENDERU2	NGONG	KISERIAN
			CIVIC	DISTRIBUTION	MAIN ROAD	INTERSECTION	VALLEY SYSTEM	INTERSECTION	NGONG	KISERIAN
			A	B	C	D	E	F	G	H
1	UPPER STOREYS INDICATOR	m^2	322472	147538	84143	71295	8042	10795	42971	23790
2	BUILT FABRIC COVERAGE	m^2	616943	429950	535654	336414	153188	178224	224594	265479
3	BUILT FABRIC-MARKETS	m^2	18140	142331	4839	4831	0	10192	140046	9917
4	DENSE GREENERY /	m^2		261487	22956	113014	496558	13954	175959	84199
5	SOFT	m^2	382205	262491	0	93663	0	0	0	0
6	AGRICULTURAL AREAS	m^2	0	0	323117	348386	698820	513502	794467	718720
7	PAVED PARKING AREAS	m^2	99232	0	0	0	0	0	0	0
8	MAIN ROADS average	m^2	133202	111779	16002	20753	46467	45980	44012	28035
9	LINAKGE ROADS average	m^2	127706	101812	107392	84643	77390	122642	74719	4773
10	RIVER EXTENTS	m	0	1807	0	1840	2853	2118	0	3841

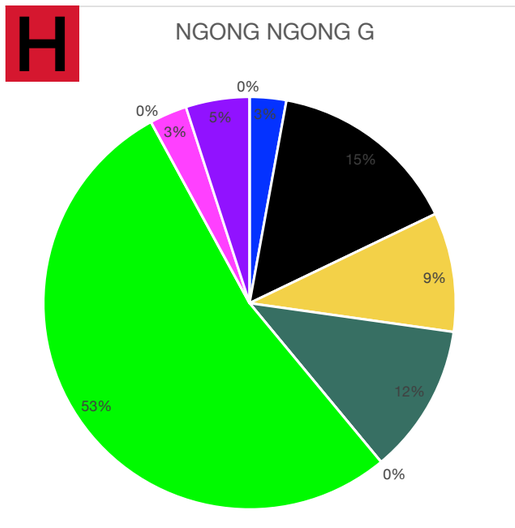
1. Upper Storeys Indicator
2. Built Fabric-Coverage
3. Markets
4. Dense Greenery (Forests / Nature Reserve)
5. Green Spaces (Lawn-use not specific)
6. Agricultural Land
7. Paved Parking Areas
8. Main Roads
9. Secondary Roads

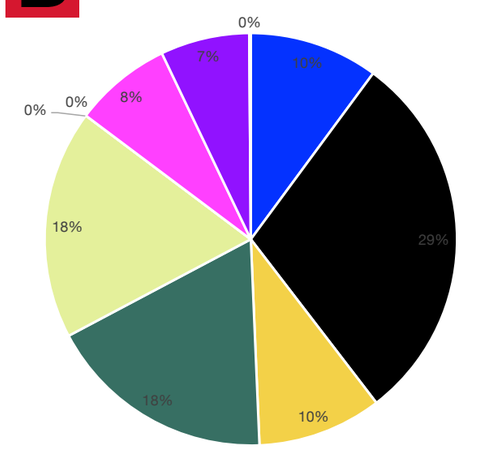
Fig.40 Urban to Rural Focus Areas Comparison table (Author, 2021)

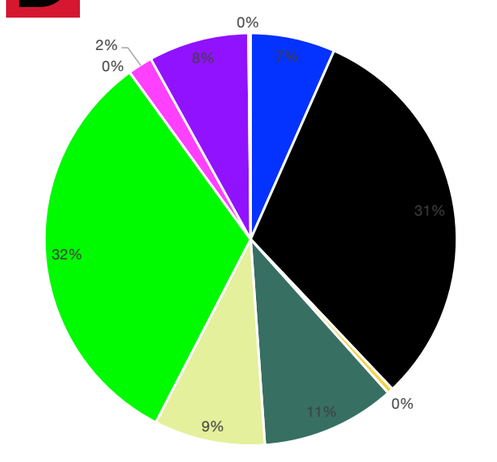


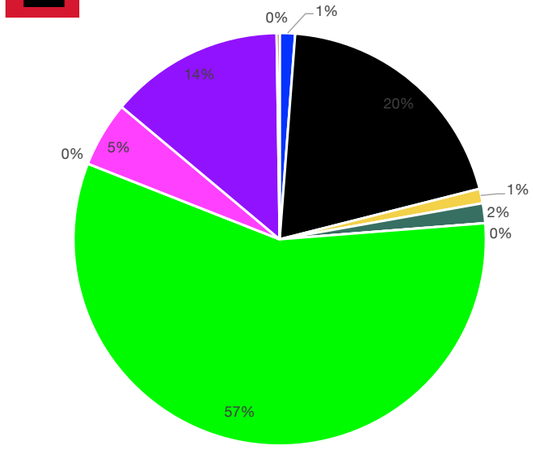












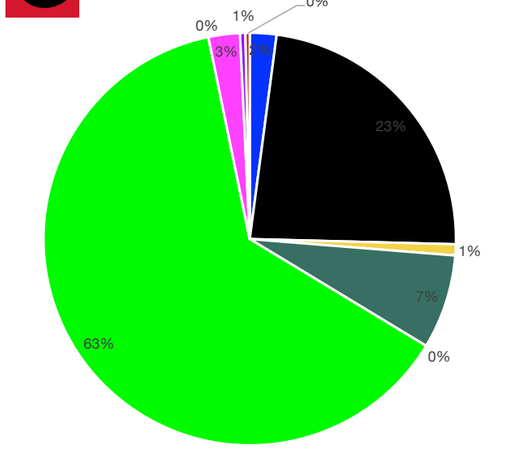
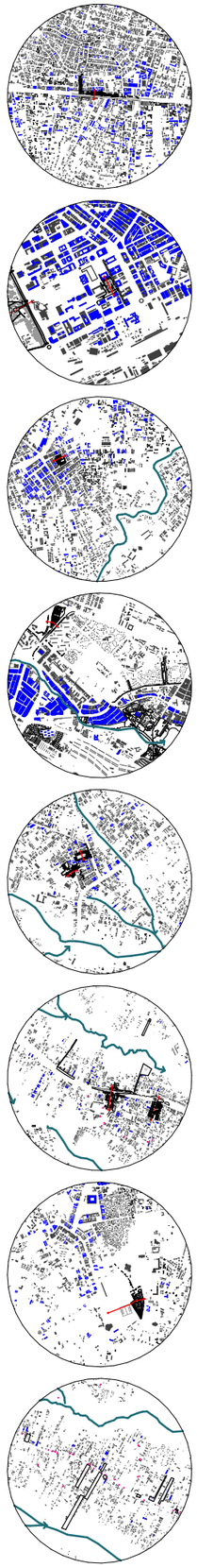


Fig.41 Urban to Rural Focus Area Graphs (Author, 2021)

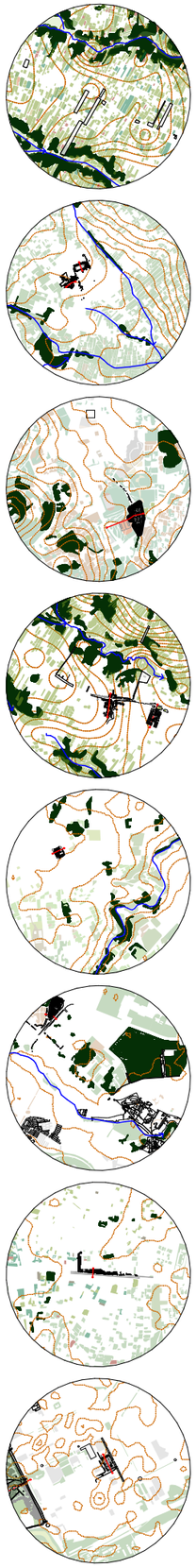
DENSITY

1. Ongata Rongai Main Road
2. Nairobi Civic Centre
3. Ongata Rongai Intersection
4. Nairobi Distribution Area
5. Kiserian
6. Ndenderu Valley Intersection
7. Ngong
8. Ndenderu Valley



GREEN STRUCTURES

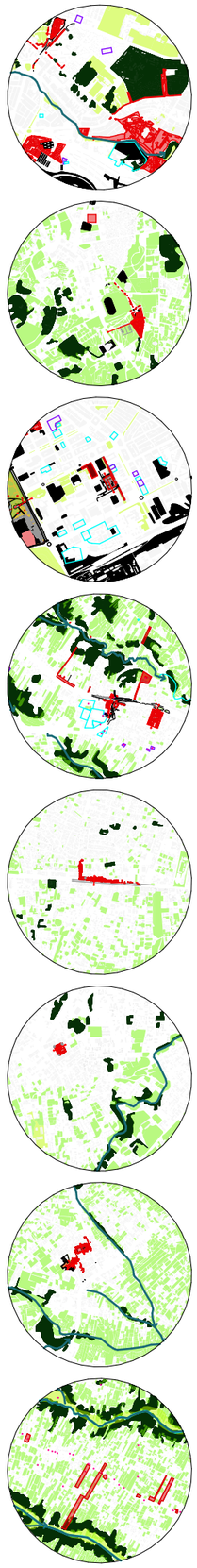
1. Ndenderu Valley
2. Kiserian
3. Ngong
4. Ndenderu Valley Intersection
5. Ongata Rongai Intersection
6. Nairobi Distribution Area
7. Ongata Rongai Main Road
8. Nairobi Civic Centre



Note: The circles are arranged that the top position indicates the highest performer according to the criteria above, and the bottom one listed indicates the lowest performance

USE STRUCTURES

1. Nairobi Distribution Area
2. Ngong
3. Nairobi Civic Centre
4. Ndenderu Valley Intersection
5. Ongata Rongai Main Road
6. Ongata Rongai Intersection
7. Kiserian
8. Ndenderu Valley



MOVEMENT STRUCTURES

1. Ndenderu Valley Intersection
2. Nairobi Civic Centre
3. Nairobi Distribution Area
4. Ongata Rongai Main Road
5. Ongata Rongai Intersection
6. Ndenderu Valley
7. Ngong
8. Kiserian

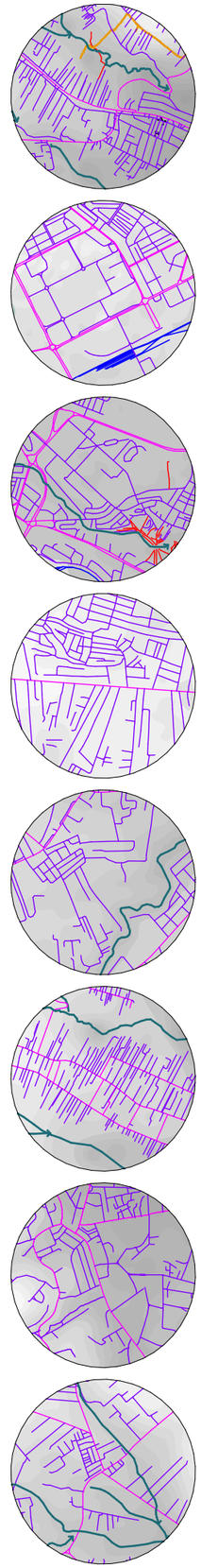
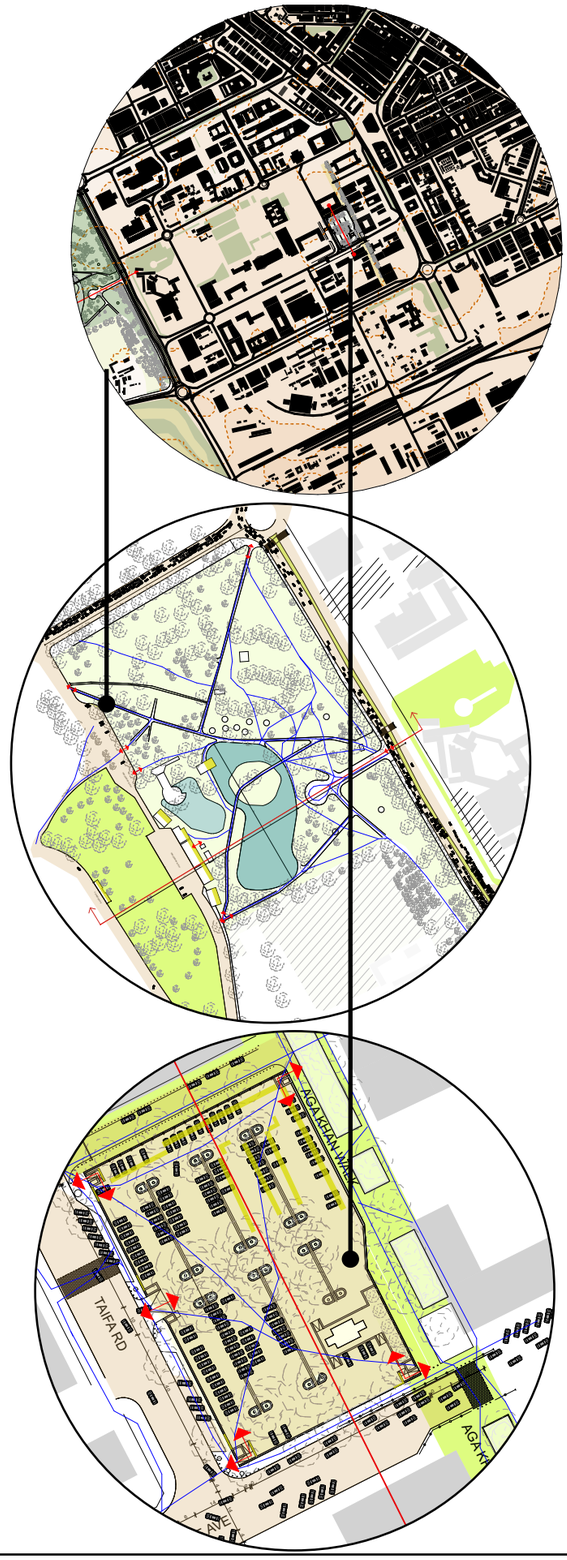


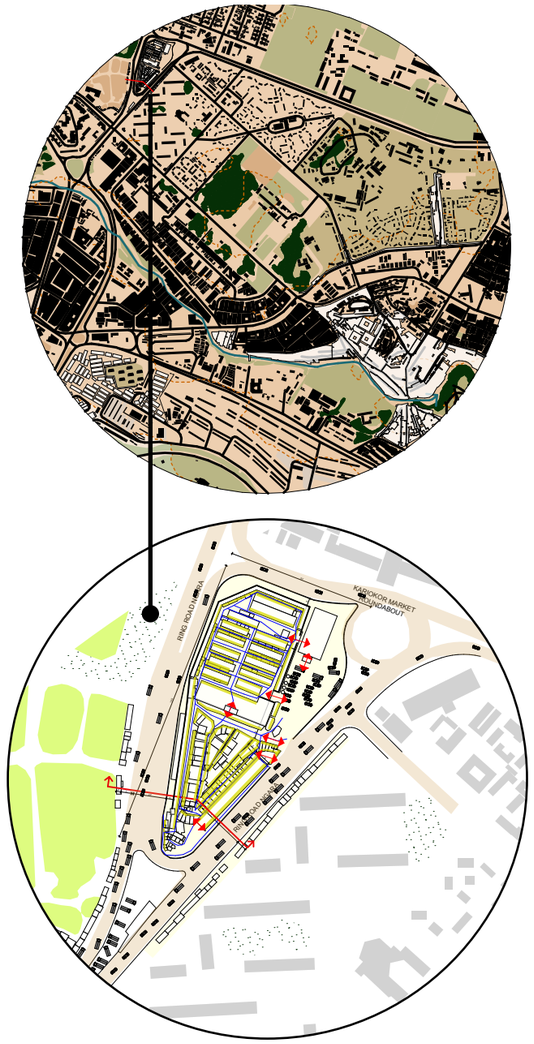
Fig.42 Focus Areas ordered according to highest measure of informants (Author, 2021)

THE 8 STUDY REGIONS-WITH COMMON SPACES STUDIED ASSOCIATED

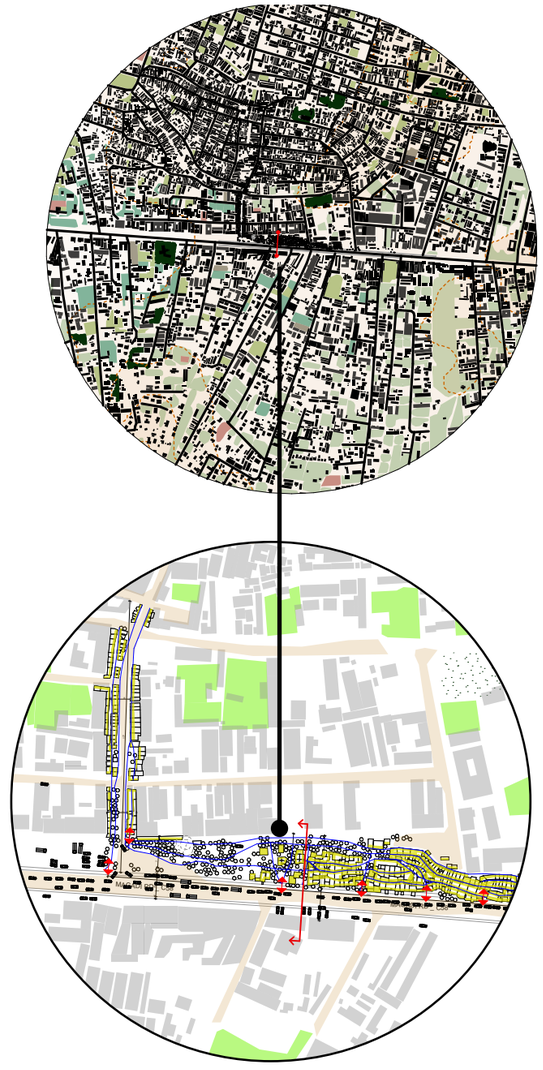
NAIROBI-CIVIC



NAIROBI-DISTRIBUTION



ONGATA RONGAI-MAIN ROAD



ONGATA RONGAI-INTERSECTION

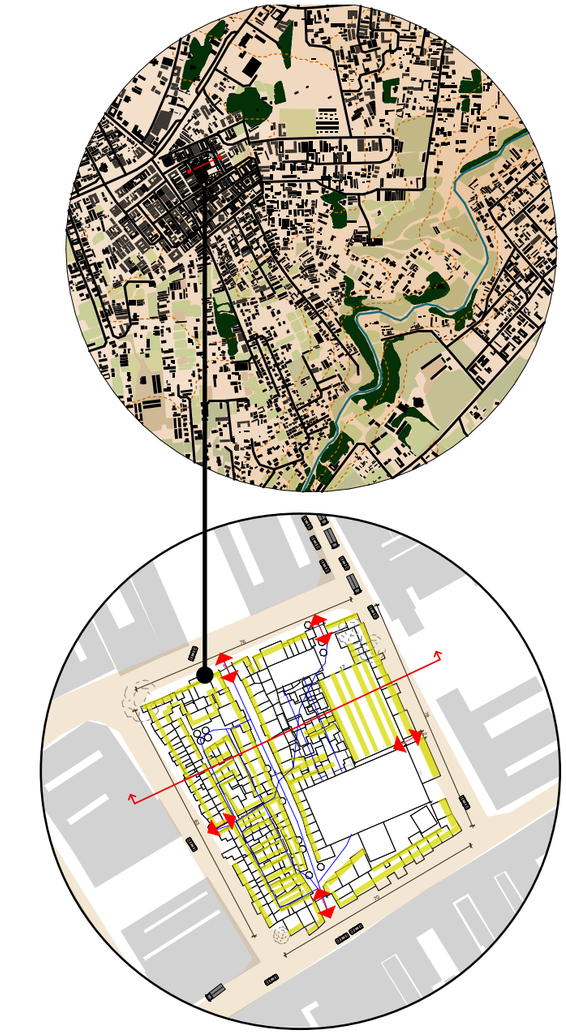
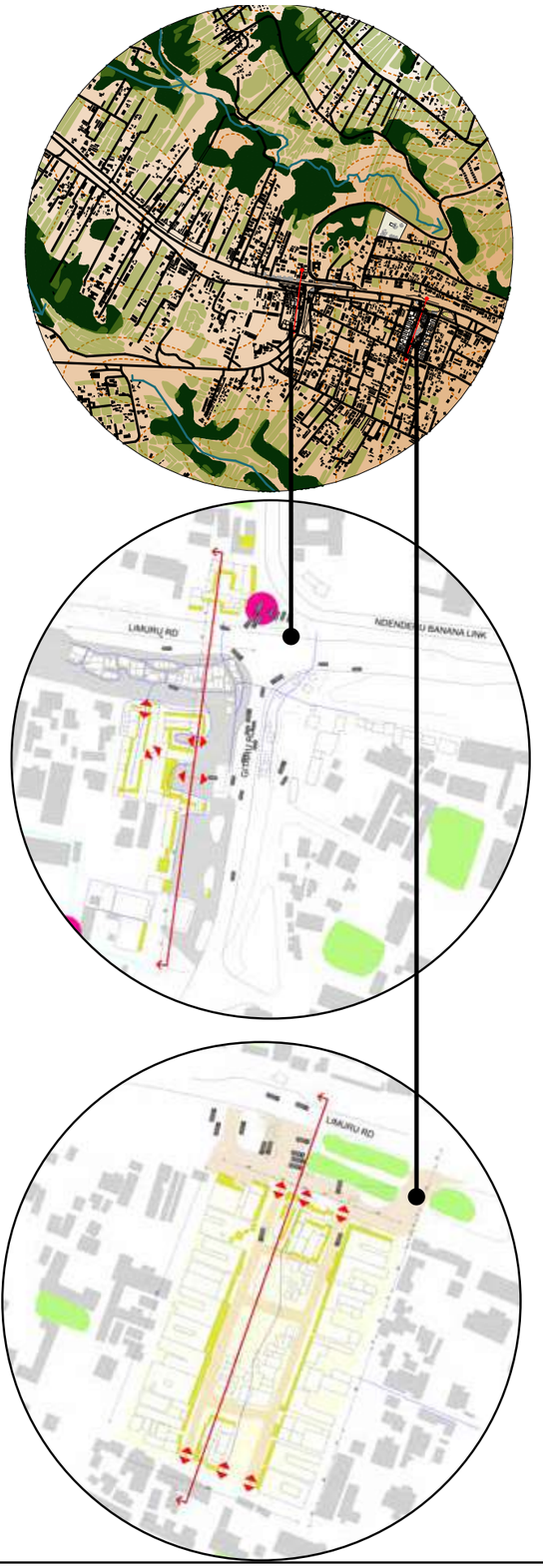


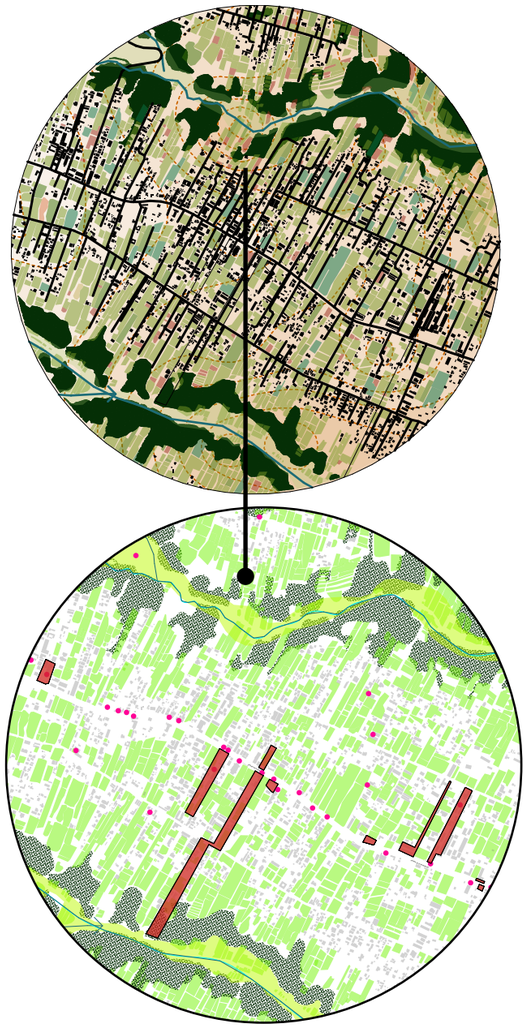
Fig.43 Detail Plans of the areas studied in relationship to the larger urban environments-Urban(Nairobi) (Author, 2021)

Fig.44 Detail Plans of the areas studied in relationship to the larger urban environments-Urban-Rural (Ongata Rongai)(Author, 2021)

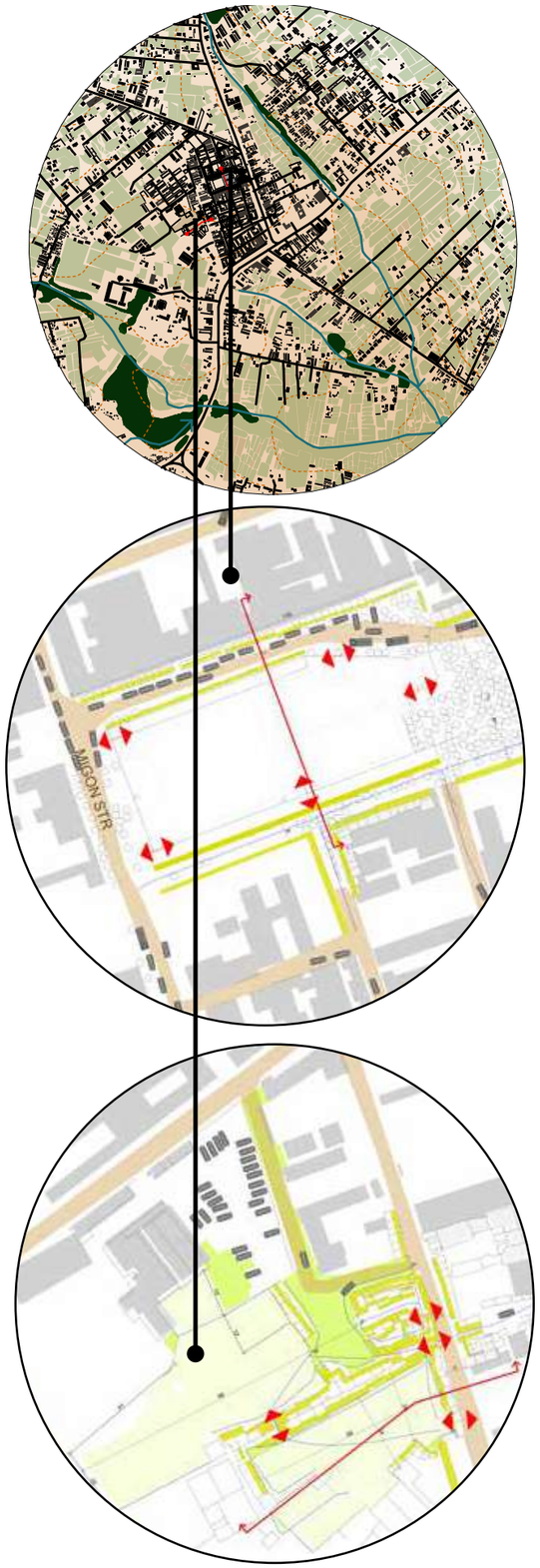
NDENDERU INTERSECTION



NDENDERU VALLEY



KISERIAN



NGONG

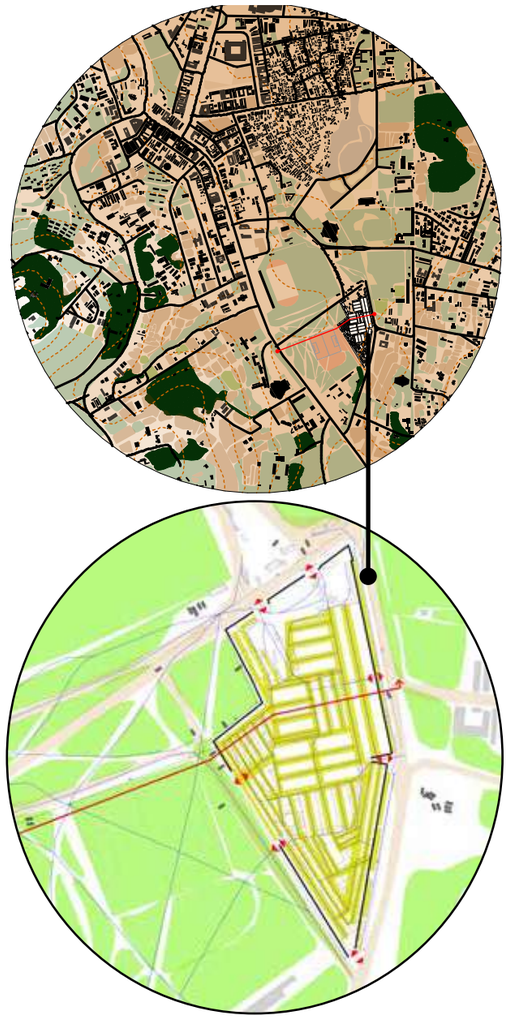


Fig.45 Detail Plans of the areas studied in relationship to the larger urban environments-Urban-Rural(Ndenderu)(Author, 2021)

Fig.46 Detail Plans of the areas studied in relationship to the larger urban environments-Rural (Kiserian & Ngong)(Author, 2021)

PUBLIC SPACE / COMMON SPACE PERFORMACE INDICATOR

	A	C	D	E	F	G	H	I	J	K
1	Column1	CITY / TOWN	Column5	Column6	Column7	Column8	Column9	Column10	Column11	Column12
2		NAIROBI	NAIROBI	NAIROBI	ONGATA RONGAI	ONGATA RONGAI	NDENDERU	NDENDERU	NGONG	KISERAIN
3		NAIROBI UHURU PARK	NAIROBI AGA KHAN PARKING & WALKWAY	NAIROBI KARIOKOR MARKET	ONGATA RONGAI KWARE MARKET	ONGATA RONGAI OPEN AIR MARKET	NDENDERU TRAFFIC INTERSECTION	NDENDERU OPEN AIR MARKET	NGONG OPEN AIR MARKET	KISERAIN LIVESTOCK MARKET & GOODS MARKET
4	LIGHTING	3	3	1	1	1	1	1	1	1
5	SURFACES APPROPRIATE TO USE	3	3	1	0	2	0	1	1	1
6	WATER PROVISION	3	3		0	2	0			1
7	ENTRANCE / EXIT	3	3	1	0	2	0	1	1	2
8	DRAINAGE	3	3	0	0	1	1	1	1	0
9	SEATING / RESTING AREAS / COMFORT	3	3	0	0	1	1	1	1	1
10	TREES / SHADE	3	3	0	1	0	0	2	1	0
11	PROTECTION AGAINST RAIN	3	3	2	0	1	0	1	2	1
12	ABLUTIONS	3	3			2				1
13	ENHANCE SECURITY	2	3	2	2	2	1	2	1	1
14	PEDESTRIAN PROTECTION	3	3	1	0	0	0	0	1	0
15	WALKABILITY	3	3	1	2	1	0	1	0	1
16	MULTI- USE POSSIBILITIES	3	3	0	0	0	0	0	0	0
17	INCOME GENERATING CAPABILITIES	3	3	2	2	2	2	2	3	3
18	ROBUST / EASY TO MAINTAIN	3	3	1	1	1	0	0	1	1
19	CONTRIBUTION TO HEALTH 1 ACCESS TO NATURAL RESOURCES	3	0	0	0	0	0	0	0	1
20	CONTRIBUTION TO HEALTH 2 ALLOWS OPPORTUNITIES FOR PHYSICAL TRAINING	3	3	0	0	0	0	0	2	0
21	PUBLIC INTEREST FACILITATED	3	3	3	3	3	0	1	1	1
22	CUSTODIAN OF ENVIRONMENTAL INPUT	3	1	0	0	0	0	0	0	0
23	IMPROVE PUBLIC TRANSPORT FACILITIES	2	3	0	0	0	1	0	0	0
24	ENHANCE EQUITY AND SOCIAL INCLUSION	3	3	3	3	3	1	1	1	1
25	ENABLING CONNECTIONS WITH THE BUILT AND NON BUILT ENVIRONMENT	3	0	0	0	0	1	0	0	2
26	ENABLE. ENJOYMENT; opportunities to walk, sit, stand, stay, sit, see, talk and listen	3	3	1	1	1	1	1	1	1
27	HISTORICAL VALUE	3	2	1	0	1	0	0	0	1
28	APPROPRIATE SCALE	2	3	2	1	2	1	2	1	2
29		**72**	**66**	**22**	**17**	**28**	**11**	**18**	**20**	**23**

EXCELLENT
MODERATE
WEAK
0 ABSENT

Fig.47 Public Space Performance Table (Author, 2021)

A: NAIROBI-CIVIC CENTRE FOCUS AREA-OVERVIEW

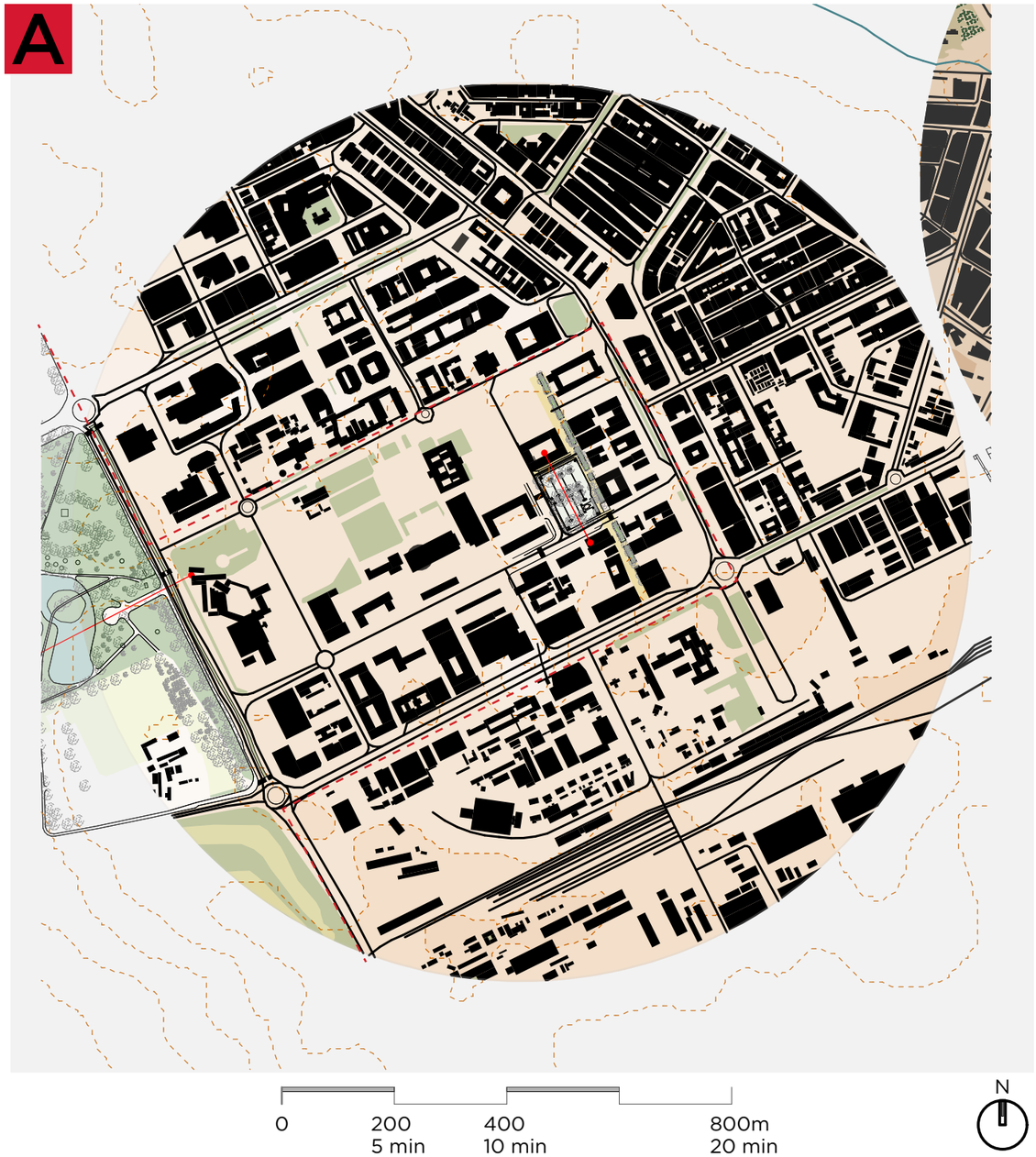


Fig.48 Nairobi- Civic Centre Focus Area (Author, 2021)

A: NAIROBI-CIVIC CENTRE FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS



Fig.49 Kenya Supreme Court Parking lot as the Maasai Market on weekends (Author, 2020)



Fig.50 Nairobi-Cinema entrance as an extension of common space (Author, 2020)



Fig.51 Nairobi- Arcades as an extension of the common space structure of the City (Author, 2020)



Fig.52 Nairobi- Formalised pedestrian walkways ,continuous common space network (Author, 2020)



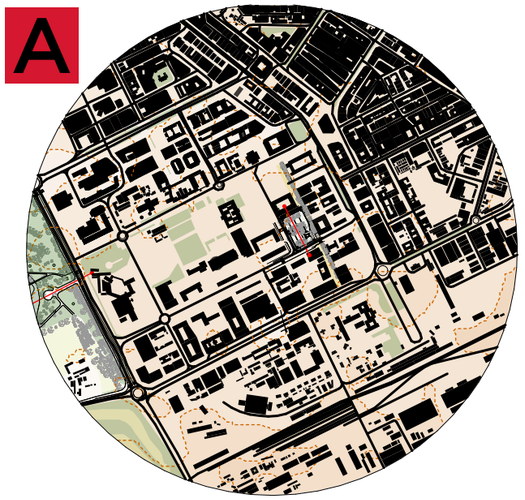
Fig.53 Nairobi- Hale Selassie Avenue traffic and pedestrian streets (Author, 2020)



Fig.54 Nairobi-Typical Building and street relationship (Author, 2020)

A: NAIROBI-CIVIC CENTRE FOCUS AREA-SPATIAL ANALYSIS

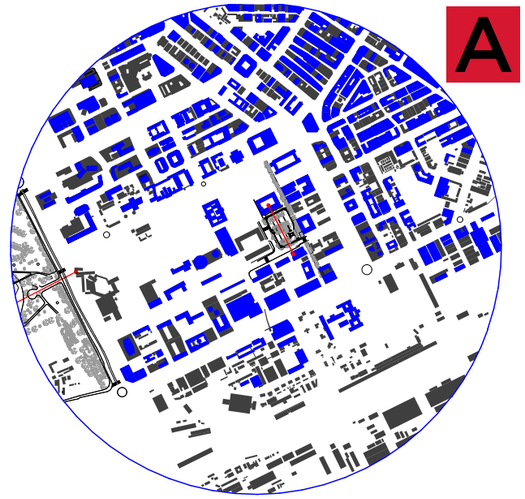
A



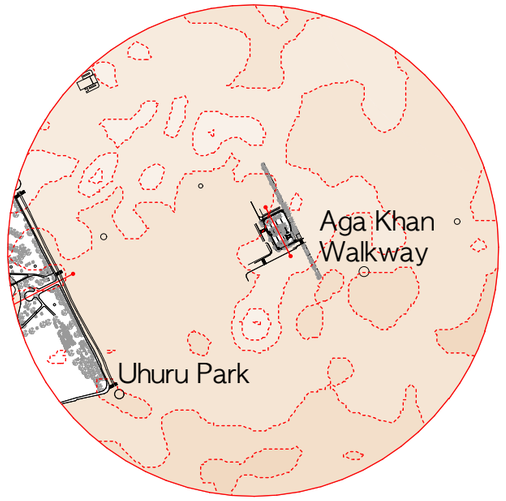
Summary:
The following observations are made to illustrate how the quality of common spaces are affected by the various aspects as shown in separate layers.

The intention is to bring the reader's attention to the singular aspects that have an overall effect as we experience the space simultaneously.

Building Typologies:
A diverse range of building typologies make up the city of Nairobi, from courtyard typologies to arcades to skyscrapers.



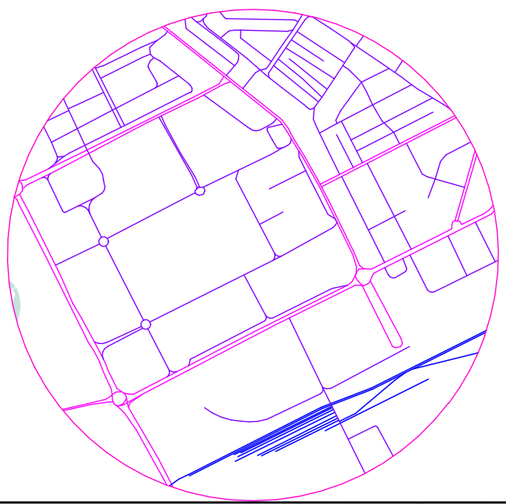
A



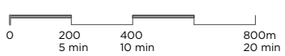
Topography:
Relatively even topography with higher elevations towards the west and lower elevations towards the east.

Use:
Civic amenities are distributed in close proximity allowing comfortable access for pedestrians. A variety of services are available. Proximity and diversity stimulates people to walk and use the sidewalks rather than vehicles. Large parking lots are well spread across the civic centre, some used as alternative functions, like markets and training grounds. Use structures are more associated to offices and retail functions with a few residential buildings. This factor affects the night life of the city, where large areas are underutilised at night time.





Movement Structure & Urban Blocks Structure:
The movement system is mostly characterised by a perpendicular grid iron structure where the railway meets the roads network. One block separates the central business district from the railway. The grid pattern adapts to the topography moving outwards and the grain becomes denser moving away from the centre.



Common Space Structures:
Public spaces associated to Nairobi include parks, pedestrian streets, wide sidewalks and pedestrian only zones. At present many civic spaces are closed off and secured with controlled access only due to terrorist attacks in the recent past. These spaces have support elements adding to the comfort of its users, including benches, dustbins and lighting. Allocated parking lots are used as market spaces / as public squares.



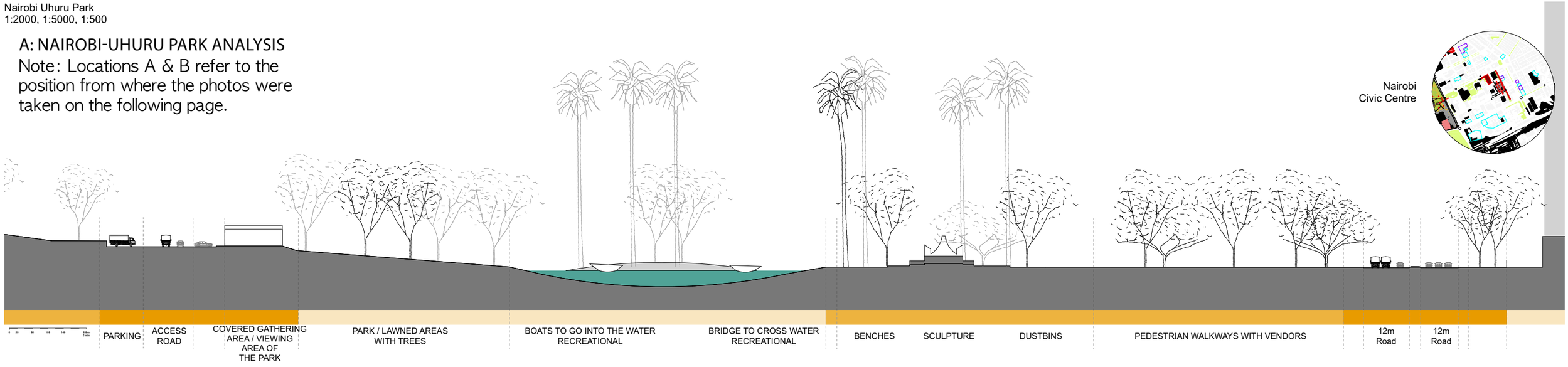
Fig.55 Nairobi- Civic Centre Focus Area-Analysis (Author, 2021)

Fig.56 Nairobi- Civic Centre Focus Area-Analysis (Author, 2021)

Nairobi Uhuru Park
1:2000, 1:5000, 1:500

A: NAIROBI-UHURU PARK ANALYSIS

Note: Locations A & B refer to the position from where the photos were taken on the following page.



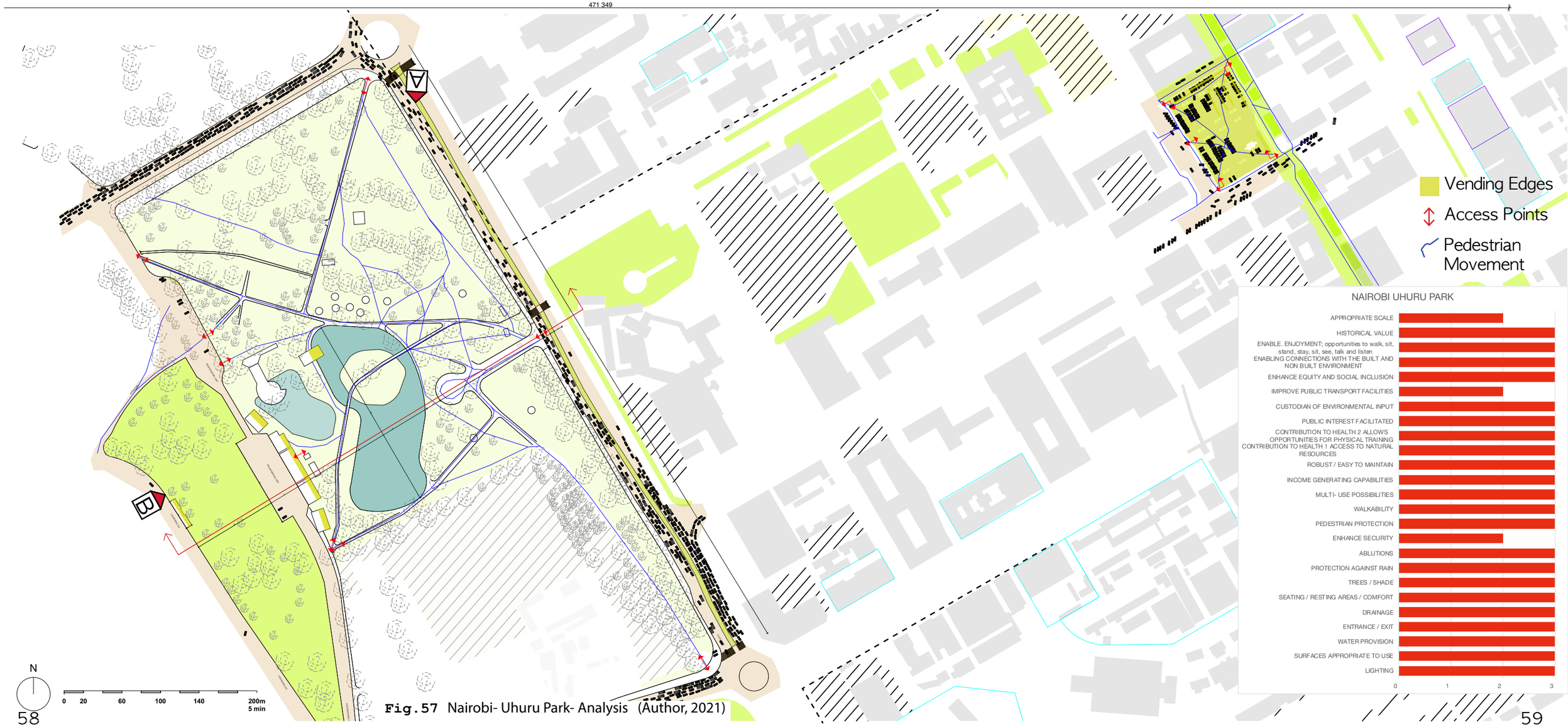


Fig.57 Nairobi- Uhuru Park- Analysis (Author, 2021)

A: NAIROBI-UHURU PARK PHOTOGRAPHS



Fig.58 Uhuru Park from Uhuru Highway moving in a southerly direction, (Author, 2020)



Fig.59 Nairobi-Uhuru Park overlooking Nairobi Civic Centre, the illusion of a continuous park continued deep into the civic centre. (Author, 2020)

UHURU PARK OBSERVATIONS / LESSONS LEARNED

- The Uhuru park is a large space allowing a wide variety of uses. It is stretched between the upper hill development area and the civic centre associated to the railway. The park houses recreational facilities such as a lake with row boats and allows for entrepreneurs to use the space for temporary uses as the air jungle shows in the image to the left. Furthermore, vendors are distributed throughout the park catering to people either passing through or people who have come to the park as a destination to engage in the opportunities available.
- Pedestrian walkways are well maintained and allow for comfortable movement.
- Sculptures and installations along main movement axis indicate that the park was created with the intention to educate, entertain and amuse its users.
- Sufficient seating opportunities is provided throughout the park
- The slope of the park assists with visual access and allows the park to act as a viewing platform towards the civic centre. Image B shows a continuous park extending deep into the civic centre over a distance of more or less 1km. In reality access to the green areas beyond Uhuru park is not used by the public and is restricted and controlled due to terror attacks. Pedestrians are limited to sidewalks and pedestrian walkways in this area.
- The trees and generous roof structures provide sufficient shelter, shade and comfort. The choice of trees planted also reflects a wide variety of indigenous and exotic species found in the area.
- The scale of Uhuru park is vast, stretching 1km in length to roughly 400m in width(Image B looking beyond its 400m width into the civic centre) Unfortunately the park is divided by Kenyatta Avenue and Haile Selassie Avenue.
- Pedestrian Crossings are well defined and maintained, assisting crossing Uhuru Highway(a highly trafficked road)
- Support infrastructure to cater for pedestrians like bollards and railings are present and add to the agency of ensuring the safety of pedestrians
- Ablutions facilities are available at the recreational venues scattered across the park
- The edge definition of the park facing the civic centre is a low pole and chain line with planting and hedges growing where access is not required. The storm water collection channel also runs along this edge, limiting access to the park. Lush vegetation and high hedges define the edge towards the southern and eastern edges not associated to the civic area, indicating less active and a reduced need for access to the park.
- Distinct access points are associated to pedestrian crossings with a few appropriated access points shaped by regular use.
- The park acts as a destination in its own right, allowing additional opportunities for people to exchange experiences and goods since there are enough people using the space.
- The balance between hard and soft spaces is well considered and provides adequate opportunities for functions that occur on either hard or soft spaces.
- The lighting of the park is made up of both high mast lights in various positions and street lights catering mostly for vehicles where the park meets the road.
- Sufficient support infrastructure, to improve comfort and ease of use in the park is provided such as dustbins.
- The park is well positioned with strong connections to wider common space networks of the city and features as a destination within the network.

Nairobi Aga Khan Walkway
1:500

A: NAIROBI-AGA KHAN PARKING LOT & PEDESTRIAN WALKWAY ANALYSIS

Note: Locations A, B, C & D refer to the position from where the photos were taken on the following pages.

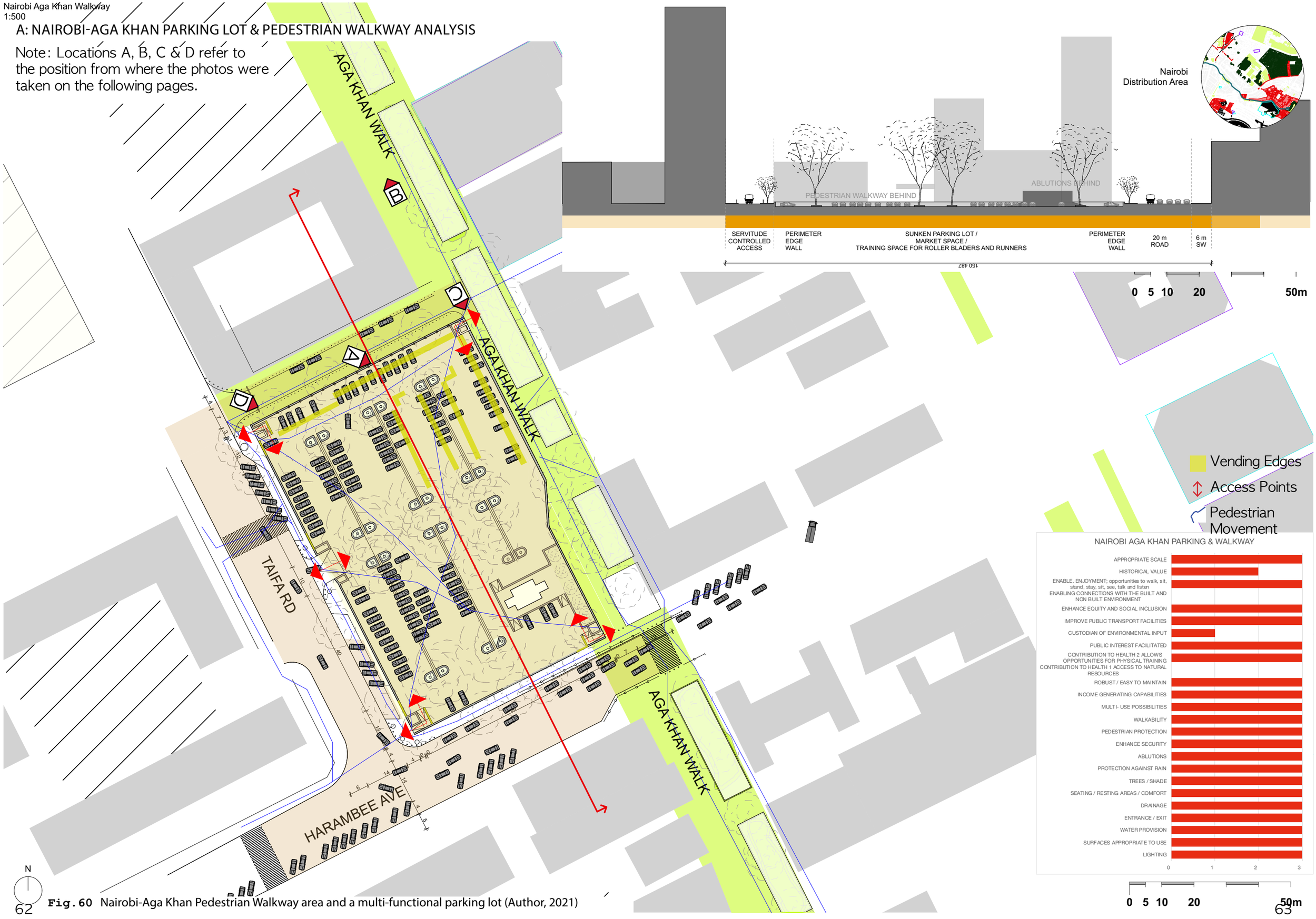


Fig. 60 Nairobi-Aga Khan Pedestrian Walkway area and a multi-functional parking lot (Author, 2021)

A: NAIROBI-AGA KHAN PARKING LOT & PEDESTRIAN WALKWAY PHOTOGRAPHS



Fig.61 The parking lot used as training grounds for athletes (Author, 2020)



Fig.62 Aga Khan pedestrian walkway with support infrastructure (Author, 2020)



Fig.63 Skills and training exchanges, with spectators viewing the activities from the edges(Author, 2020)



Fig.64 Common space allowing movement, lingering, comfort, entertainment and support infrastructure(Author, 2020)

AGA-KHAN PARK/PARKING OBSERVATIONS / LESSONS LEARNED

- Pedestrian Crossings support safe access and the prioritisation of pedestrians to cars
- Bollards and Pedestrian railings are in place to ensure pedestrian's safety
- Ablutions provided in highly trafficked area-well maintained
- A defined Edge as a raised/retaining wall surrounds the space functioning as a bench where observers look into the space and socialise also functioning as a surface to display items of trade
- Visual Access across the site is achieved by lowering the parking lot to the raised pedestrian circulation along all 4 edges
- Plenty seating opportunities-on the edge and central-(see tree planter detail)-allows users to take different roles within the space as actors and observers.
- Sufficient shade is achieved by large trees within the storm-water drainage channels, allowing the trees to prosper by placing them strategically(along the dividing line of two parking spaces facing each other)
- Close proximity to consumable goods allows people to enjoy them in the outdoor space, increasing the number of users of the space.
- Clearly defined access points are evenly spread along the edges, improving the sense of security without having to over-secure the space.
- Wide sidewalks allows circulation and trade to happen at the same time. This additional use increases the users, for the vendors spend longer periods occupying the space.
- The hard surfaces are well maintained allowing athletes to train and comfortable unhindered movement of users of the space.
- There is sufficient lighting at an appropriate scale, illuminating the entire area of the space. The lights fixtures cater for a pedestrian scale rather than vehicular
- Support infrastructure such as dustbins and signage further supports comfortable use of the space with easier navigation
- The parking lot is adjacent to the Aga Khan pedestrian walkway and ties into the larger common space network of the civic centre.

B: NAIROBI-DISTRIBUTION FOCUS AREA-OVERVIEW



Fig.65 Nairobi-Distribution Focus Area (Author, 2021)

B: NAIROBI-DISTRIBUTION FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS



Fig.66 Nairobi-Peripheral areas-typical highway intersection with goods trading and social exchange (Author, 2020)

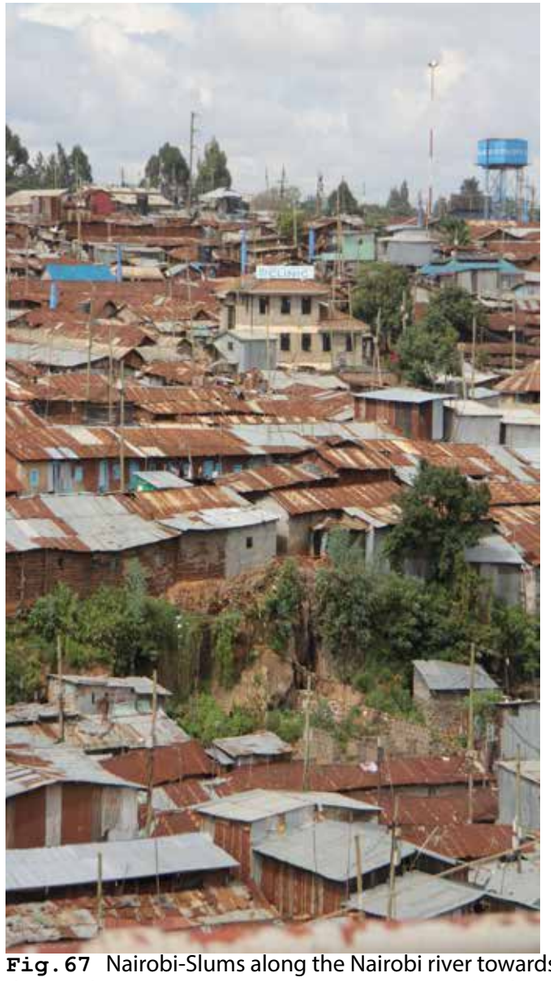


Fig.67 Nairobi-Slums along the Nairobi river towards the Southern Bypass-common space concerns (Author, 2020)



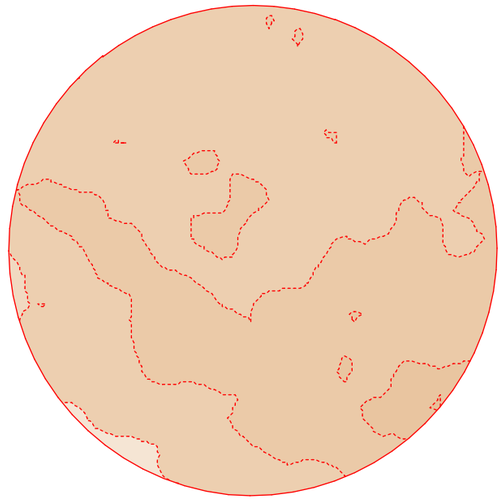
Fig.68 Nairobi-Livestock presence along the peripheral areas (Author, 2020)

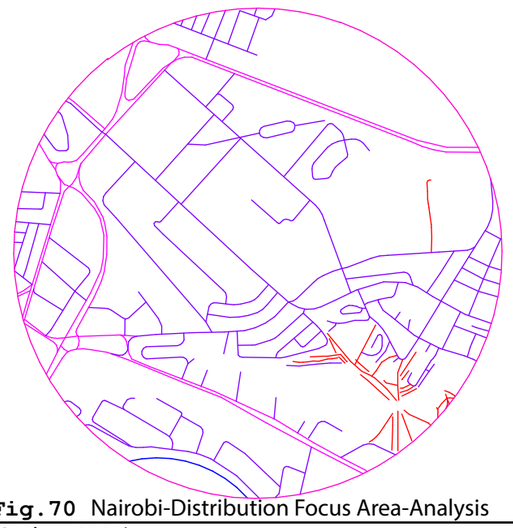


Fig.69 Nairobi-Typical Apartment Densification typologies along the peripheral areas (Author, 2020)

B: NAIROBI-DISTRIBUTION FOCUS AREA-SPATIAL ANALYSIS







Topography:
This area is the lowest lying area in comparison to the other study areas. Characterized by a flat landscape with the Nairobi river passing north east of the civic centre towards the Gikomba market-south east.

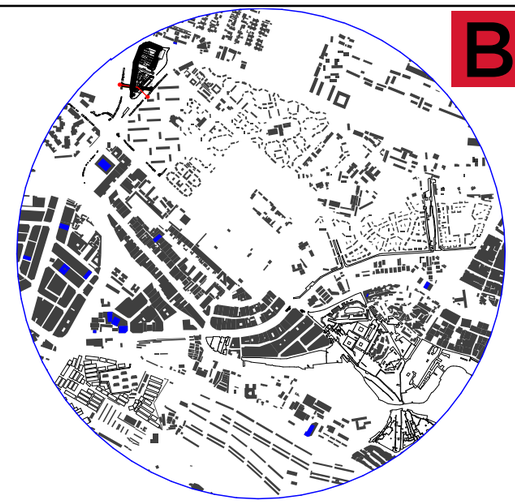
Movement Structure & Urban Blocks Structure:
The movement network shows organic concentrated areas as well as large urban blocks with a sparse road network. The Primary routes are mostly single direction up to 20m wide while the Secondary roads are two-way streets ranging from 7 to 10 m in width.

0 200 400 800m
5 min 10 min 20 min

N

Fig.70 Nairobi-Distribution Focus Area-Analysis
(Author, 2021)

Building Typologies:
This part of the city is where industrial functions first met the railway. This is an area for distribution, production and trade. Buildings form continuous edges along the street and river, with a reduction in multi storey buildings compared to the civic centre. Associated to the large urban blocks are housing schemes with large loose-standing buildings repeated over the portion of land. The large organic shaped are is the outline of the Gikomba market.



Use:
This area is defined by a gradual transition from formalised offices and retail spaces from the civic centre to market spaces, housing and industrial use areas with civic uses such as schools and religious functions. The main public transport bus depot is a major use factor stimulating the informal vending structures in the area. This area has a very high density in pedestrian and vehicular traffic-which explains the dense markets and pro-dominant activity of exchange.



Common Space Structures:
This part of the city does not offer the wide range of public spaces as in the civic centre. Slowing down and taking respite seems to not be an option. Even though the river runs through this area, no functions are associated to support a network of common space. The conditions change drastically from paved and maintained sidewalks to spaces where only trade and distribution is of importance. Pedestrians and vehicles cross paths and sidewalks are used for vending. Every surface is valuable. The large green areas shown consists of cemeteries, sport fields and open spaces between housing buildings.

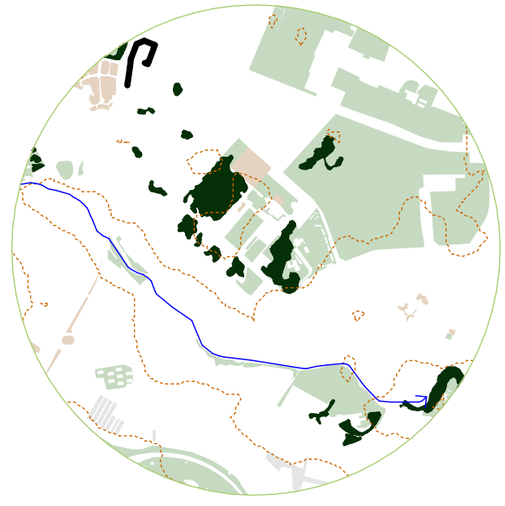
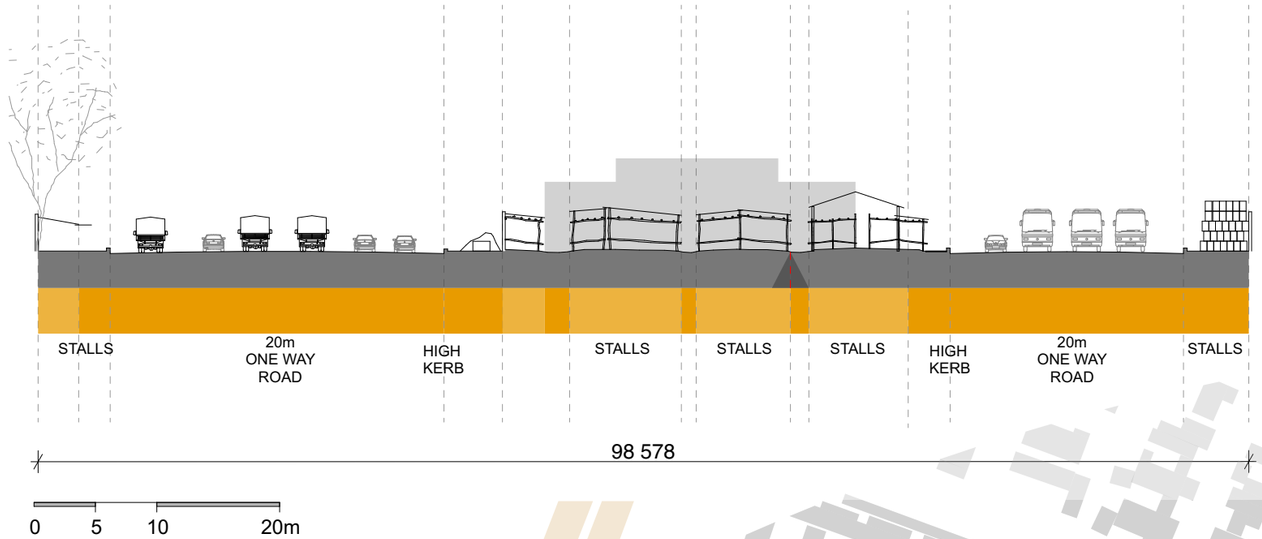
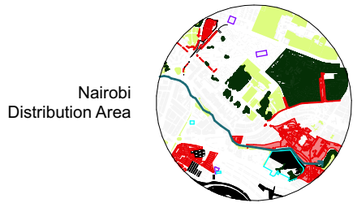


Fig.71 Nairobi-Distribution Focus Area-Analysis
(Author, 2021)

B: NAIROBI-KARIOKOR MARKET ANALYSIS





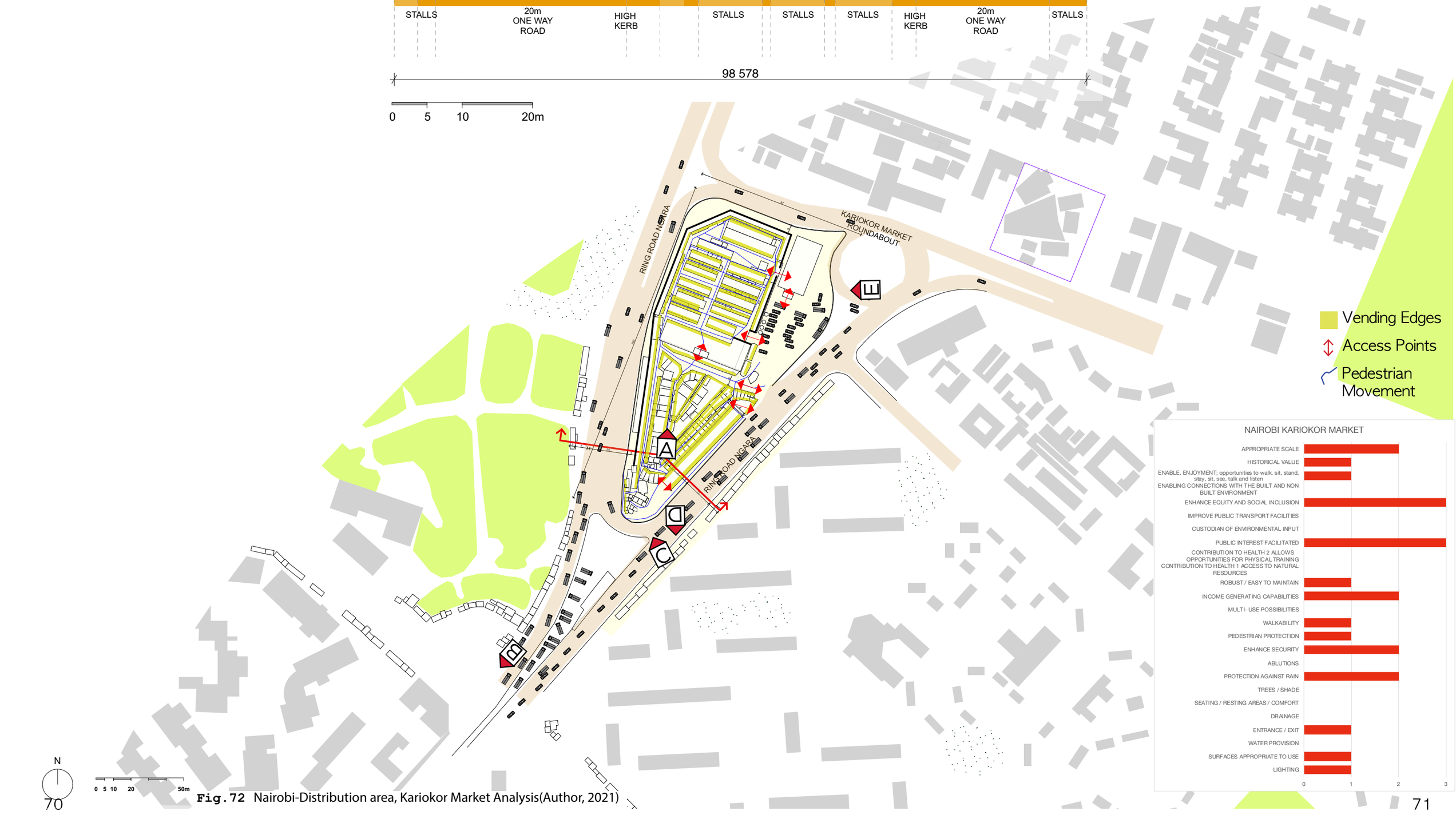


Fig.72 Nairobi-Distribution area, Kariokor Market Analysis(Author, 2021)

B: NAIROBI-KARIOKOR MARKET PHOTOGRAPHS



Fig.73 Nairobi- Kariokor Market (Benjamin Baggott, 2020)



Fig.74 Nairobi- Typical Street / sidewalk environment in the distribution area-trade and transport orientated (Benjamin Baggott, 2020)



Fig.75 Google, "Streetview," digital images, Google Maps (http://maps.google.com), photograph of Ring Road Ngara, Nairobi, Nairobi County, taken Dec 2017.



Fig.76 Google, "Streetview," digital images, Google Maps (http://maps.google.com), photograph of Ring Road Ngara, Nairobi, Nairobi County, taken Dec 2017.



Fig.77 Google, "Streetview," digital images, Google Maps (http://maps.google.com), photograph of Ring Road Ngara, Nairobi, Nairobi County, taken Dec 2017.

KARIOKOR MARKET OBSERVATIONS / LESSONS LEARNED

- Pedestrian Crossings and agency in general for pedestrians is not well provided for. The vendors are spilling over the market boundaries imposing on the sidewalks causing pedestrians to have to walk on major roads.
- Ablutions facilities need clearer signage and improved accessibility.
- The edges of the Kariokor market change in character. Towards the original main entrance-vendors are facing the streets and access to the market is possible through narrow gaps in the vending structures. The opposite side of the market is closed off with a boundary wall. This edge to the market allows no access, not physically nor visually, creating a harsh edge with no exchange possibilities. It is noticeable how cars speed up along this edge with no access / activity.
- Visual Access across the market space's extents is limited. Shops are so crowded with the minimum space left for circulation (to increase vending opportunities), thus one does not know the extent of the market, but discovers glimpses of the whole as one struggles through it.
- There are no seating opportunities for visitors, nor people producing goods. The high kerb is appropriated as a seating opportunity and working surface for the vendors located along the sidewalk.
- Sufficient shade is provided with single sheets of corrugated iron supported by timber poles erected by the vendors.
- Consumable goods are available at some shops, but no space to have a seat and to consume them.
- The access points are not clearly defined, and one enters the market through small spaces between some vendors. The original entrance gateway shows that it was an incentive in the past, overgrown by the current trends of expansion.
- The circulation surfaces are not treated or maintained. The site's storm-water is also not managed, thus it is a muddy experience.
- The lighting is by means of high mast lights at high levels to cover large areas, none at pedestrian level
- This market is connected to the larger common space network of trading towards the main bus depot. The public space infrastructure reduces as one moves away from the civic centre towards the distribution areas.
- Growth and expansion is evident, in some cases with a detrimental effect on the city's infrastructure. The city could consider more locations evenly distributed for informal trade.

C: ONGATA RONGAI-MAIN ROAD FOCUS AREA-OVERVIEW

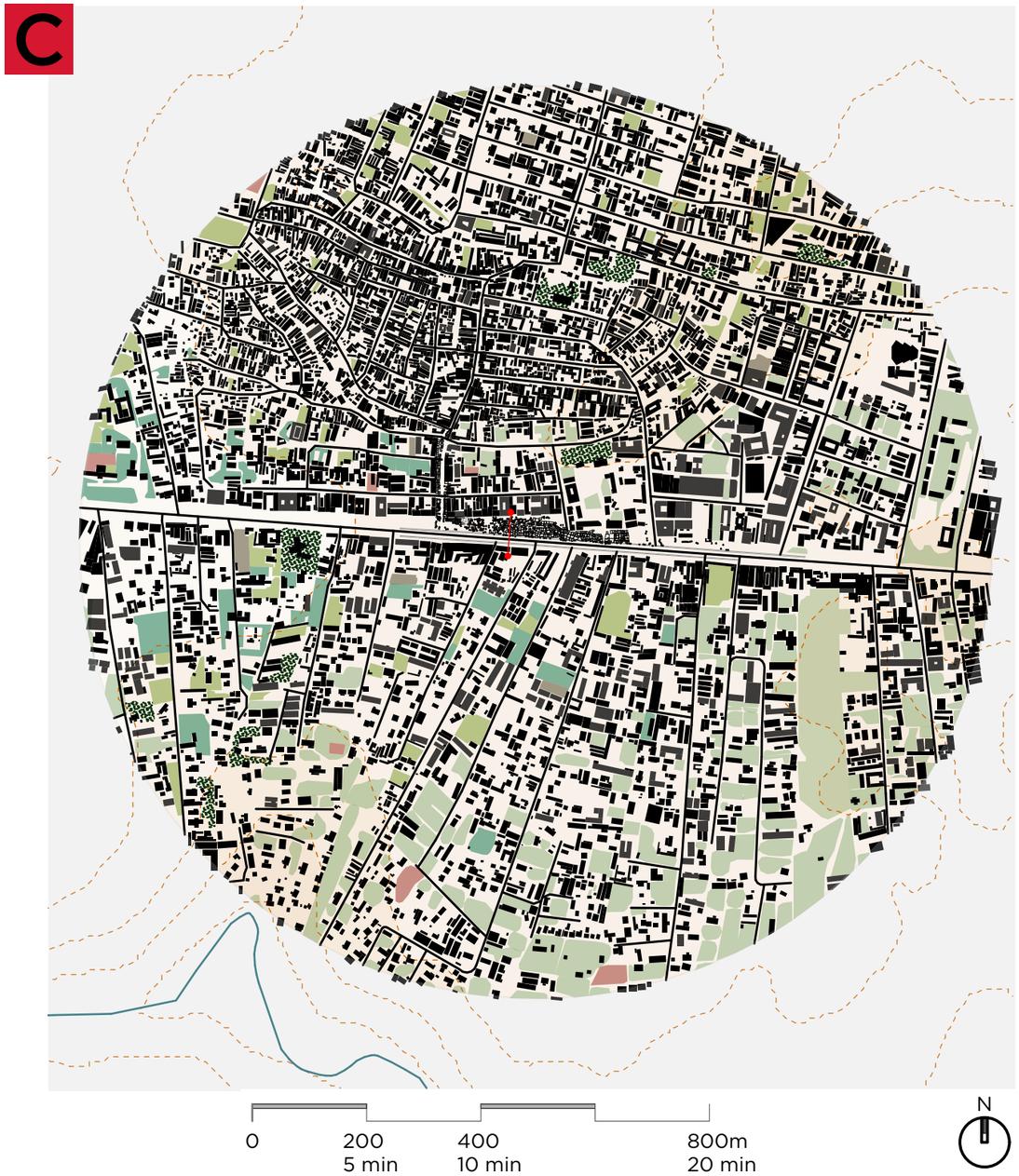


Fig.78 Ongata Rongai- Main Road Focus Area (Author, 2021)

C: ONGATA RONGAI-MAIN ROAD FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS



Fig.79 Ongata Rongai- Building typologies (Author, 2020)



Fig.80 Ongata Rongai- Building typologies (Author, 2020)

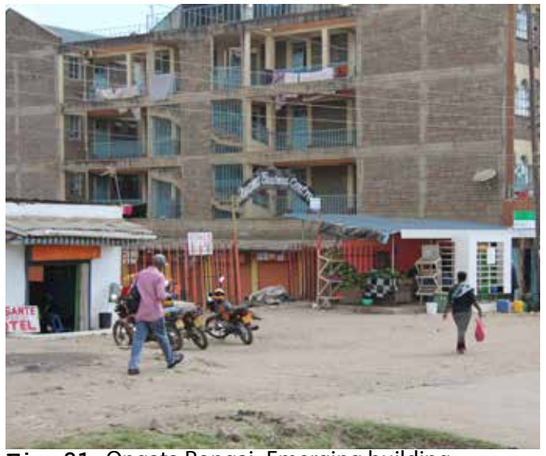


Fig.81 Ongata Rongai- Emerging building typologies (Author, 2020)



Fig.82 Ongata Rongai- Emerging building typologies (Sylvia Juliana Parra Pabon, 2020)



Fig.83 Ongata Rongai- Typical street and buildings relationship (Author, 2020)



Fig.84 Ongata Rongai- Public transport expressions (Sylvia Juliana Parra Pabon, 2020)

D: ONGATA RONGAI-INTERSECTION FOCUS AREA-OVERVIEW



Fig.85 Ongata Rongai- Intersection Focus Area (Author, 2021)

D: ONGATA RONGAI-INTERSECTION FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS



Fig.86 Typical street and buildings relationship (Luis Alberto V. Carcamo, 2020)



Fig.87 Industrial functions associated to the sidewalk (Author, 2020)



Fig.88 Courtyard Building Typologies (Author, 2020)



Fig.89 Work Environments fabrication activiteis on the sidewalk (Luis Alberto V. Carcamo, 2020)

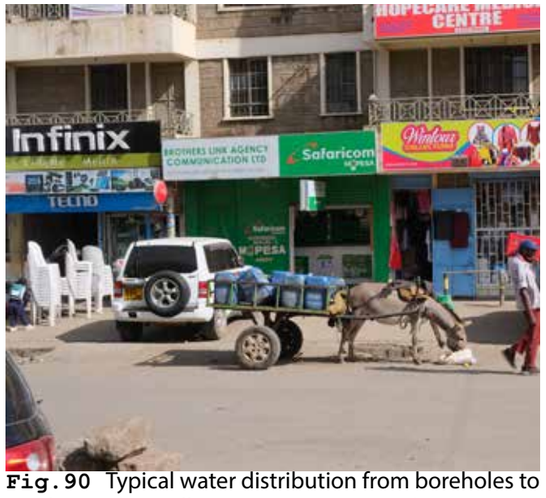


Fig.90 Typical water distribution from boreholes to residences (Luis Alberto V. Carcamo, 2020)



Fig.91 Exposed Stormwater channels appropriated by citizens (Luis Alberto V. Carcamo, 2020)

C&D: ONGATA RONGAI FOCUS AREA-SPATIAL ANALYSIS

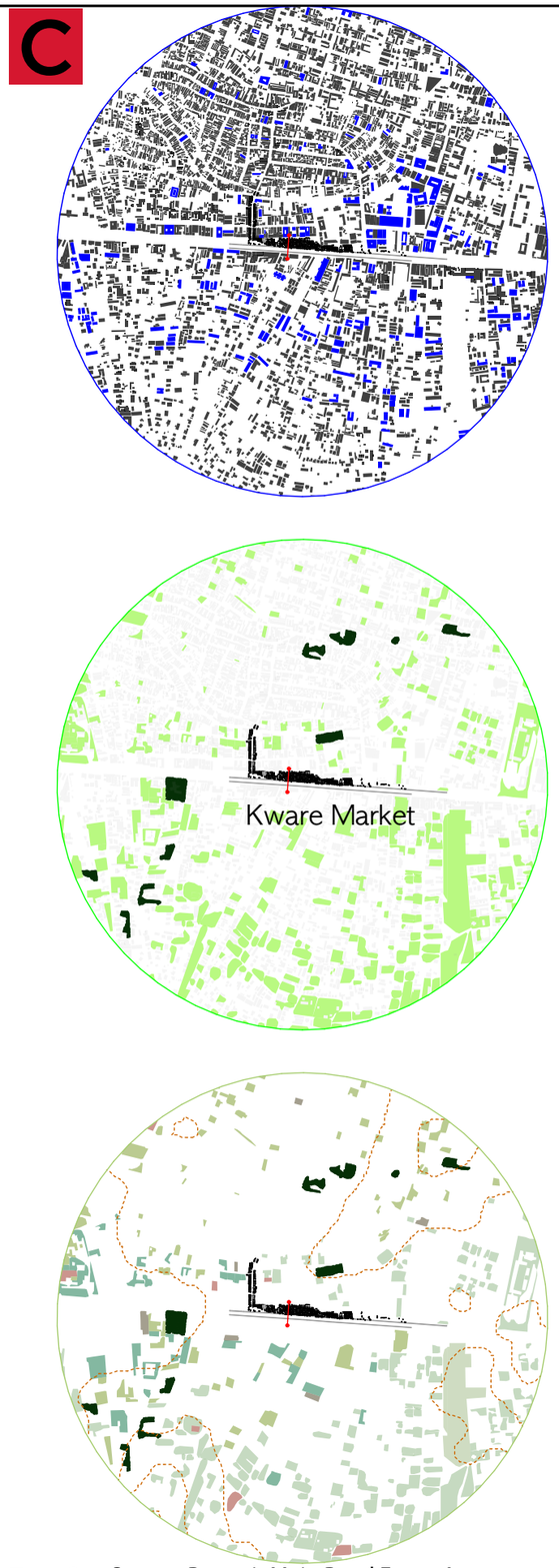


Fig.92 Ongata Rongai- Main Road Focus Area-Analysis (Author, 2021)

Fig.93 Ongata Rongai- Intersection Focus Area-Analysis (Author, 2021)

<u>Topography:</u>
These areas are characterised by larger flat area associated to the main road, sloping downwards to the south and east towards the Mbagathi river.

<u>Movement Structure & Urban Blocks Structure:</u>
The movement network follows the topography where the primary roads intersect on the highest area and forms a structured grid where the surface is level, or ni the case of the Kware are, an organic dense grid, then as the landscape falls towards the river the roads change into a linear structure.



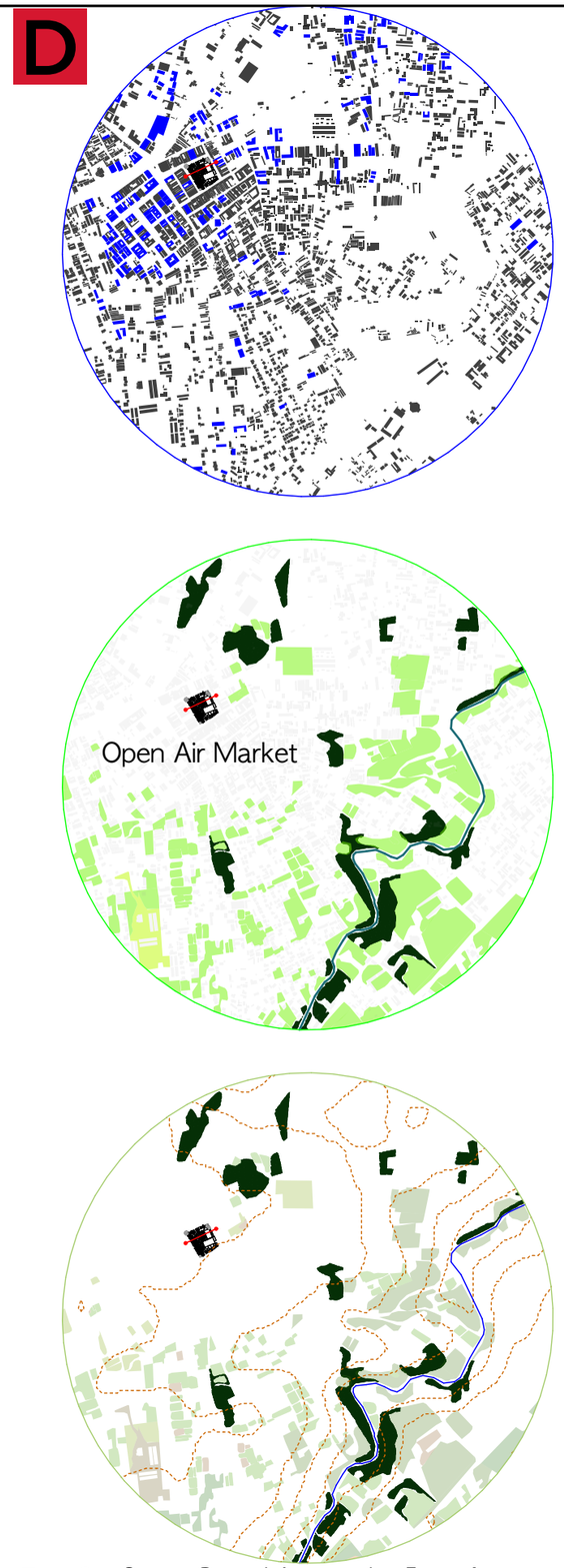


Fig.94 Ongata Rongai- Main Road Focus Area- Analysis (Author, 2021)

Fig.95 Ongata Rongai- Intersection Focus Area- Analysis (Author, 2021)

0 200 400 800m
5 min 10 min 20 min

N

Building Typologies:
A concentration of multi storey buildings is found along the main movement routes and structured grid patterns. Roads crossing the river also shows a higher density of buildings (where the use is more intense, the diversity of buildings follow). Courtyard buildings, multi storey apartment buildings, mix used buildings as well as shopping centres make up the central areas associated to the main roads and residential buildings are more associated to the peripheries towards the rivers and larger portions of agricultural land.

Use:
It is interesting to note that some civic amenity functions such as schools, religious functions and recreational uses relate to the river's edge rather than the central town. Different uses are well spread and not too concentrated. Commercial functions are mostly along the main roads and the main centre of the town. The gathering of specific land uses are not common in these areas as observed in the built fabric, yet, informal gathering of goods associated to trade is observed. There are areas along the road specific to fabrication and production and the trade of building materials. In the markets, different goods are also grouped and found in similar areas.

Common Space Structures:
A common space network is hard to define. The green spaces indicated show agricultural land, grazing / pastoral land, untouched greenery along the rivers and privately owned institutions' gardens not always accessible to the wider public.
The potential of creating a wider common space network is promising with a variety of natural features to be utilised and possibly protected.

Ongata Rongai Kware Market
1:1000, 1:250

C: ONGATA RONGAI-KWARE MARKET ANALYSIS ANALYSIS

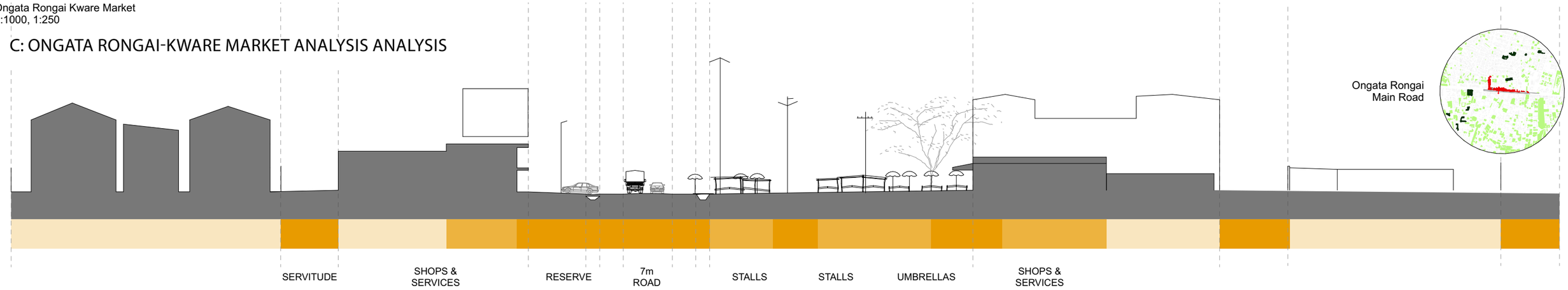


Fig. 96 Ongata Rongai- Kware Market- Analysis (Author, 2021)

C: ONGATA RONGAI-KWARE MARKET PHOTOGRAPHS



Fig.97 Ongata Rongai- Kware Market street relationship & sidewalk (Luis Alberto V. Carcamo, 2020)



Fig.98 Ongata Rongai- Kware Market & main street conditions (Author, 2020)



Fig.99 Ongata Rongai- Kware Market continues in a side street (Zeeshan Javaid Ghani, 2020)



Fig.100 Livestock in the shade of the busses(Zeeshan Javaid Ghani, 2020)



Fig.101 Ongata Rongai- Kware Market street relationship & sidewalk (Luis Alberto V. Carcamo, 2020)

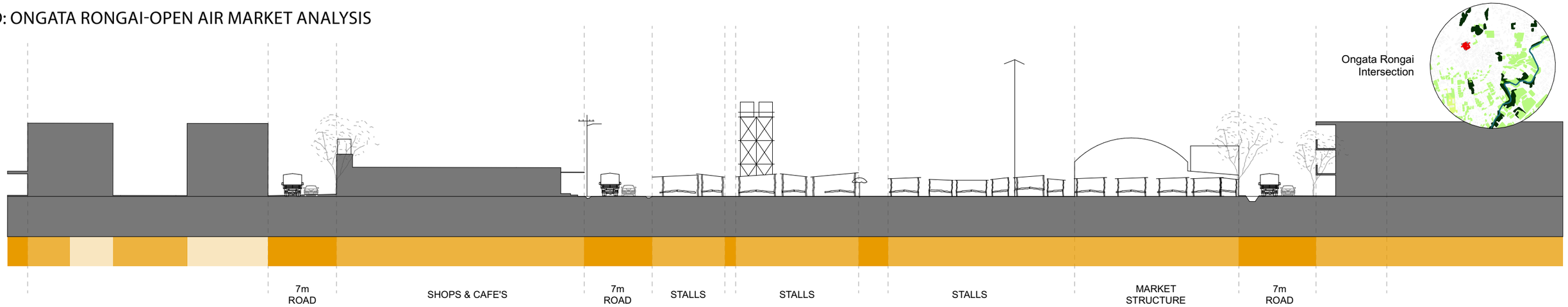


Fig.102 Ongata Rongai- Kware Market street relationship & sidewalk (Luis Alberto V. Carcamo, 2020)

KWARE MARKET OBSERVATIONS / LESSONS LEARNED

- Pedestrian Crossings are provided by individual vendors over the open storm-water channels by means of timber bridges. Road crossings are not provided.
- Ablutions are found in mixed used building offering services
- The edges of the market are defined by vendors and vending structures. The market is located on the road reserve, thus limiting access to the buildings behind it facing the street. In the street where the market migrates in a northern direction, the vendors are place in from of shop-fronts. It seems there is an agreement of some sorts between the vendors and shop owners.
- The market is highly visible from the street and not too deep to limit visual access if inside.
- The space does not offer seating opportunities for visitors, though there is consumable goods sold
- Sufficient shade is provided by the individual owners by means of large umbrellas or corrugated sheeting supported by timber support structures.
- There is no clearly defined access points -the entire market's edge is accessible.
- The surfaces are not treated
- The lighting is by means of high mast lights at high levels to cover large areas, none at pedestrian level, the buildings around the edges also contribute
- The presence of more livestock at the Kware market is an indication that the wider common space network as pastoral land is closely associated.
- Growth and expansion is controlled by authorities, only registered stalls are allowed and there are alternating days on which the different markets are allowed to be open.
- Commercial functions often found on ground floor are also on higher levels of buildings on the main street, such as nursery schools, bars and restaurants.

D: ONGATA RONGAI-OPEN AIR MARKET ANALYSIS





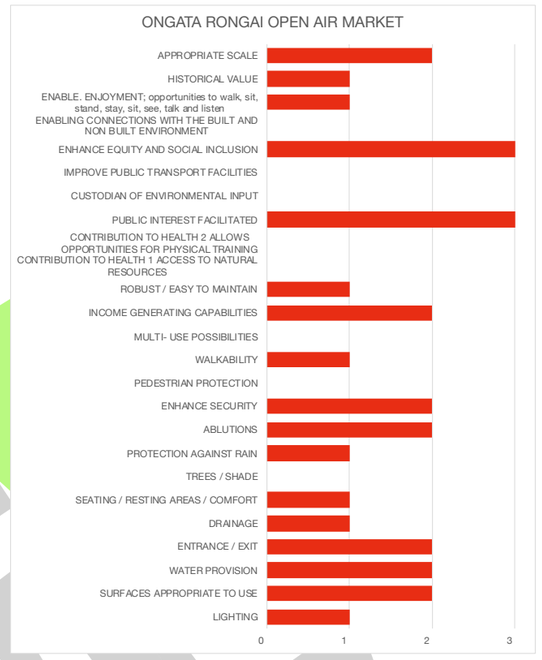


Fig.103 Ongata Rongai- Open Air Market- Analysis (Author, 2021)

D: ONGATA RONGAI-OPEN AIR MARKET PHOTOGRAPHS



Fig.104 Open Air Market-Celebrated entrance (Luis Alberto V. Carcamo, 2020)



Fig.105 Open Air Market-Civic Amenities (Author, 2020)



Fig.106 Open Air Market- Infrastructure-Roof structure & Hard surfaces (Luis Alberto V. Carcamo, 2020)

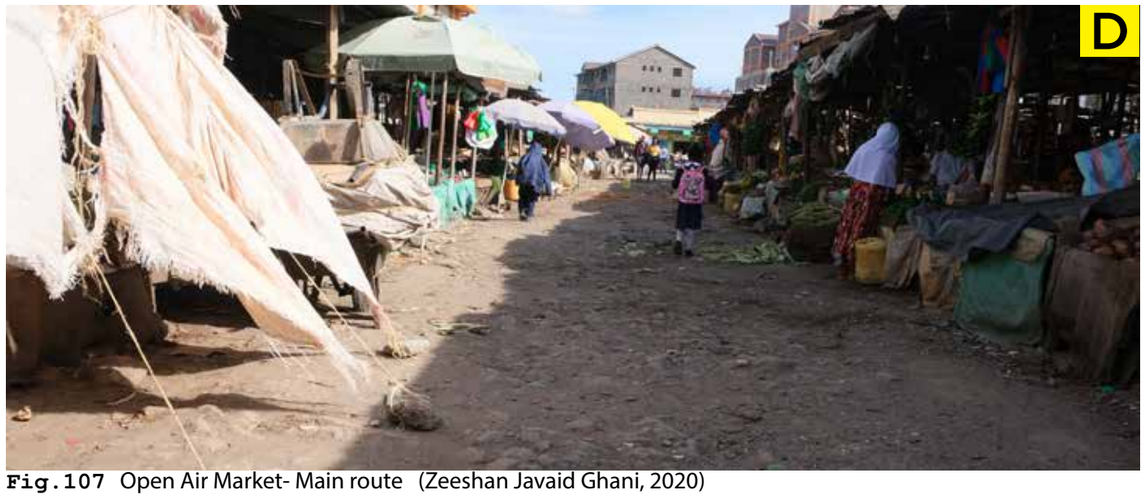


Fig.107 Open Air Market- Main route (Zeeshan Javaid Ghani, 2020)



Fig.109 Open Air Market- Shops facing the surrounding streets (Zeeshan Javaid Ghani, 2020)



Fig.108 Open Air Market- Outer edge conditions (Zeeshan Javaid Ghani, 2020)

ONGATA RONGAI OPEN AIR MARKET OBSERVATIONS / LESSONS LEARNED

- Pedestrian Crossings are provided by individual shop vendors over the open storm water channels in some locations.
- Ablutions are providid within the market precinct
- A defined Edge surrounds the market space with clear access points celebrated with a high arch over the main entrance. The market edge has vendors facing the street around the entire periphery, with more stalls facing the interior from the edge inwards.
- Visual Access is strengthened by a central walkway from the main entrance to the exit. This path is also kept clear to allow a more generous space for pedestrian and vehicles to pass through.
- Seating opportunities are provided with tables for people to be able to sit and enjoy their consumable goods in the space.
- Sufficient shade is provided by both individual vendors and the authoroties- with large corrugated roofs spanning large areas and the familiar use of umbrellas and corrugated sheeting. Trees are also present softening the experience
- Clearly defined access points is one of the best qualities this marke offers spatially
- There are treated surfaces: the main road passing through the market in asphalt and some surface beds for the roffed market areas.
- The lighting is by means of high mast lights at high levels to cover large areas, none at pedestrian level, the buildings around the edges also contribute
- Elevated water tanks is providing water to the market area
- This space is slightly removed from the larger common space network since it is not directly related to the main road and there is no other public or common spaces in the vacinity.
- This market is also controlled to only open on certain days

E: NDENDERU-INTERSECTION FOCUS AREA-OVERVIEW

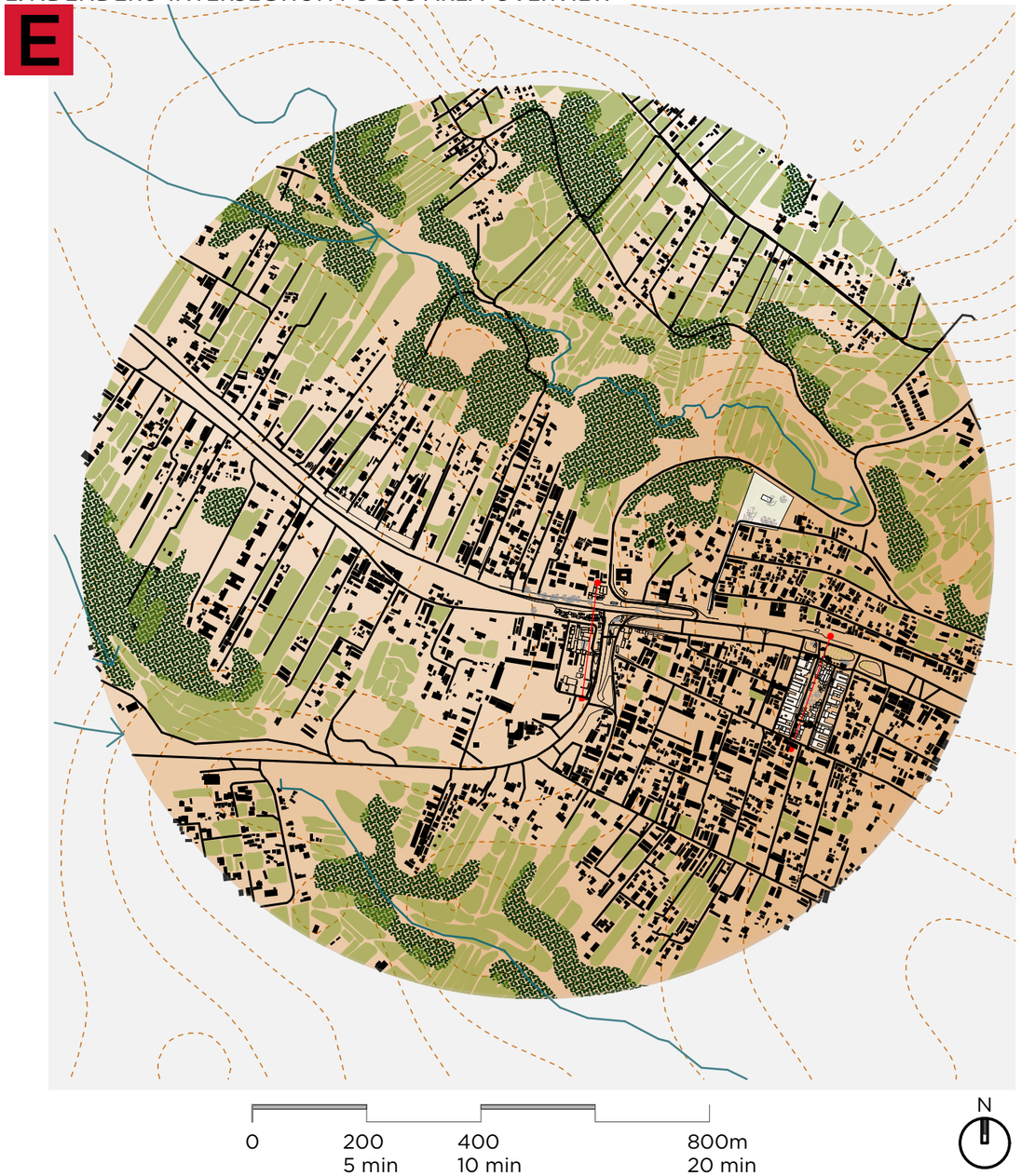


Fig.110 Ndenderu- Intersection Focus Area (Author, 2021)

E: NDENDERU-INTERSECTION FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS



Fig.111 High rise apartments as emerging building typologies within agricultural land (Author, 2020)



Fig.112 High rise apartments as emerging building typologies-boundary walls (Author, 2020)



Fig.113 Church among agricultural land-no fences (Author, 2020)



Fig.114 Emerging building typologies & access roads-no fences (Author, 2020)



Fig.115 Ndenderu Valley borehole water tank collection point-common space (Benjamin Baggott, 2020)



Fig.116 Bridge crossing to improve travel distances to town-common space (Zeeshan Javaid Ghani, 2020)

F: NDENDERU-VALLEY FOCUS AREA-OVERVIEW

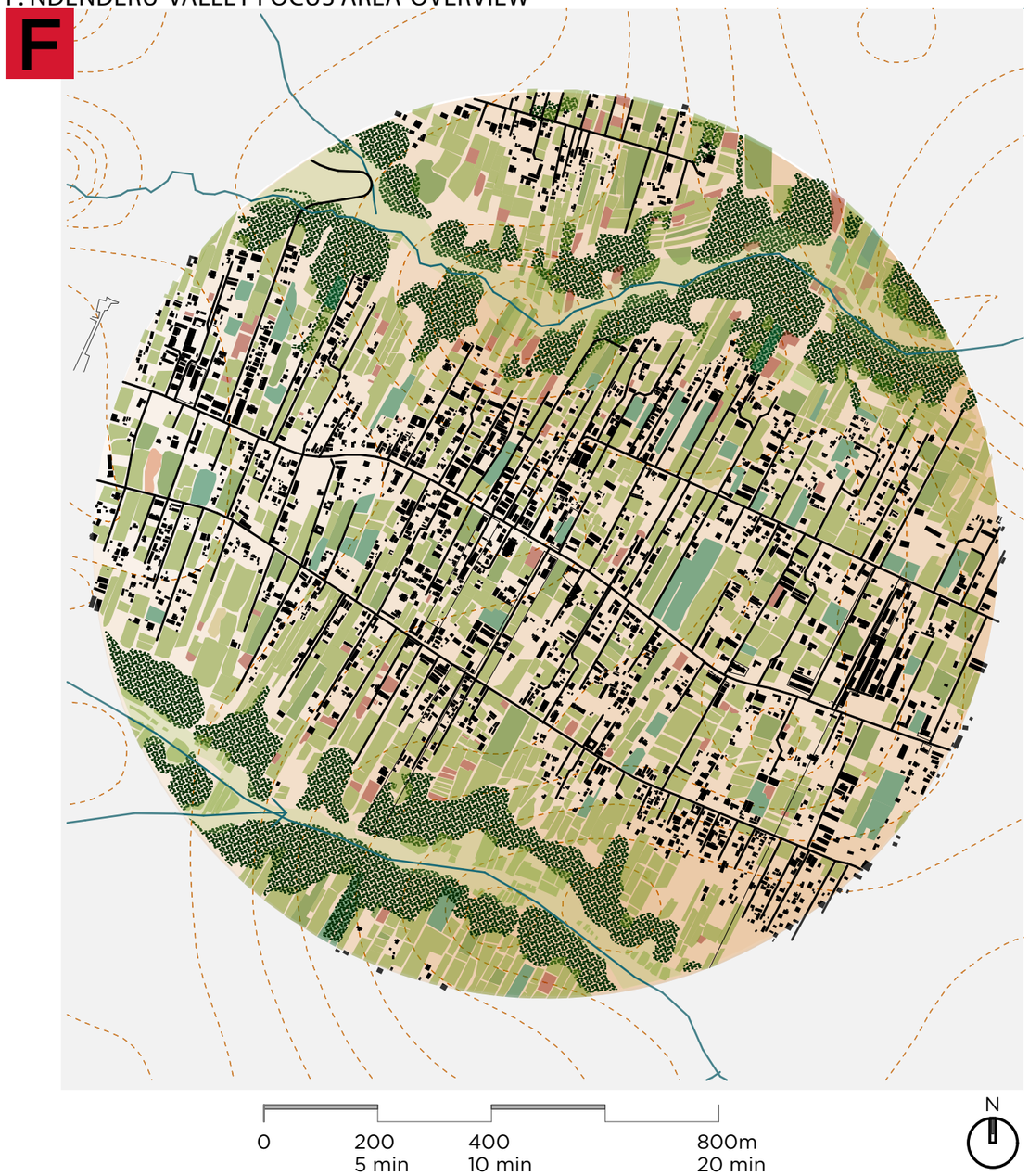


Fig.117 Ndenderu- Valley Focus Area-Analysis (Author, 2021)

F: NDENDERU-VALLEY FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS



Fig.118 Emerging Apartment Building typologies with boundary walls (Author, 2020)



Fig.119 Emerging Apartment Building typologies with boundary walls (Author, 2020)

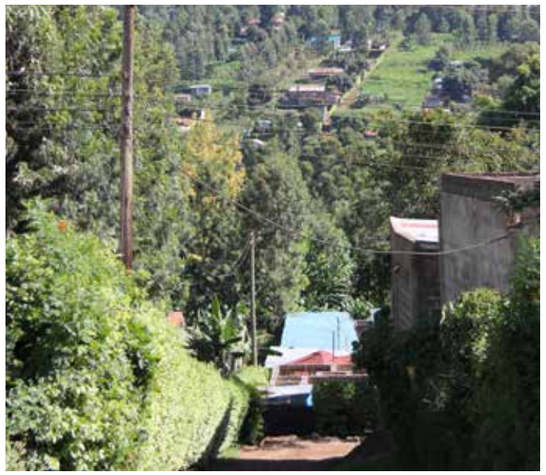


Fig.120 Agriculture and housing typologies with hedges for boundaries (Author, 2020)



Fig.121 Communal borehole and water collection point(Loverina Cruz, 2020)



Fig.122 Subsistance farming typical to the Ndenderu Valley (Loverina Cruz, 2020)



Fig.123 A secondary street with low vehicular traffic (Sylvia Juliana Parra Pabon, 2020)

E&F: NDENDERU FOCUS AREA-SPATIAL ANALYSIS

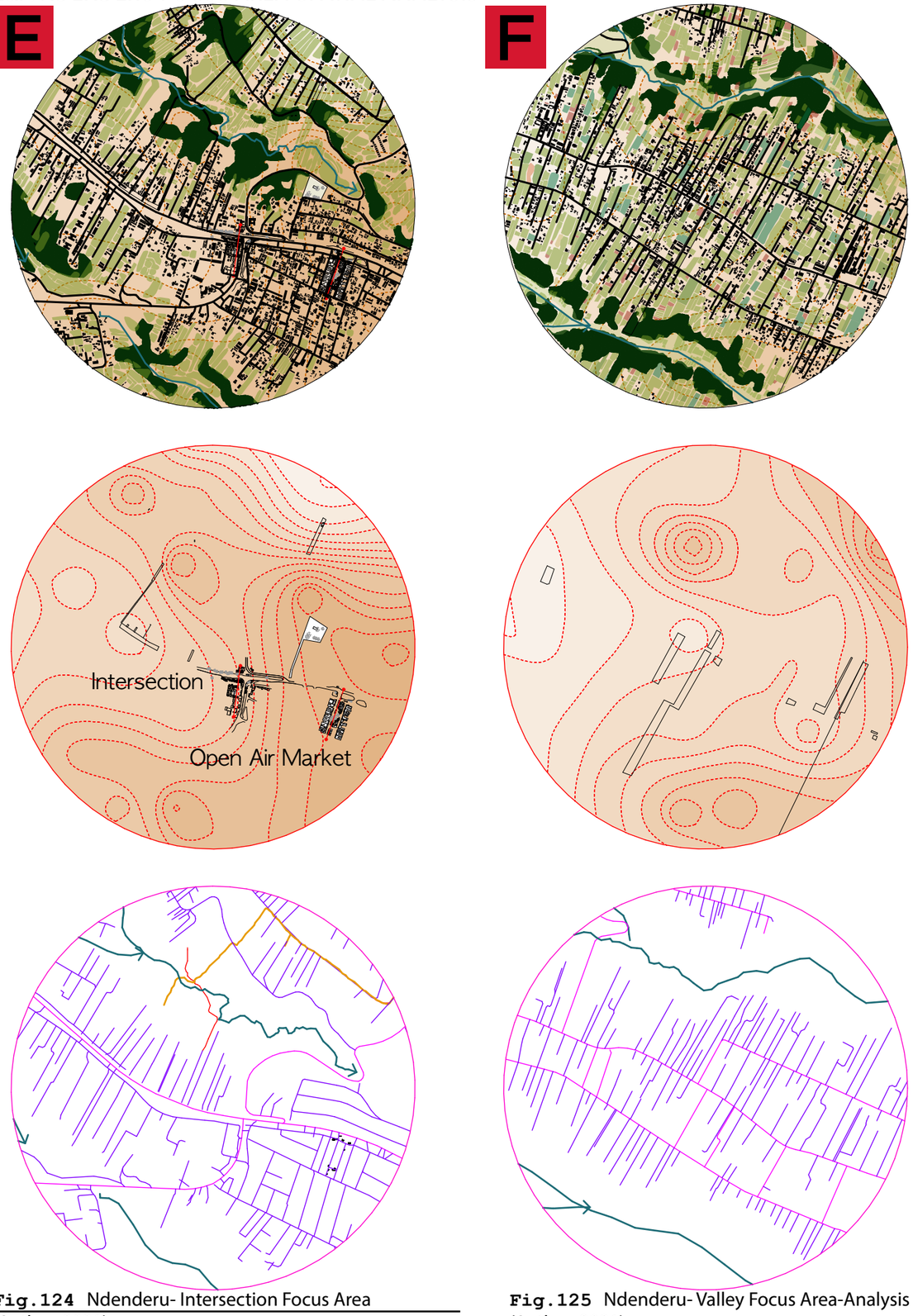


Fig.124 Ndenderu- Intersection Focus Area (Author, 2021)

Fig.125 Ndenderu- Valley Focus Area-Analysis (Author, 2021)

Topography:
Ndenderu is characterized by the valley structure, where main roads run along the highest contours from the north-western parts of Kenya towards Nairobi. Many rivers flow from the higher lands (where tea and coffee / fresh flowers are grown) towards the marchland of Nairobi. The Ndenderu intersection study area will soon change in character with the current construction of the western bypass highway project.

Movement Structure & Urban Blocks Structure:
The movement structure follows the form of the land with structured urban grids associated to higher lying flatter areas and the linear secondary road network stretching towards the rivers.
In most cases only the primary routes are paved, where secondary routes are dirt roads and not yet named. In the more rural areas, motorcycles are used as a mode of transport since roads and not always in a good conditions and people only need to travel from their homes to the market areas. Motorcycles can get to and from areas where the infrastructure in inadequate. The faster option to walking. Buses and taxis are used for the same distances on the primary routes but mostly serve people on longer journeys.

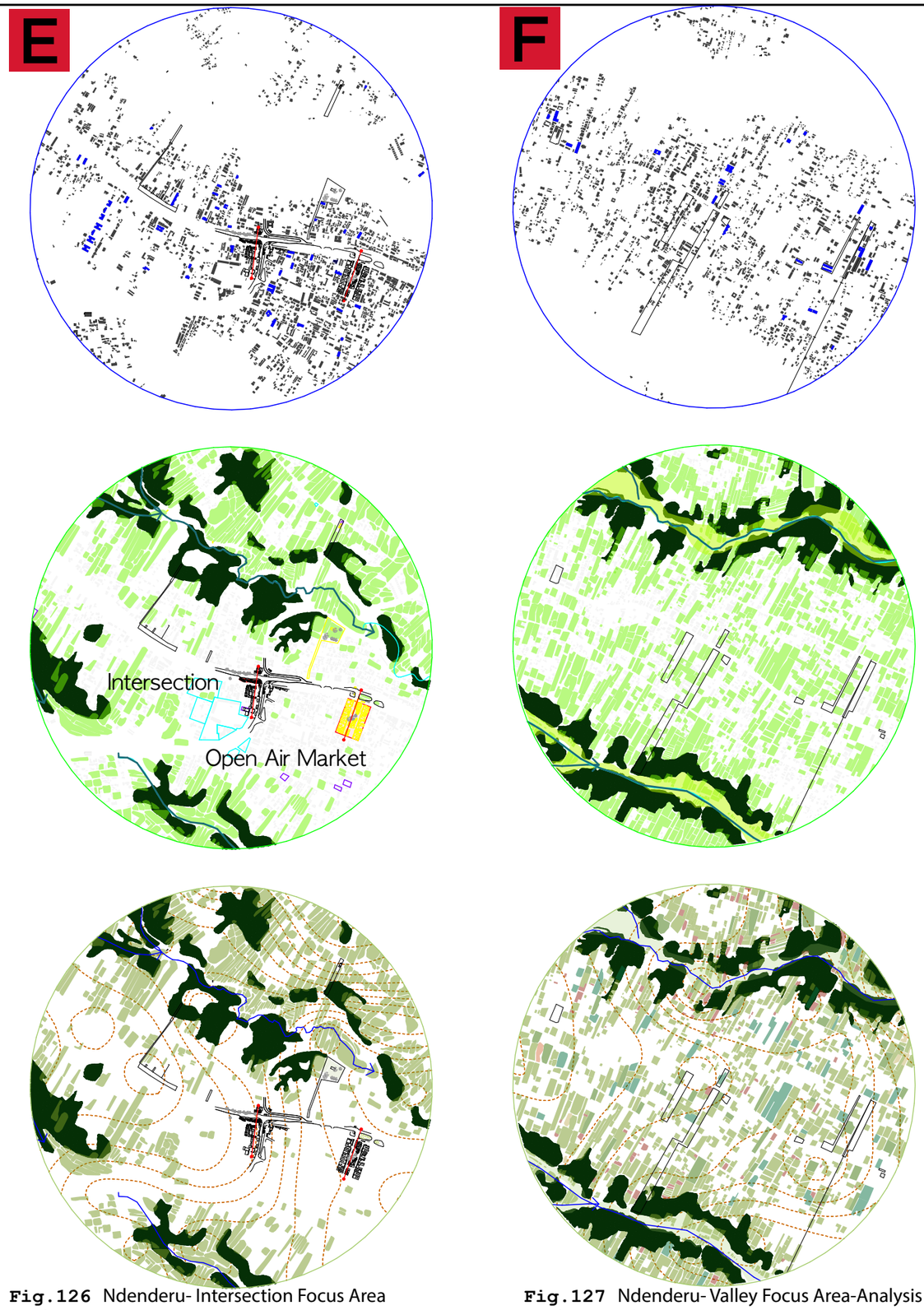


Fig.126 Ndenderu- Intersection Focus Area (Author, 2021)

Fig.127 Ndenderu- Valley Focus Area-Analysis (Author, 2021)

<u>Building Typologies:</u>
Here building typologies mostly speak to small land holdings , where agriculture is the main land use with residences placed randomly along the long parcels of land stretching from the main road to the river. Signs of rapid densification is apparent, with new multi storey apartment buildings being constructed. Mixed use commercial building are mostly along the main roads, with services and shops on upper levels as well.

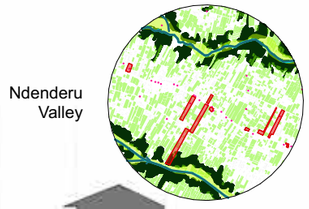
<u>Use:</u>
Communities offer services to one another with schools and day-care centres found well spread across the built fabric. There are some signs of recreational activities along the river, but they are mostly associated to the higher density areas.

<u>Common Space Structures:</u>
This area was studied in more depth where we had the opportunity to walk wider extents and deeper into the fabric and capture various small typologies of common spaces in addition to the market spaces identified. These are indicated on the Ndenderu Valley Overall Plan supported by images. Unique typologies of common spaces are encountered where resources are not provided by the government. It is a characteristic of this area to have members of the community contribute in funding the digging of a borehole to provide them with water. People gather and collect from these water points on a daily basis. Collecting water defines the way of life in the urbanizing areas outside Nairobi. In addition to that, more properties share in the same functions-mostly agriculture, thus the boundaries to their properties are low hedges allowing a sense of limitless exposure to the landscape and with a degree of exposure to their residences. In some cases neighbours share a road stretching towards the river, these servitude roads turn into the social gathering spaces of the people living along that property. Public transport nodes are mostly closely related to the market spaces or major road intersections. The green spaces shown are dense exotic trees planted along the rivers and agricultural land. Highly productive landscapes.

Ndenderu Open Air Market
1:350, 1:750

F: NDENDERU-OPEN AIR MARKET ANALYSIS





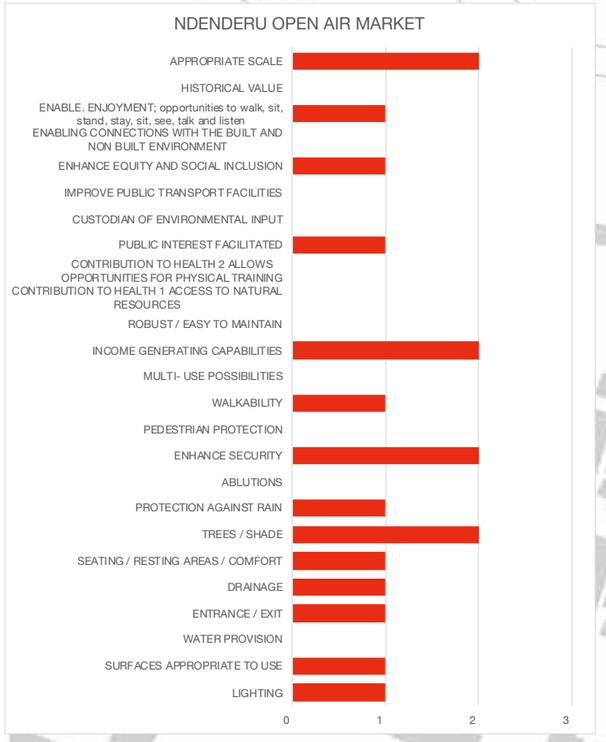
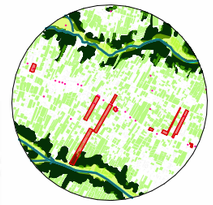


Fig.128 Ndenderu- Valley -Open Air Market-Analysis (Author, 2021)

Ndenderu Intersection
1:300, 1:750

E: NDENDERU-INTERSECTION ANALYSIS





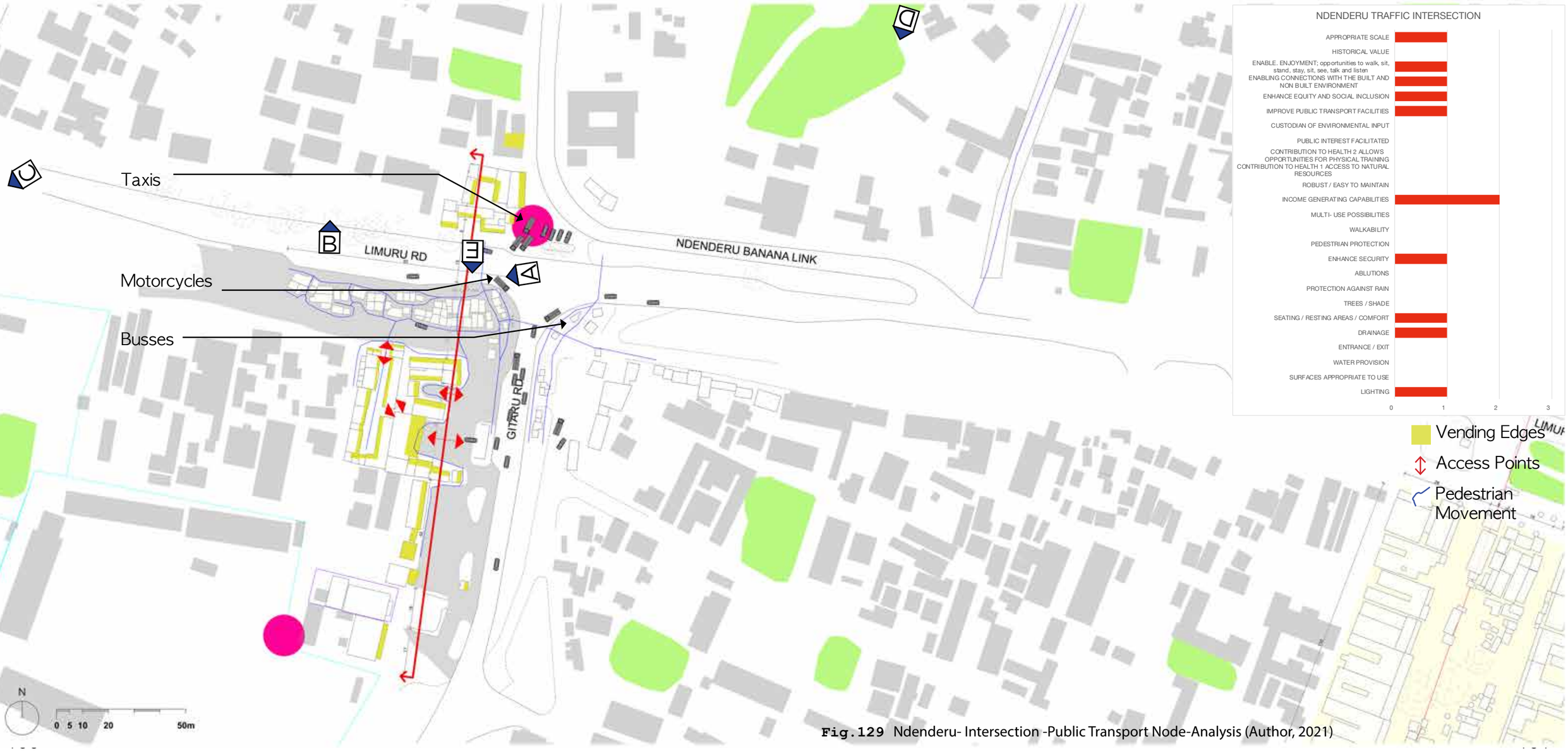


Fig.129 Ndenderu- Intersection -Public Transport Node-Analysis (Author, 2021)

E: NDENDERU-INTERSECTION PHOTOGRAPHS



Fig.130 Vending Stalls in the road reserve area associated to the intersection and public transport node (Zeeshan Javaid Ghani, 2020)

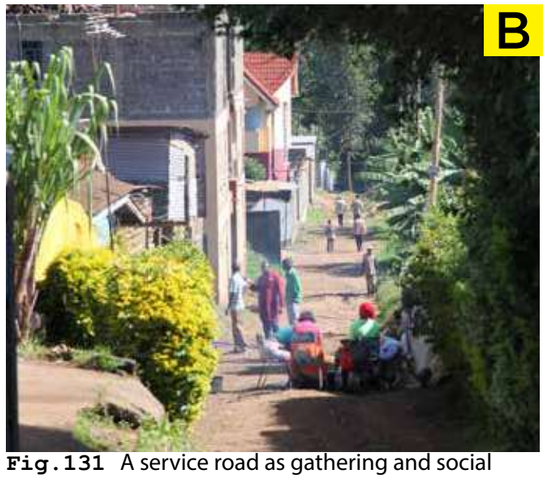


Fig.131 A service road as gathering and social space-common space (Author, 2020)



Fig.134 Emerging Building Typologies-Mixed Use (Author, 2020)



Fig.133 Community gathering space on route to the intersection (Author, 2020)



Fig.132 Transport options a the intersection: Taxis, motorcycles and Tuc-tucs (Zeeshan Javaid Ghani, 2020)

NDENDERU OPEN AIR MARKET OBSERVATIONS / LESSONS LEARNED

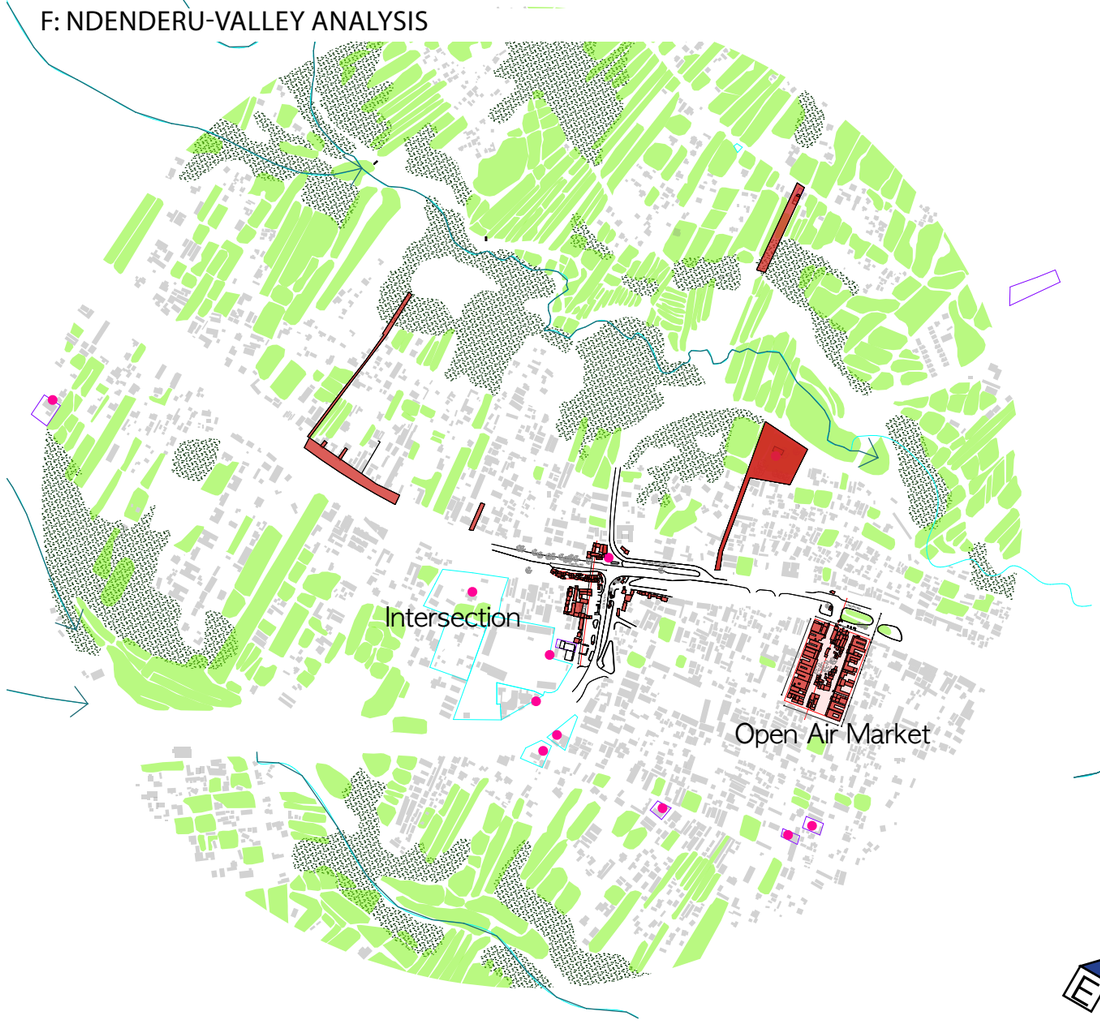
- Pedestrian Crossings are not provided on the main road towards the market space.
- The edge to the market space is held by the surrounding buildings facing onto the open air market. This is the first site with this spatial organisation with an impacting effect. The market space is supported by the active building edges facing onto it.
- Visual Access is improved by the market topography being at a slope, thus one can see a larger extent of the space at any given moment. The buildings surrounding the market space also has raised entrances allowing people to look over the market space with ease.
- There is formal and informal seating opportunities: informal around the tree with loose found objects and formal tables and chairs where restaurants and vendors sell consumables
- Sufficient shade is provided by the buildings edges with covered walkways along the edge of the market, the vendor's structures and a significantly large tree, adding to the character of the space.
- The access points are not clearly defined, one is not aware of the market space along the main road, for there is no physical landmark
- The high mast lighting is located closer towards the road, rather than the market space
- The open air market is closely associated to the other civic amenities yet not spatially.

NDENDERU TRAFFIC INTERSECTION OBSERVATIONS / LESSONS LEARNED

- Pedestrian Crossings are not provided at the road intersection
- The edges of the intersection are permeable allowing access to the functions in the buildings behind. The different transport opportunities gather in different locations to best accommodate the commuters. In this area motorcycles are more apparent since it is easier to transport individuals in areas where the terrain is rough.
- The functions associated to the intersection are visually accessible from the road, otherwise one can feel limited when looking up the hill, even small structures obstruct the view.
- Seating opportunities are provided by means of re-used tyres planted midway in the ground-functioning more as a control to keep vehicles from going beyond certain areas.
- Sufficient shade is provided by individual vendors.
- The surfaces are not treated
- The lighting is by means of high mast lights at high levels to cover large areas
- This space of exchange is connected to the larger common space network through pedestrian routes crossing the rivers to access the shops and transport to further destinations
- The road reserve in this area is used for productive planting(trees and crops)
- Access roads to individual plots in this area act as communal gathering and social space

Ndenderu Overall
1:20000, 1:5000

F: NDENDERU-VALLEY ANALYSIS





Note: The read areas show sites visited with the unique conditions captured on the next page.

N
0 200 400 800m
5 min 10 min 20 min

Fig.135 Ndenderu- Valley -Sites Visited-Analysis (Author, 2021)

F: NDENDERU-VALLEY PHOTOGRAPHS



Fig.136 A gathering and shared space for different households living on the same property (Zeeshan Javaid Ghani, 2020)



Fig.137 A shared water collection point-common space (Zeeshan Javaid Ghani, 2020)



Fig.139 Agricultural land & vending structures facing the street (Author, 2020)



Fig.138 Low hedges as erf boundary demarcation(Author, 2020)



Fig.140 Typical Densification Typologies (Zeeshan Javaid Ghani, 2020)



Fig.141 Secured gathering/arrival space to a church (Zeeshan Javaid Ghani, 2020)



Fig.142 Typical boundary conditions associated to emerging high density apartment developments (Zeeshan Javaid Ghani, 2020)

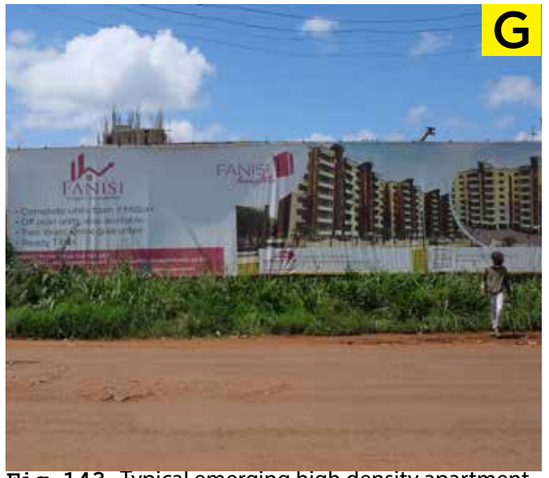


Fig.143 Typical emerging high density apartment developments (Zeeshan Javaid Ghani, 2020)

NDENDERU VALLEY OBSERVATIONS / LESSONS LEARNED

This are looks at small gestures of individual landowners and the effects on the overall common space realm.

- There are no pedestrian crossings in this area, not even where there is a church or school next to the road.
- Boundary edges range from high solid walls with secure access gates, to low planting hedges and in some cases just the change from grass to crops.
- Visual Access depends on the boundary conditions, topography and the curvature of the road. In some cases one can see over the entire valley up to the river and beyond.
- Commercial functions, community services and civic functions are mostly located on the main roads, but some cases were encountered where these functions were deeper on the land parcels
- Shade is not sufficient along the main roads. The planting of trees depend on individual landowners.
- Consumable goods can be encountered regularly along the road
- Access to buildings raised above the street level ensures vendors have more visual control over what happens in the street.
- Gathering spaces around religious spaces are often closely related to the street-scape. There is a possibility that the secure arrival space could contribute to the larger common space network
- Water collection points(boreholes and storage tanks) are scattered across the landscape with the potential to develop into public space
- The river edge has the potential to remain part of the larger common space network rather than being privatised
- Growth and expansion in this area is identified with housing estate developments and large apartment complexes that almost occupy the entire extent of the land parcels

G: KISERIAN-FOCUS AREA-OVERVIEW



Fig.144 Ngong- Focus Area-Analysis (Author, 2021)

G: KISERIAN-NGONG-FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS



Fig.145 Ngong hill-Livestock grazing in pastoral land to and from market spaces (Author, 2020)



Fig.146 Kiserian-A typical street condition towards the Livestock market(Author, 2020)



Fig.147 Kiserian- Motorcycles to transport meat from the slaughterhouse to surrounding butcheries(Author, 2020)

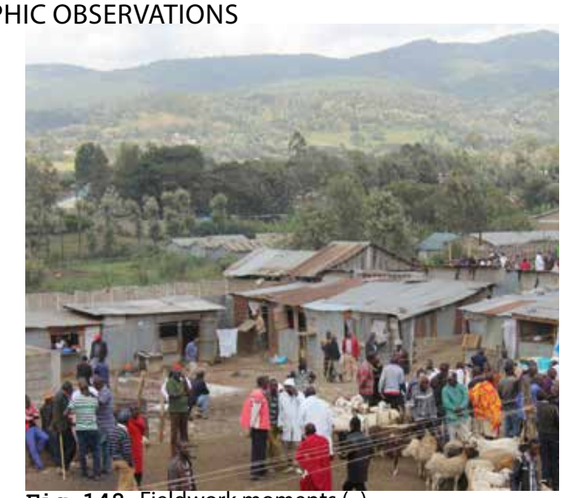


Fig.148 Fieldwork moments (_)



Fig.149 Kiserian-A typical street condition towards the Livestock market(Author, 2020)



Fig.150 Kiserian-A man with a sheep bought at teh Livestock market (Author, 2020)

H: NGONG-FOCUS AREA-OVERVIEW

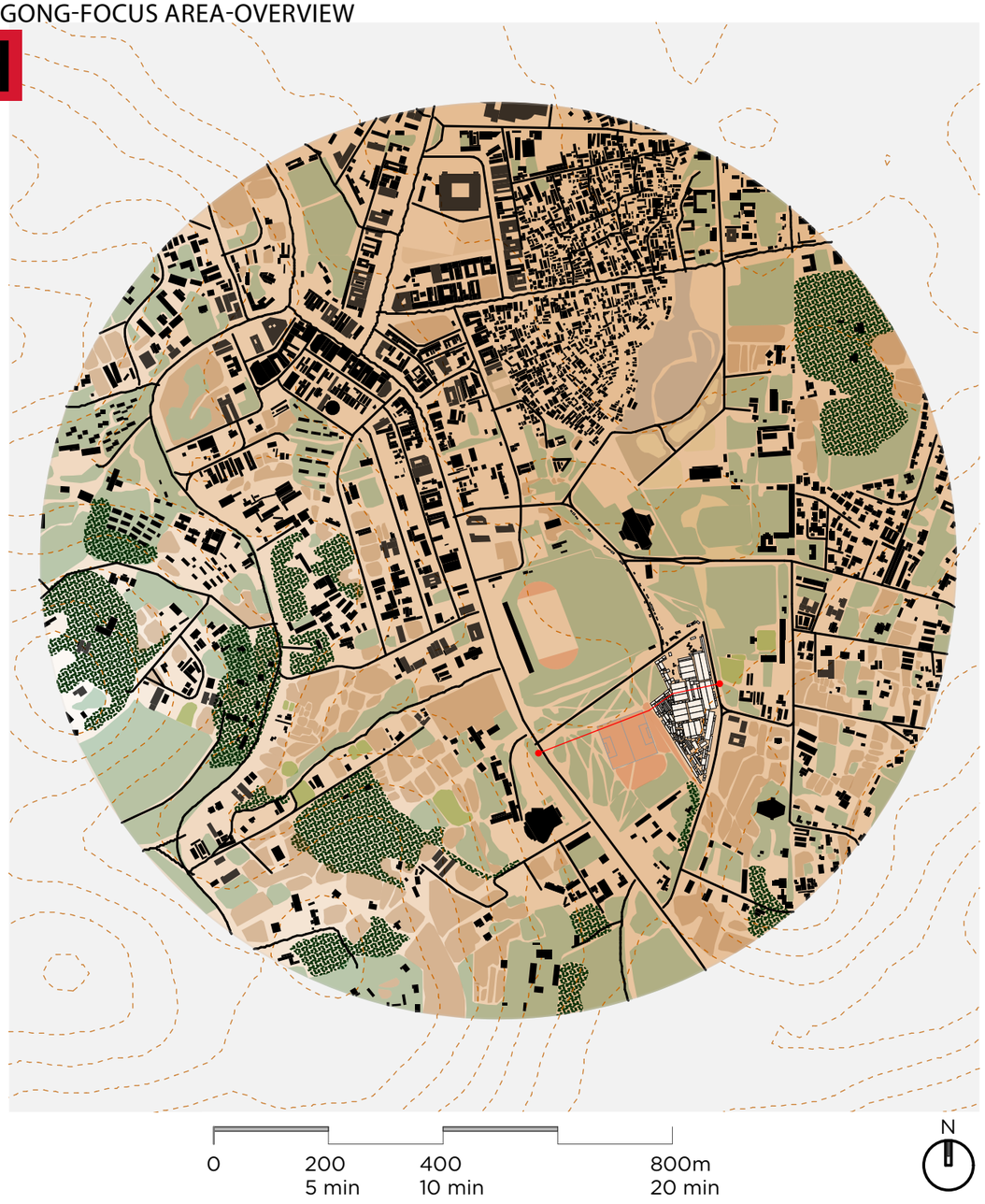


Fig.151 Kiserian- Focus Area-Analysis (Author, 2021)

H: NGONG-FOCUS AREA-PHOTOGRAPHIC OBSERVATIONS



Fig.152 A view from Ngong hill towards Nairobi (Author, 2020)



Fig.153 Ngong-Main street and emerging building typologies(Author, 2020)



Fig.154 Ngong-A woman with self made goods to sell heading towards the market(Author, 2020)



Fig.155 Ngong hill waterhole, a resource for livestock shared by the community-(Author, 2020)



Fig.156 Kiserian-Typical sidewalk conditions(Author, 2020)

G&H: NGONG-KISERIAN FOCUS AREA-SPATIAL ANALYSIS

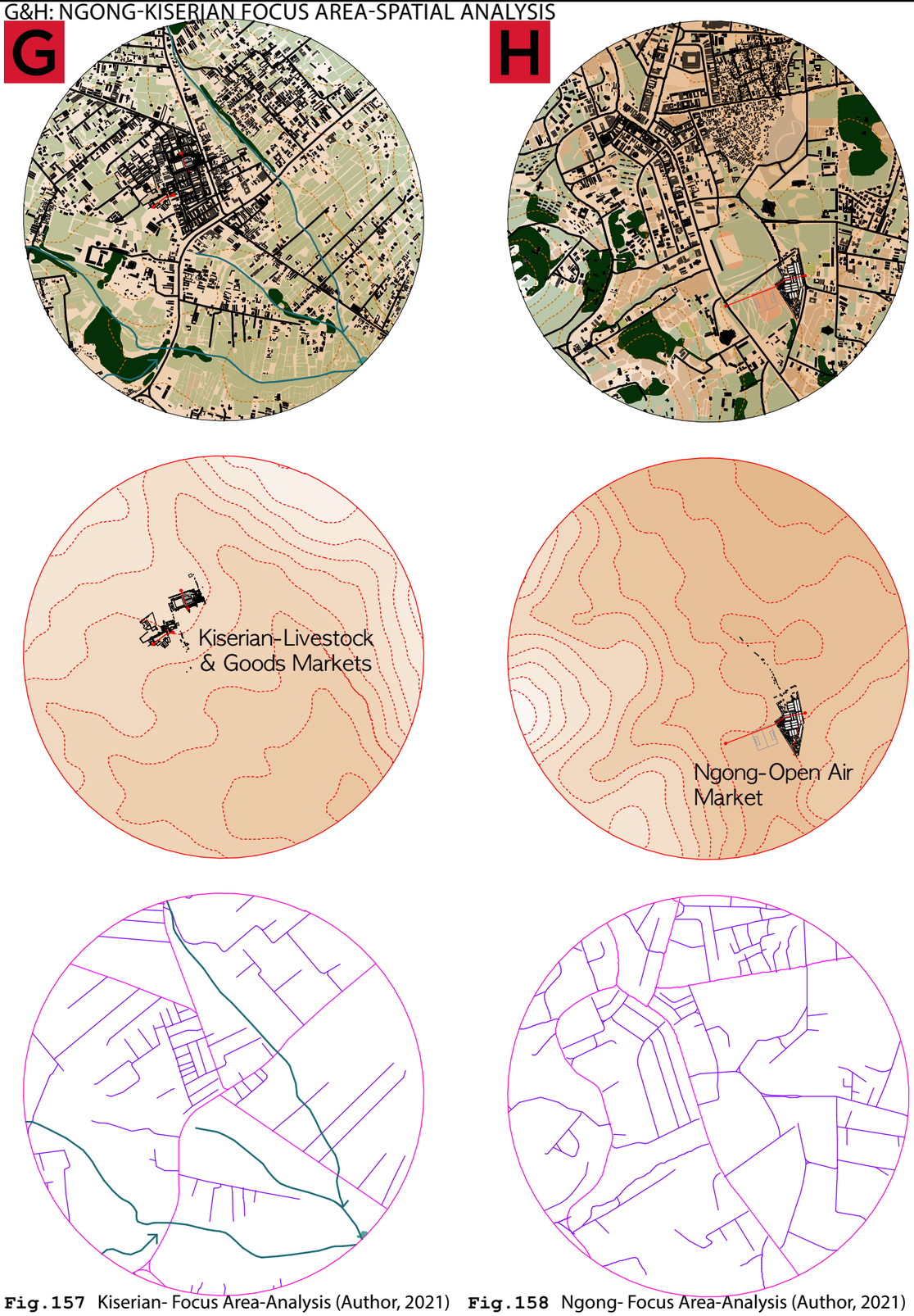


Fig.157 Kiserian- Focus Area-Analysis (Author, 2021)

Fig.158 Ngong- Focus Area-Analysis (Author, 2021)

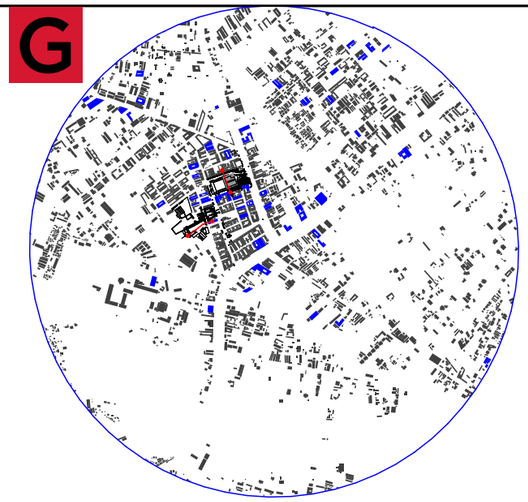
Topography:

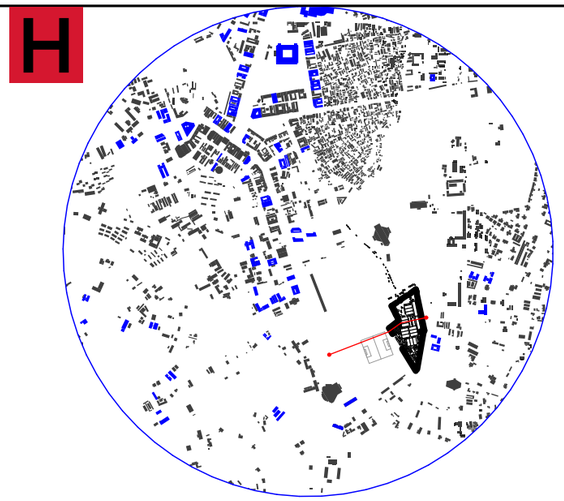
Both Ngong and Kiserian are situated along the eastern side of the foothills of the Ngong mountain range. Some say the Ngong Hills are named after the shape of the mountain resembling the outline of a hand's knuckles when closed, while others say it relates to the name of the buffalo's waterhole. Further west of the Ngong hills lies the great rift valley with scattered small settlements even further removed from infrastructural resources as well as natural resources.

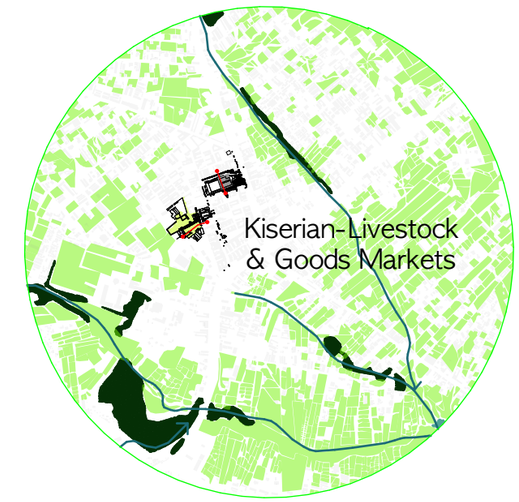
The waterhole on the hill is still accessed and used by the community across land of different ownership statuses for their livestock to drink and graze on regular terms. It is believed that there is a common agreement among landowners to make waterholes and pastoral land available to one another. The livestock routes move along pastoral land as well as along roads taking the livestock from farmer to market to new buyer or to the butchery. In both areas the land falls towards the south east. Water bodies are freely accessed by the community on the journey of trading livestock. The major waterbody to the south-east of the drawn area also show signs of livestock accessibility.

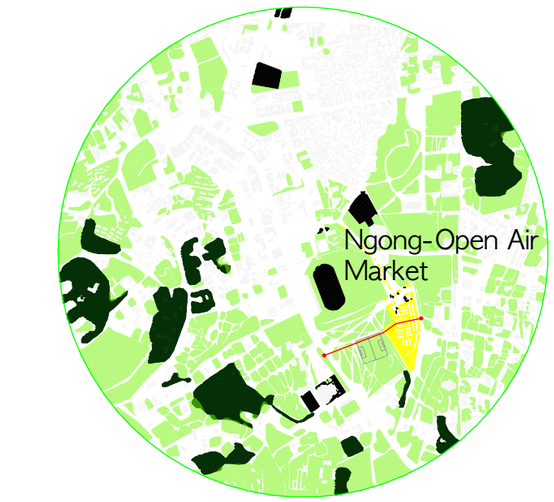
Movement Structure & Urban Blocks Structure:

The road from Nairobi to Ngong has been drawn since 1910 (refer to Figure 11). The Primary routes either run along the highest ridge or in the case of Ngong, on a contour of the same height along the hill. Kiserian has a structured grid where the main primary roads intersect, where Ngong has more signs of an organic structure. This area presents the opportunity for further research in the migration rights of livestock and the affect this will have on common space and movement in the long term.









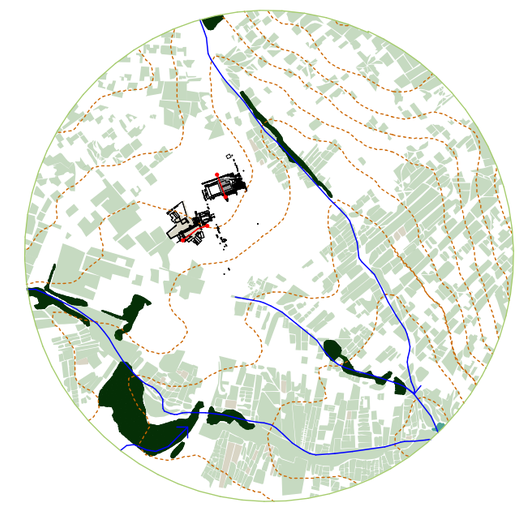




Fig.159 Kiserian- Focus Area-Analysis (Author, 2021)

Fig.160 Ngong- Focus Area-Analysis (Author, 2021)





Building Typologies:
The building typologies associated to the structured grid areas are courtyard buildings(in the older areas of the settlements) of 1 to 2 storeys and multi-storey mixed use buildings. Stand alone multi-storey apartment blocks are ever more present. The built fabric is similar to what is found in Ongata Rongai.

Use:
Different uses are well spread and not too concentrated as in the case of Ongata Rongai. Commercial functions are mostly along the main roads and the main centre of the town, with the exception of the Open Air Market placed far on the periphery of the town in the lowest lying area. The social amenities centre is somewhat removed from the main road overlooking the valley.

Common Space Structures:
In this context, the presence of livestock has a lasting effect on the overall experience of the common spaces associated. They share in all the resources available and form part of the lifestyle associated to living here. A common space network is more apparent due to the needs of the livestock having to move and graze over a wider area. The culture of sharing available resources for the migrating livestock is apparent in the more urban areas as well. Road reserves offer grazing opportunities and where storm-water collects drinking opportunities emerge. The ever changing use of space and resources make it even harder to preserve. With new developments these spontaneous opportunities may occur less and less and eventually, livestock migration would be affected negatively.

A detailed spatial study shows the livestock market structure providing separate camps for both small livestock (sheep and goats) and cattle. Each with a slaughterhouse associated. The livestock market brings farmers from the outlying areas to sell their stock, they in turn visit the goods market three blocks north east of the Livestock Market. The green areas on the plans show agricultural land as well as larger patches of untouched natural resources. This could be due to the steeper topography of the area. Here natural forests line the foot of Ngong Hill. The Ngong hill is a nature reserve with Buffalo, adding to the conservation of natural resources. Furthermore, sport facilities are closer related to the main movement routes as shown in the Ngong Open air Market.

Kiserian Goods
1:450, 1:200

G: KISERIAN-GOODS MARKET ANALYSIS

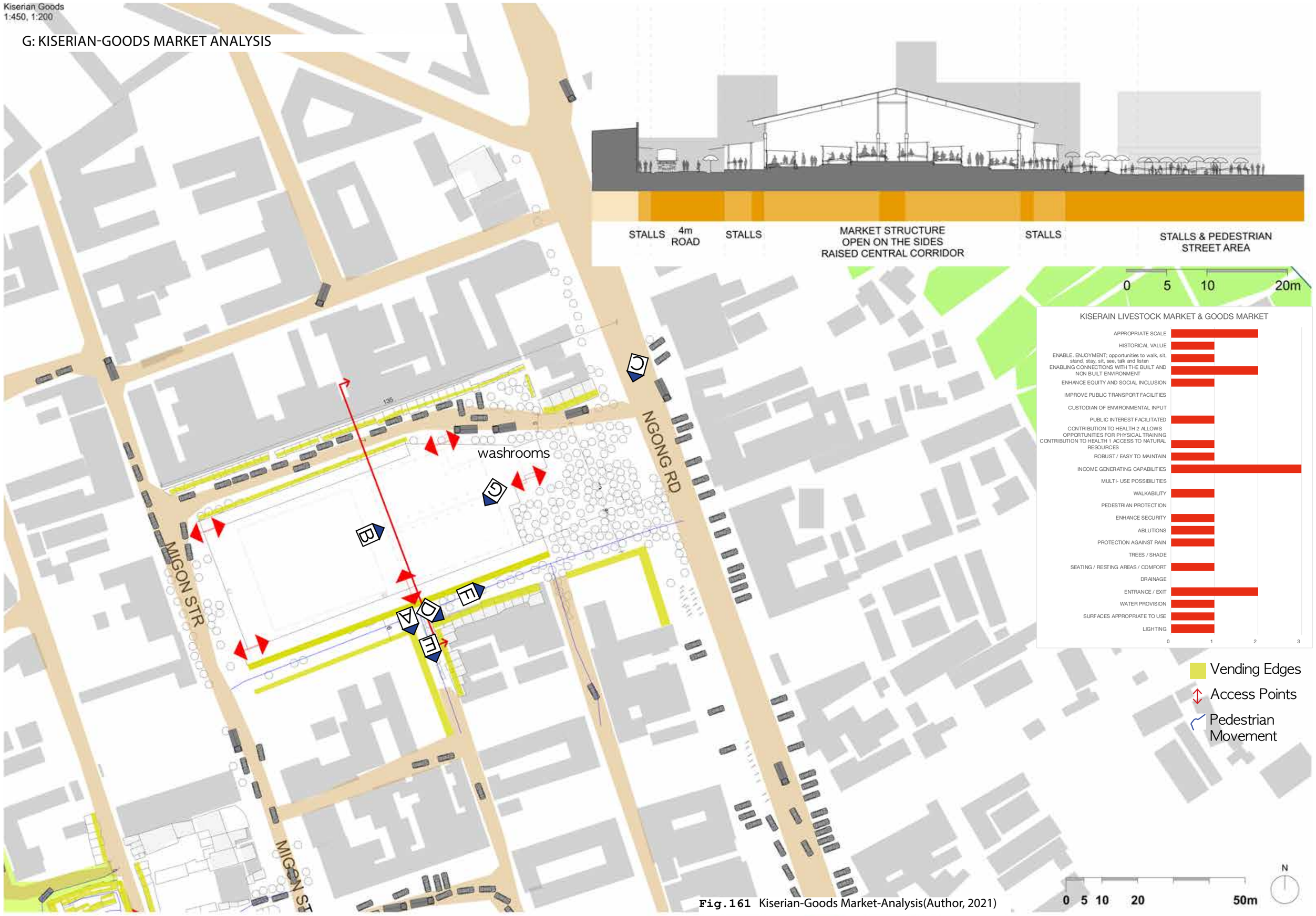


Fig.161 Kiserian-Goods Market-Analysis(Author, 2021)

G: KISERIAN-GOODS MARKET PHOTOGRAPHS



Fig.162 Kiserian-Goods Market-pedestrian access only areas(Author, 2020)

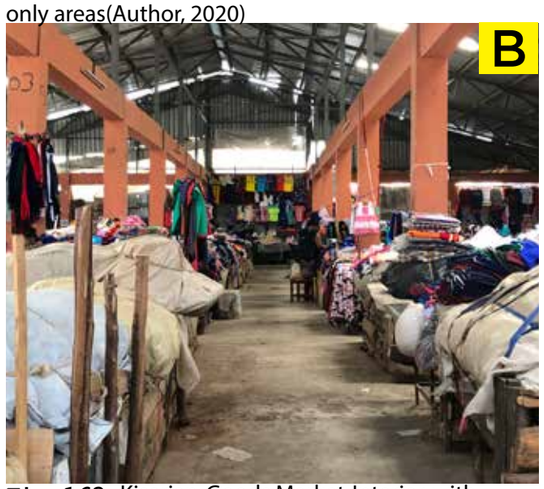


Fig.163 Kiserian-Goods Market-Interior-with clothing and active production(Author, 2020)



Fig.164 Kiserian-Goods Market-Exterior-fresh goods area(Author, 2020)



Fig.165 Kiserian-Goods Market-Exterior-second hand clothes vendors(Author, 2020)



Fig.166 Kiserian-Goods Market-Exterior-fresh goods(Author, 2020)



Fig.167 Kiserian-Goods Market-Exterior-pedestrian street (Author, 2020)



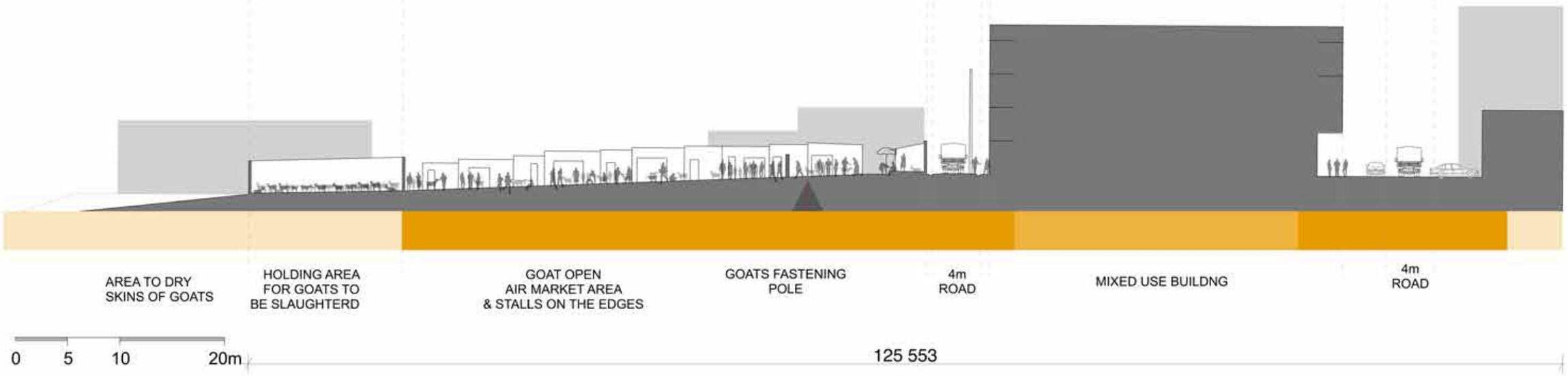
Fig.168 Kiserian-Goods Market-Interior-second hand clothing (Author, 2020)

KISERIAN GOODS MARKET OBSERVATIONS / LESSONS LEARNED

- Parks and recreational spaces are hardly found in rural areas, thus the study of the market spaces act as informant.
- Pedestrian streets runs along the southern side of the market space with vendors set up on the centre line with permanent and temporary structures.
- The goods available range from fresh produce to beaded work, custom made clothing, second hand clothes, plastic home-ware and goods for Masai shepherds. The trade of custom made objects and goods is more apparent.
- A publicly accessible wash-room is provided associated to the market space.
- The edges of the space is activated through openings towards the covered market space and active trading on all edges.
- Visual Access is improved with a raised central walkway provided in the covered structure allowing pedestrians to overlook the market area through openings in the elevation into the adjacent streets.
- Support facilities such as seating is not provided, but people appropriate ways to make themselves comfortable.
- Sufficient shade is provided by both the covered structure and umbrellas appropriated by vendors. The umbrellas do however limit visual access across the market area.
- Access points are not clearly defined but can eventually be reached when following dominant circulation routes.
- Circulation routes are reduced to the minimum to allow maximum space to be utilised for vending stalls.
- No clear delineation is expressed between roads and sidewalks thus a mixture of vehicular,pedestrian, livestock movement and vending is associated to the edges of buildings moving towards streets.
- Hard surfaces are limited, and where they are provided assist with the reduction of dust / areas kept moisture free.
- There is sufficient lighting, with a high mast light provided in the open air area. Building closely related to the market space also assist in illuminating the market spaces.
- The goods market is connected to the larger common space network of trading since the vendors have occupied the streets up to the Livestock market further south. Thus the goods market forms part of the main route livestock traders take in trading their livestock. This common space network reaches well beyond the limits of this study. Livestock vendors move over great expanses of common pastoral land from home village to the Kiserian market, the goods-market serves their needs.
- The goods market is growing rapidly and expanding in all the directions possible associated to active movement routes.

Kiserian Livestock Market
1:450, 1:200

G: KISERIAN-LIVESTOCK MARKET ANALYSIS



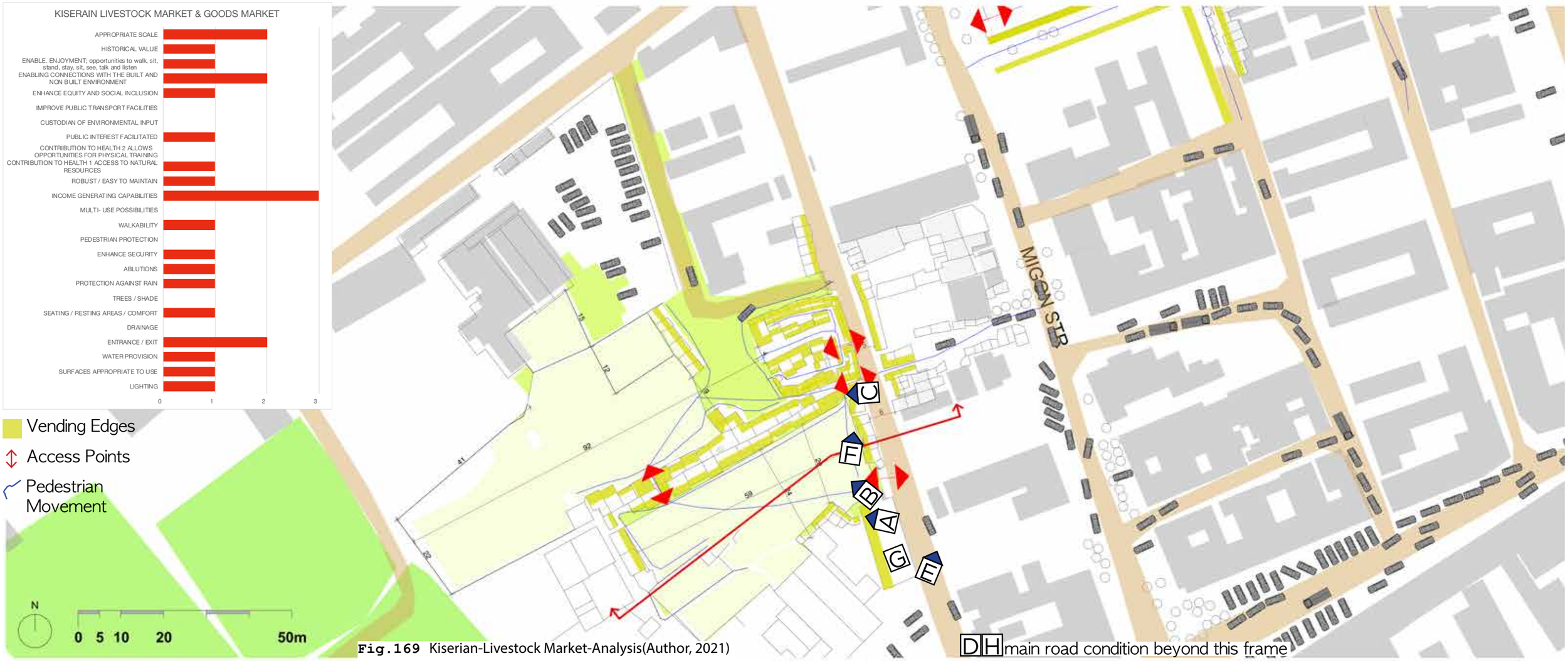


Fig.169 Kiserian-Livestock Market-Analysis(Author, 2021)

D H main road condition beyond this frame

G: KISERIAN-LIVESTOCK MARKET PHOTOGRAPHS

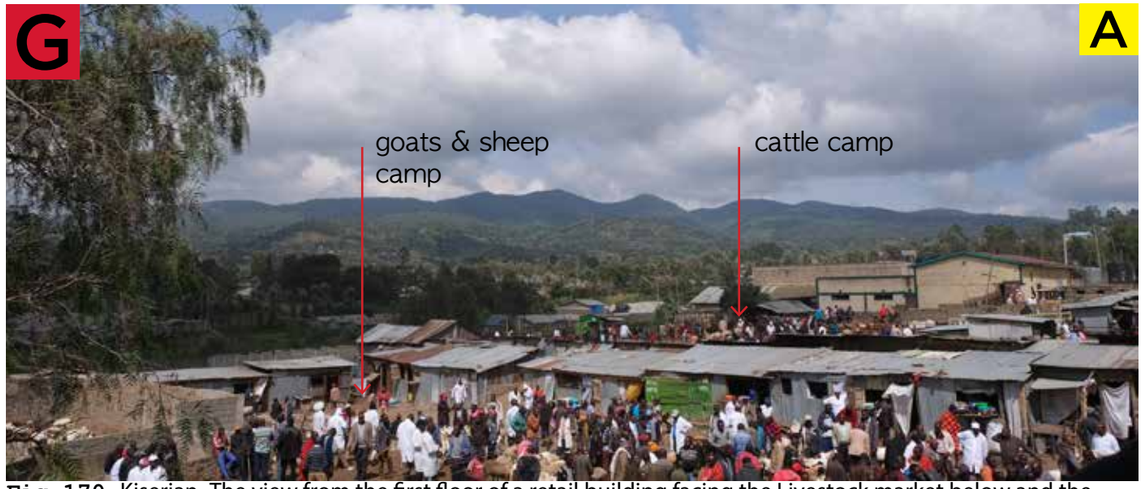


Fig.170 Kiserian- The view from the first floor of a retail building facing the Livestock market below and the Ngong hills in the distance(Author, 2020)

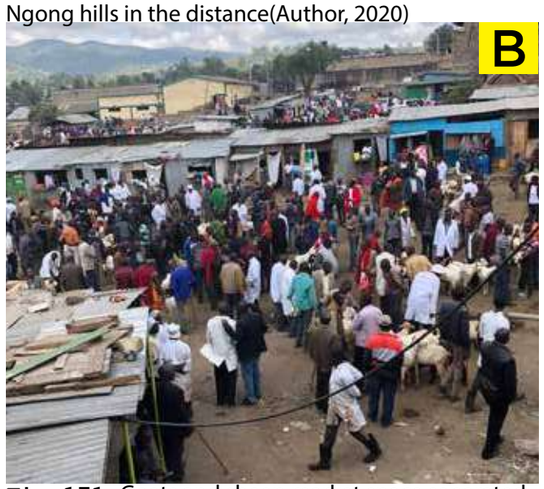


Fig.171 Goats and sheep market space separated from cattle (Author, 2020)



Fig.172 Vendors selling goods for Maasai shepards (Author, 2020)



Fig.173 Kiserian-Exposed Stormwater channels (Author, 2020)



Fig.174 Kiserian-Emerging building typologies-shipping containers (Author, 2020)



Fig.175 Kiserian-Social exchange(Author, 2020)



Fig.176 Kiserian-Custom made clothing(Author, 2020)



Fig.177 Kiserian-Productive sidewalk(Author, 2020)

KISERAIN LIVESTOCK MARKET OBSERVATIONS / LESSONS LEARNED

- Pedestrian and livestock is crossing the roads at any point
- Ablutions are provided with the market structures
- The entrance to the various markets(one for the smaller livestock, and the other for the cattle is seperated and clearly defined by an arched entrance. The edges are defined internally where vendors are organised back to back facing the different markets from the outer edge inwards.
- Visual Access is achieved by having the entrance positioned on the highest point of both market spaces. This allows one to understand the estent of the space at first glance.
- Vendors selling consumable goods offer some loose furniture pieces for the tradesmen and woman to use as resting opprotunity
- Both spaces are mostly exposed to the sun
- The surfaces are not treated
- The larger common space network is defined both by trading opportunities between different vending goods, and by the movements of the livestock on pastoral land beyond the town of Ngong.

Ngong Open Air Market
1:500, 1:1000

G: KISERIAN-GOODS MARKET PHOTOGRAPHS

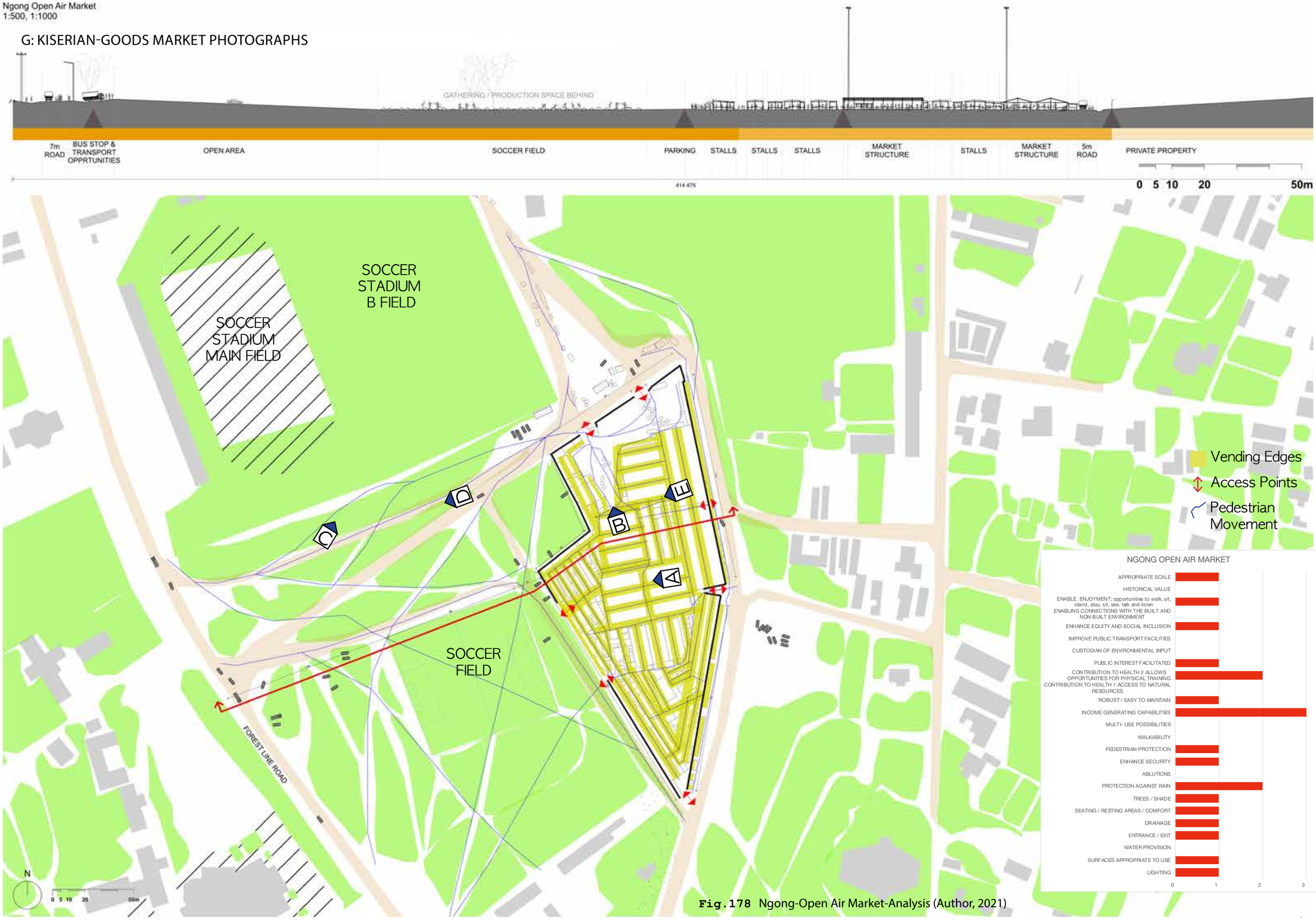


Fig.178 Ngong-Open Air Market-Analysis (Author, 2021)

H: NGONG-OPEN AIR MARKET PHOTOGRAPHS



Fig.179 Open Air Market-Interior(Author, 2020)



Fig.180 Open Air Market- view towards the entrance(Author, 2020)



Fig.181 Open Air Market-Woman socialising and making beaded products(Author, 2020)

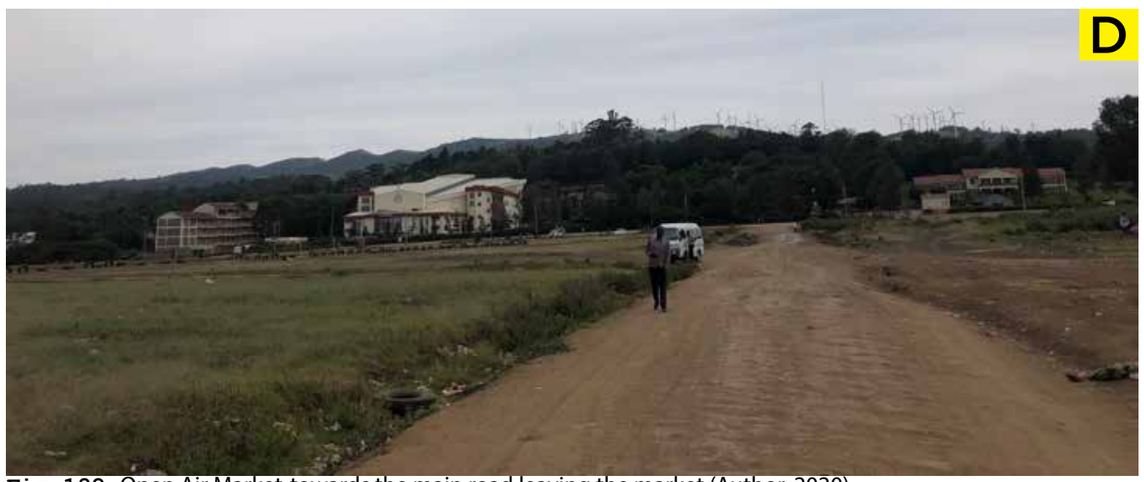


Fig.182 Open Air Market-towards the main road leaving the market (Author, 2020)



Fig.183 Open Air Market-towards the main road leaving the market (Author, 2020)



Fig.184 Open Air Market-In construction 2019/02 (Google Earth, 2021)



Fig.185 Open Air Market-expansion over 2 years (Google Earth, 2021)

NGONG OPEN AIR MARKET OBSERVATIONS / LESSONS LEARNED

- The Ngong Open air market is located at a distance from the main town, Ngong, yet the space is still growing at a rapid rate indicating it is used nevertheless.
- There is a bus stop/taxi pickup spot along the main road with no physical infrastructure.
- Motorcycles are used in the areas where road infrastructure poses challenging terrain for vehicles. See image to the left.
- The edges of the market was originally a fence line, now lined with vendors on the outer edges facing the street, thus the edge has been activated through use.
- The layout of the market space does not speak to any spatial order beyond the entrance and the possibility of delivery of goods, thus for the user the experience is disorientating with limited visual access.
- Limited seating opportunities, mostly found objects serve this purpose.
- Consumable goods are available, yet no space provided for the enjoyment thereof.
- The main access point is defined by large gates onto the service road, unfortunately the access is towards the side of the market, thus not experienced on approach.
- Corrugated roof structures add to the comfort of the space providing shade. Woman were sitting under the only trees in the area socializing and making beaded items to sell at the market.
- The surfaces are of a poor standard (large rocks on circulation routes) with additional issues due to an inadequate storm-water system. The hard surfaces originally provided have taken the character of the surrounding dirt roads and large rocks.
- High mast lighting is provided, none at a pedestrian scale.
- Support infrastructure such as dustbins are provided by individual vendors.
- The market is connected to the larger common space network by being next to an open air football field and the stadium.

6. THE WAYS FOUND TO ANALYSE AND ENGAGE

After visiting the various sites, Google maps and aerial photographs were used to prepare the base maps for the study. The base maps act as a measuring tool of all that was drawn to measure its area

-Built fabric
-Market spaces / Spaces of exchange
-Green spaces natural
-Green spaces not built
-Agricultural land
-Large paved parking areas
-Road Area Coverage

These aspects if compared, give a good indication of the balance between the aspects as well as the comparison of each aspect to the different study areas.

Photographs that convey the aspects of interest, is used as a strategic tool to convey qualities and observations that contribute to the study. They convey the quality of the experience associated.

Furthermore detail plans and sections with quantitative measures attempt to capture the performances associated to the commons spaces identified stretching from urban to rural areas.

A summary of lessons learned per study area could assist in ways to communicate with various stakeholders in finding the right strategies for sustainable development.

7. LEARNING FROM ELSEWHERE

Real World Examples:

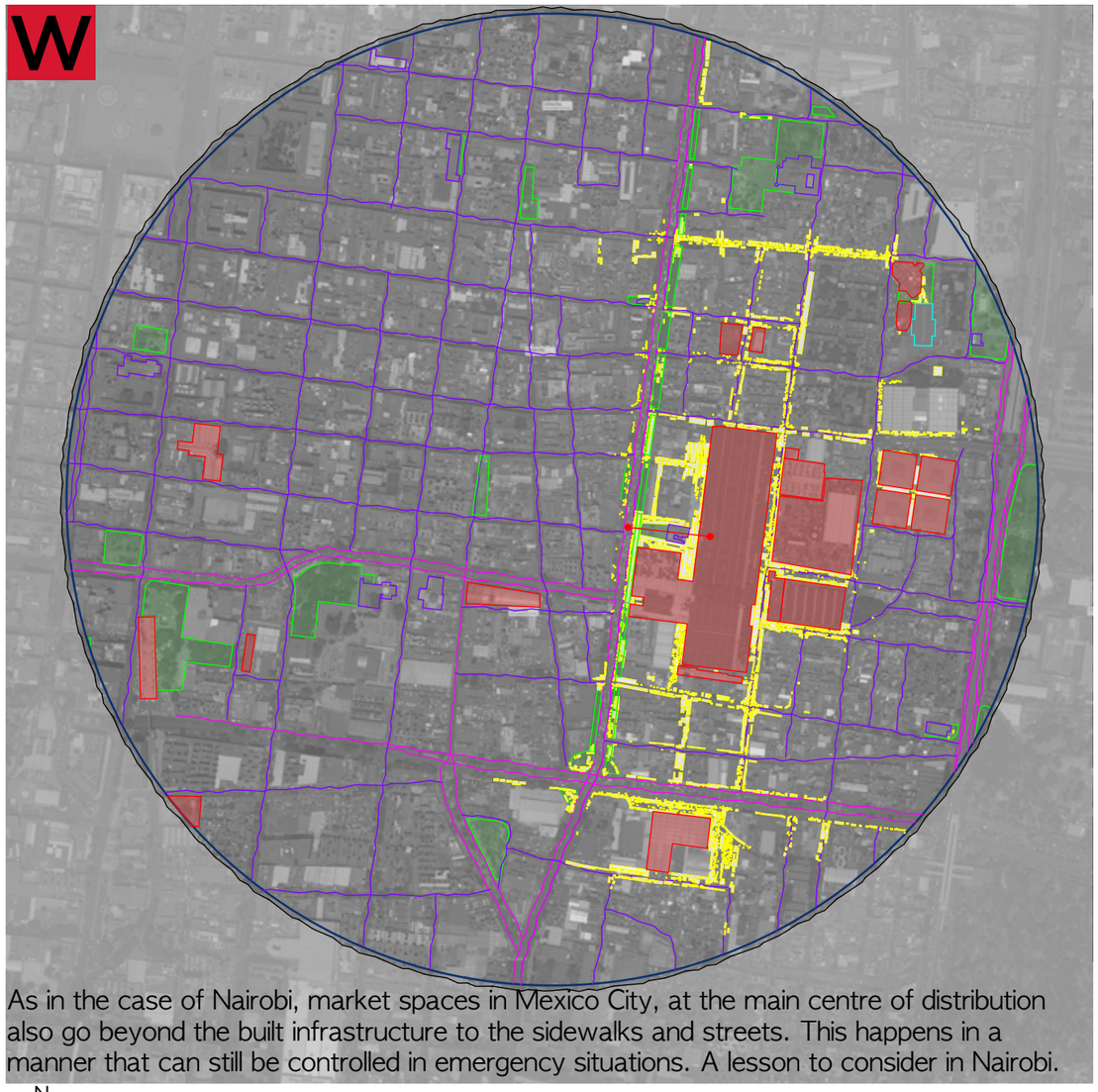
Mexico was chosen as an area to do a comparative study. To compare the differences from rural to urban environments in different countries pose difficulties. This study aimed to focus on precedents in the same country to have a certain consistency to compare to.

The main reason for choosing the site in Mexico is because the author also experienced the spaces. The knowledge of an experience goes beyond what one can sometimes assume from desktop studies. Mexico is know for the successful management and planning principles when it comes to common use infrastructure.

The civic agency and effort towards giving the citizens a quality of common space is noticeable in the infrastructures provided.

The areas selected to compare also range from urban to rural contexts where the study areas in Nairobi relates to Mexico City, the ones in Ongata Rongai, to Morelia, the ones in Kiserian and Ngong, to Mixquic.

PRECEDENT 1:URBAN-MEXICO CITY MARKET FOCUS AREA: LA MERCED



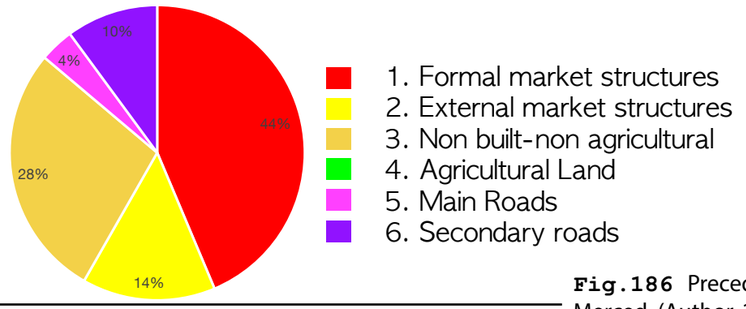


Fig.186 Precedent Study Mapping-Mexico City: La Merced (Author, 2021)



Fig.187 Google Maps Photo, Liz Garcia Chavez, 2020

Bell Tower as landmark with an enclosed outdoor foyer / arrival space. Because the building is not directly on the road ans set back, the common space can still be used as originally intended, with the market space outside the boundaries



Fig.188 Google Maps Photo, Michael Scott Novilla, 2021

Outdoor multifuntional space between the Cathedral and sidewalk market.



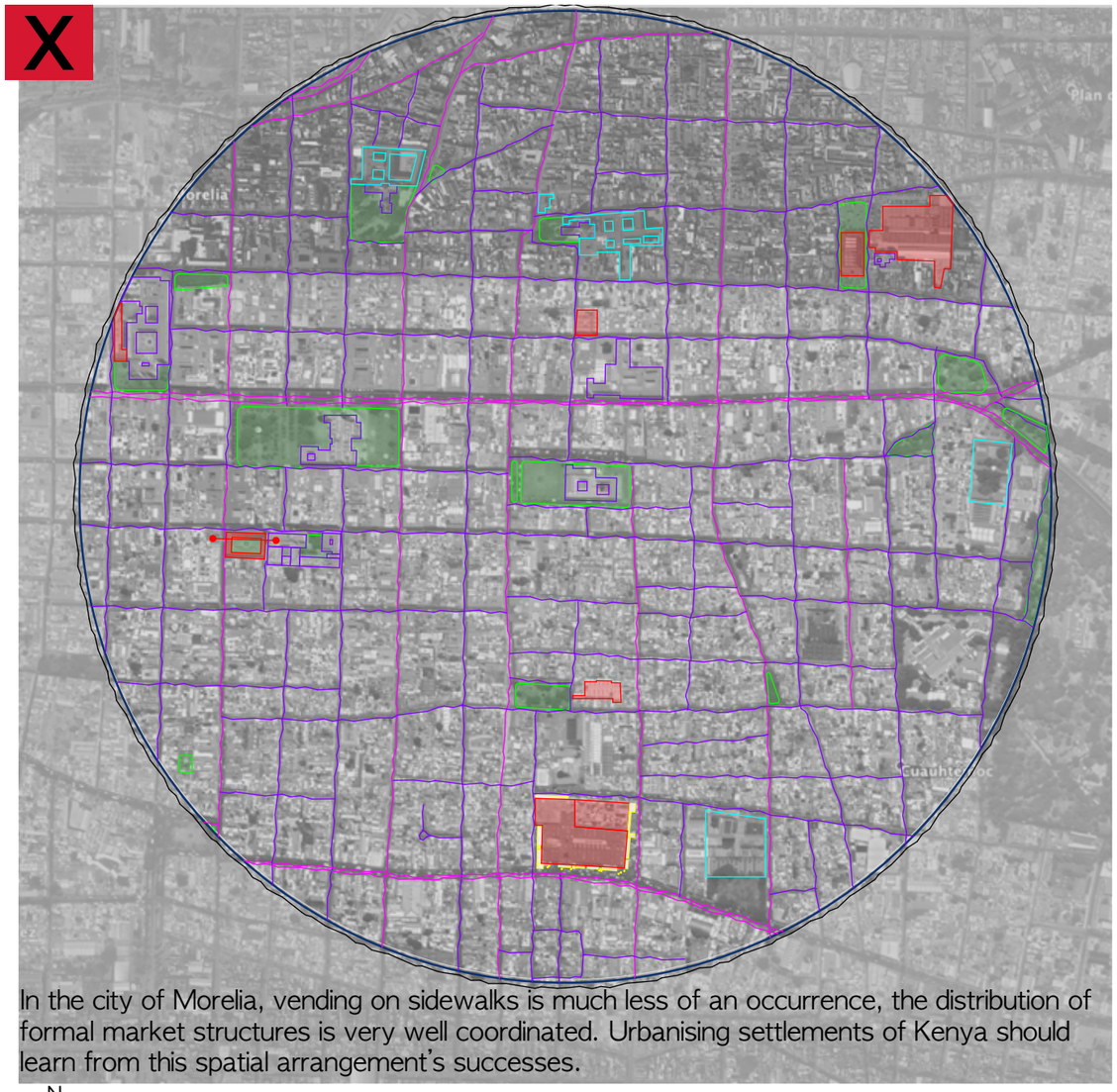
Fig.189 Google Maps Street View, Merced Ruta, Circunvalación St, Screenshot, 2021

Street Vendors and market stalls surrounding the Cathedral's boundary, with a new entrance to the Cathedral's arrival space

	Column2	Column3	MIXQUIC	XOCHIMILCO	MORELIA	MEXICO CITY-LA MERCED
			Z	Y	X	W
1	BUILT FABRIC-MARKETS	m^2	2861,72	20293,252	36702,2365	122222,359
2	MARKETS-EXTERNAL	m^2	11157,361	627,027	1782,032	40911,454
3	SOFT	m^2	0	56589,5865	71531,277	78120,7365
4	AGRICULTURAL AREAS	m^2	575533,659	22894,855		
5	MAIN ROADS average	m^2	6190,042	9593,575	13432,708	10507,085
6	LINAKGE ROADS average	m^2	12273,205	32271,144	28113,644	28254,717

Fig.190 Precedents-Comparative measurements Table (Author, 2021)

PRECEDENT 2:URBAN-MORELIA FOCUS AREAT: SAN AGUSTIN SQUARE



MORELIA X

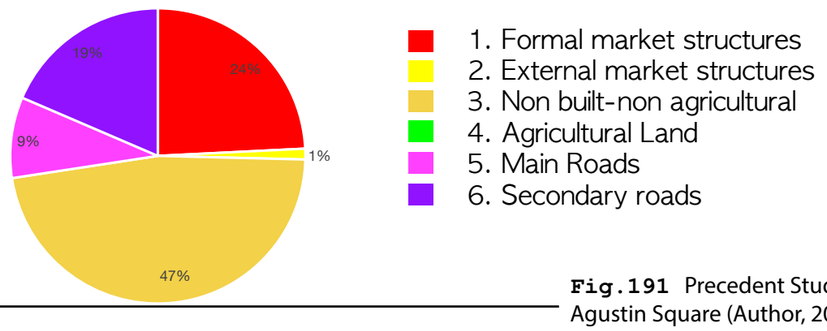


Fig.191 Precedent Study Mapping-Morelia: San Agustin Square (Author, 2021)



Bell tower as landmark for both the Cathedral and market space

Fig.192 Google Maps Photo, Alexis Giovanni Alvarez, 2020



Market space- internal courtyard with temporary vending along the internal walls

Fig.193 Google Maps Photo, Jesus O, 2020



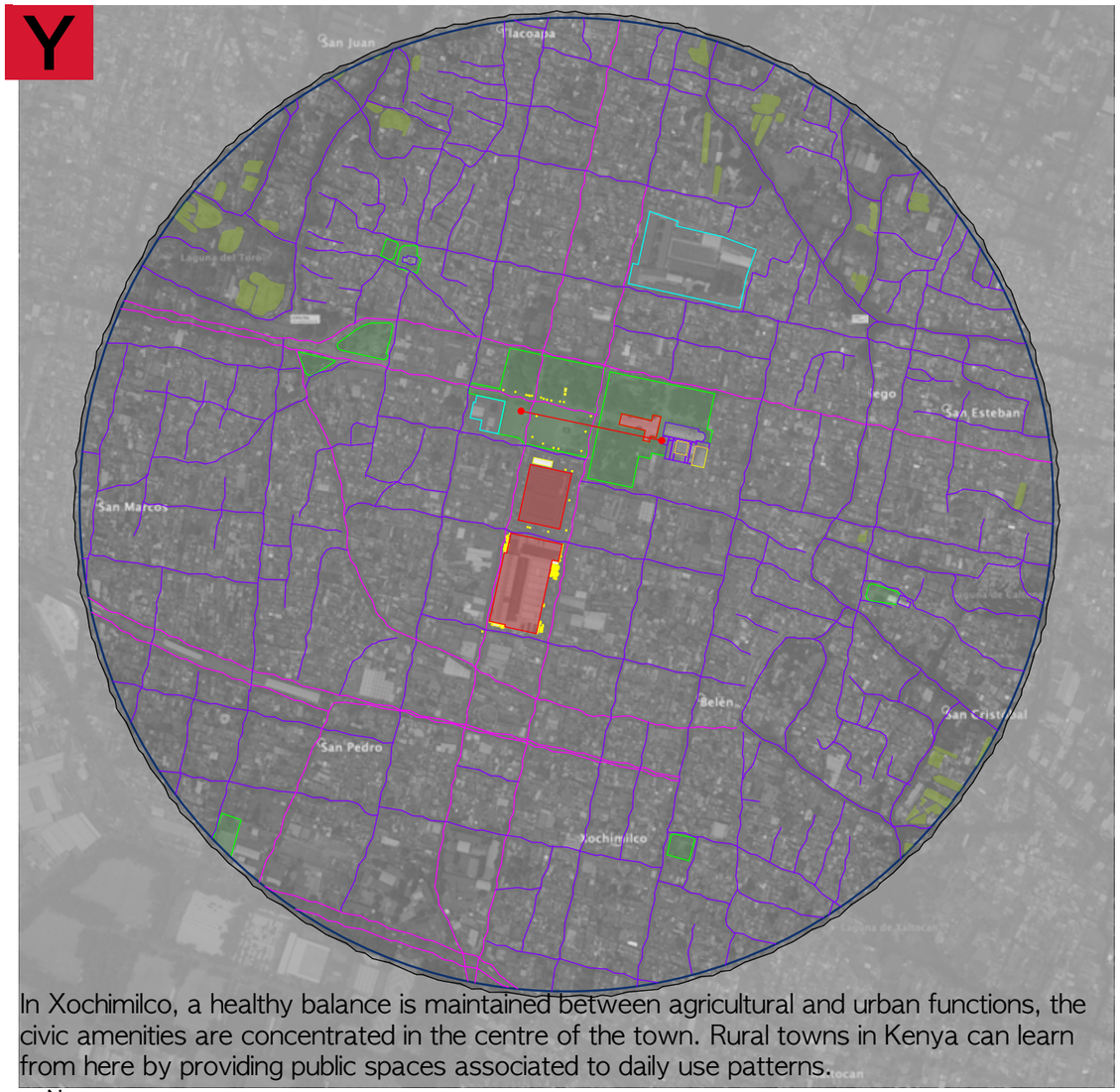
The market space's elevation to the street. Deep covered spaces with a wall to the courtyard and only a few access points to the courtyard giving the market space a sloid and permeable edge towards the street

Fig.194 Google Maps Photo, Lic. Roberto Saavedra,2017

	Column2	Column3	MIXQUIC	XOCHIMILCO	MORELIA	MEXICO CITY-LA MERCED
			Z	Y	X	W
1	BUILT FABRIC-MARKETS	m^2	2861,72	20293,252	36702,2365	122222,359
2	MARKETS-EXTERNAL	m^2	11157,361	627,027	1782,032	40911,454
3	SOFT	m^2	0	56589,5865	71531,277	78120,7365
4	AGRICULTURAL AREAS	m^2	575533,659	22894,855		
5	MAIN ROADS average	m^2	6190,042	9593,575	13432,708	10507,085
6	LINAKGE ROADS average	m^2	12273,205	32271,144	28113,644	28254,717

Fig.195 Precedents-Comparative measurements Table (Author, 2021)

PRECEDENT 3:URBAN/RURAL-XOCHIMILCO FOCUS AREA: CIVIC CENTRE & AGRICULTURE



In Xochimilco, a healthy balance is maintained between agricultural and urban functions, the civic amenities are concentrated in the centre of the town. Rural towns in Kenya can learn from here by providing public spaces associated to daily use patterns.



XOCHIMILCO Y



Fig.196 Precedent Study Mapping-Xochimilco: Civic Centre & Agricultural Periphery (Author, 2021)



Town Cathedral's gathering space connected to the city gardens and the town plaza.

Fig.197 Google Maps Street View, Catedral de Xochimilco de San Bernardino de Siena, Screenshot, 2021



Multifuntional Plaza in dialogue with city Cathedral, Gardens and Market place

Fig.198 Google Maps Street View, Plaza Central De Xochimilco, Screenshot, 2021



City Market successfully related with the surrounding public spaces. All civic amenities are located in the centre of the town.

Fig.199 Google Maps Street View, Mercado de Xochimilco, Screenshot, 2021

	Column2	Column3	MIXQUIC	XOCHIMILCO	MORELIA	MEXICO CITY-LA MERCED
			Z	Y	X	W
1	BUILT FABRIC-MARKETS	m^2	2861,72	20293,252	36702,2365	122222,359
2	MARKETS-EXTERNAL	m^2	11157,361	627,027	1782,032	40911,454
3	SOFT	m^2	0	56589,5865	71531,277	78120,7365
4	AGRICULTURAL AREAS	m^2	575533,659	22894,855		
5	MAIN ROADS average	m^2	6190,042	9593,575	13432,708	10507,085
6	LINAKGE ROADS average	m^2	12273,205	32271,144	28113,644	28254,717

Fig.200 Precedents-Comparative measurements Table (Author, 2021)

PRECEDENT 4:RURAL-MIXQUIC FOCUS AREA: CIVIC CENTRE AND AGRICULTURE



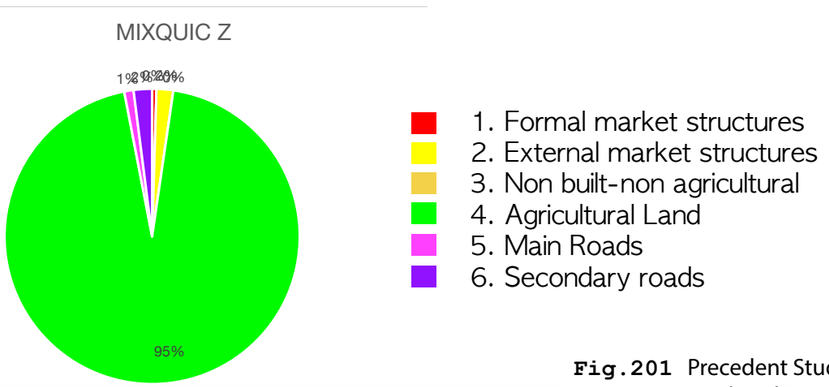


Fig.201 Precedent Study Mapping-Mixquic: Civic Centre & Agricultural Periphery (Author, 2021)



Church Entrance from Street Vendor Market connected to Cemetery, Schools and other public spaces

Fig.202 Google Maps Steetview, Parroquia de San Andres Apostol, Francisco Hernández, 2018



Impermanent markets connected to permanent public Spaces closely related to the civic centre and the Cathedral

Fig.203 Google Maps Streetview, Medellin Street Market, Screenshot, 2021



Vendors located near the civic centre with public amenities and public spaces concentrated to the centre of Mixcuic.

Fig.204 Google Maps Street View, San Andres Plaza, Screenshot, 2021

	Column2	Column3	MIXQUIC	XOCHIMILCO	MORELIA	MEXICO CITY-LA MERCED
			Z	Y	X	W
1	BUILT FABRIC-MARKETS	m^2	2861,72	20293,252	36702,2365	122222,359
2	MARKETS-EXTERNAL	m^2	11157,361	627,027	1782,032	40911,454
3	SOFT	m^2	0	56589,5865	71531,277	78120,7365
4	AGRICULTURAL AREAS	m^2	575533,659	22894,855		
5	MAIN ROADS average	m^2	6190,042	9593,575	13432,708	10507,085
6	LINAKGE ROADS average	m^2	12273,205	32271,144	28113,644	28254,717

Fig.205 Precedents-Comparative measurements Table (Author, 2021)

8. THE NDENDERU VALLEY AREA AS FOCUS AREA FOR THE APPLICATION OF LESSONS LEARNED

NDENDERU WAS SELECTED AS THE FOCUS AREA TO APPLY THE LESSONS LEARNED FROM THE COMMON SPACES STUDIED. Ndenderu is also located between STUDIED

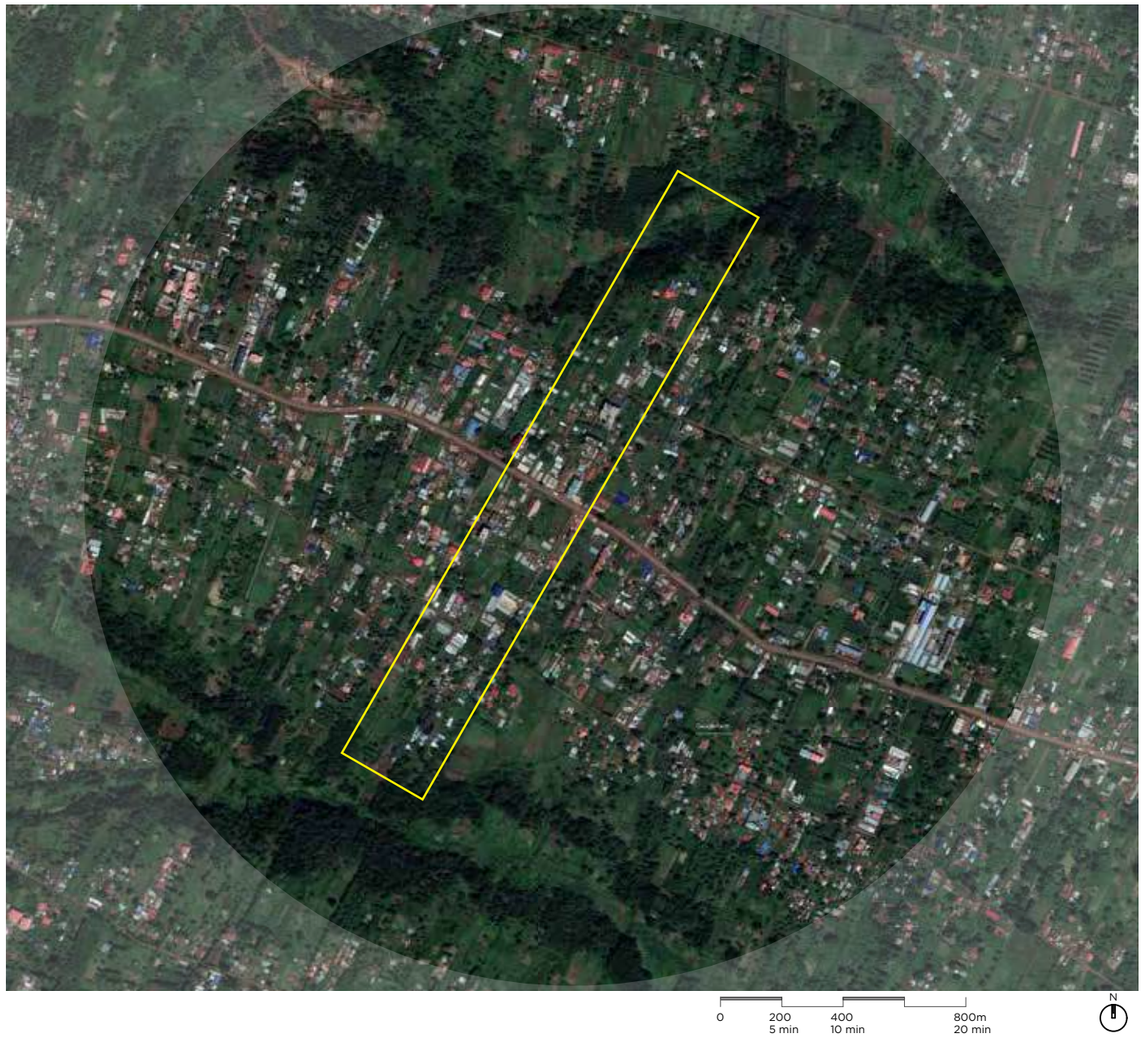
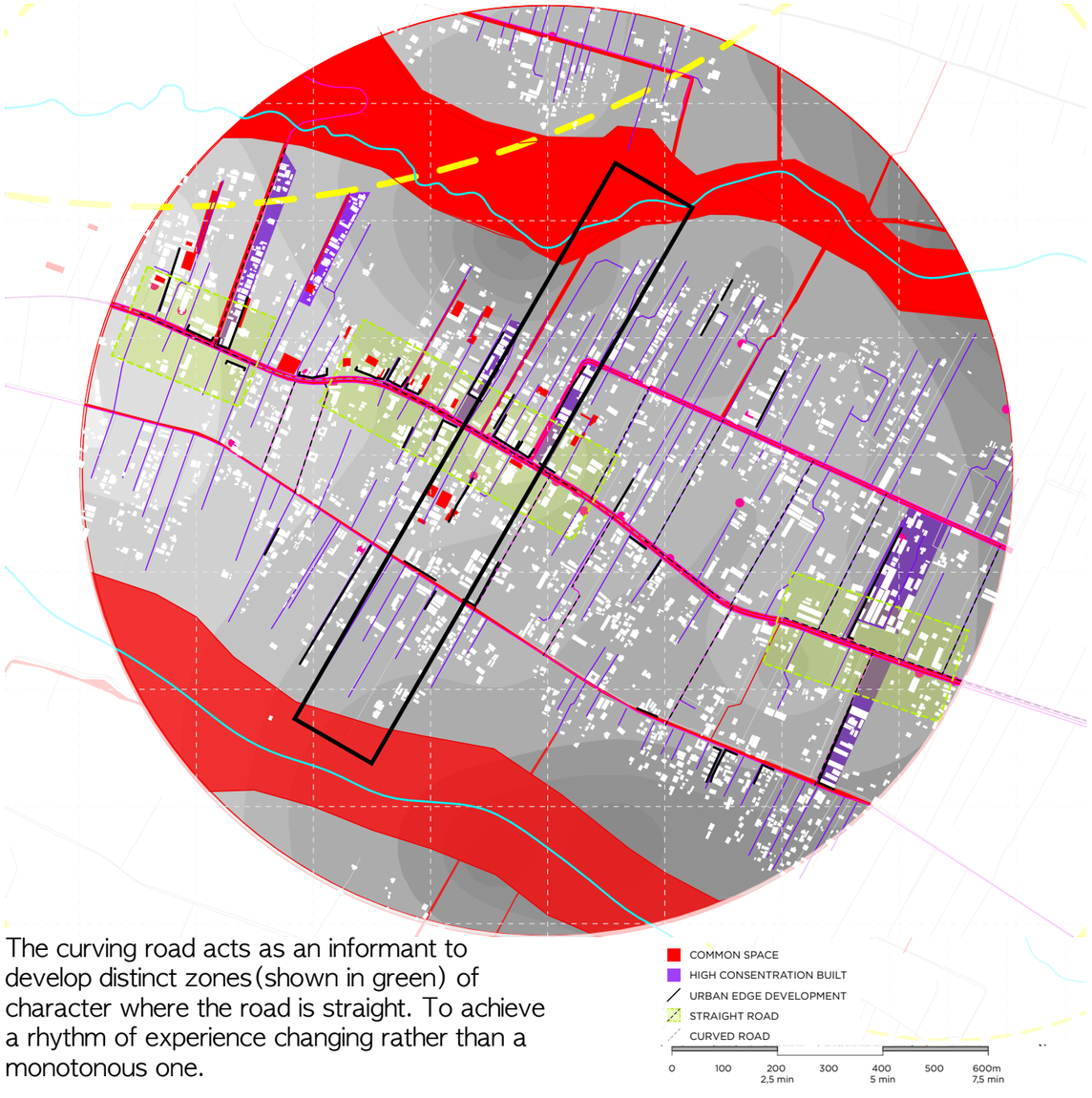


Fig.206 Ndenderu Focus Area AerialGoogle Earth 2020, edited by Author (2021)

FOCUS AREA-STATUS QUO PLAN

This plan shows the existing conditions of the area affecting common space and common space development opportunities.



The curving road acts as an informant to develop distinct zones (shown in green) of character where the road is straight. To achieve a rhythm of experience changing rather than a monotonous one.

Fig.207 Tool-kit application area-Informants(Author, 2021)

WALKING DISTANCES

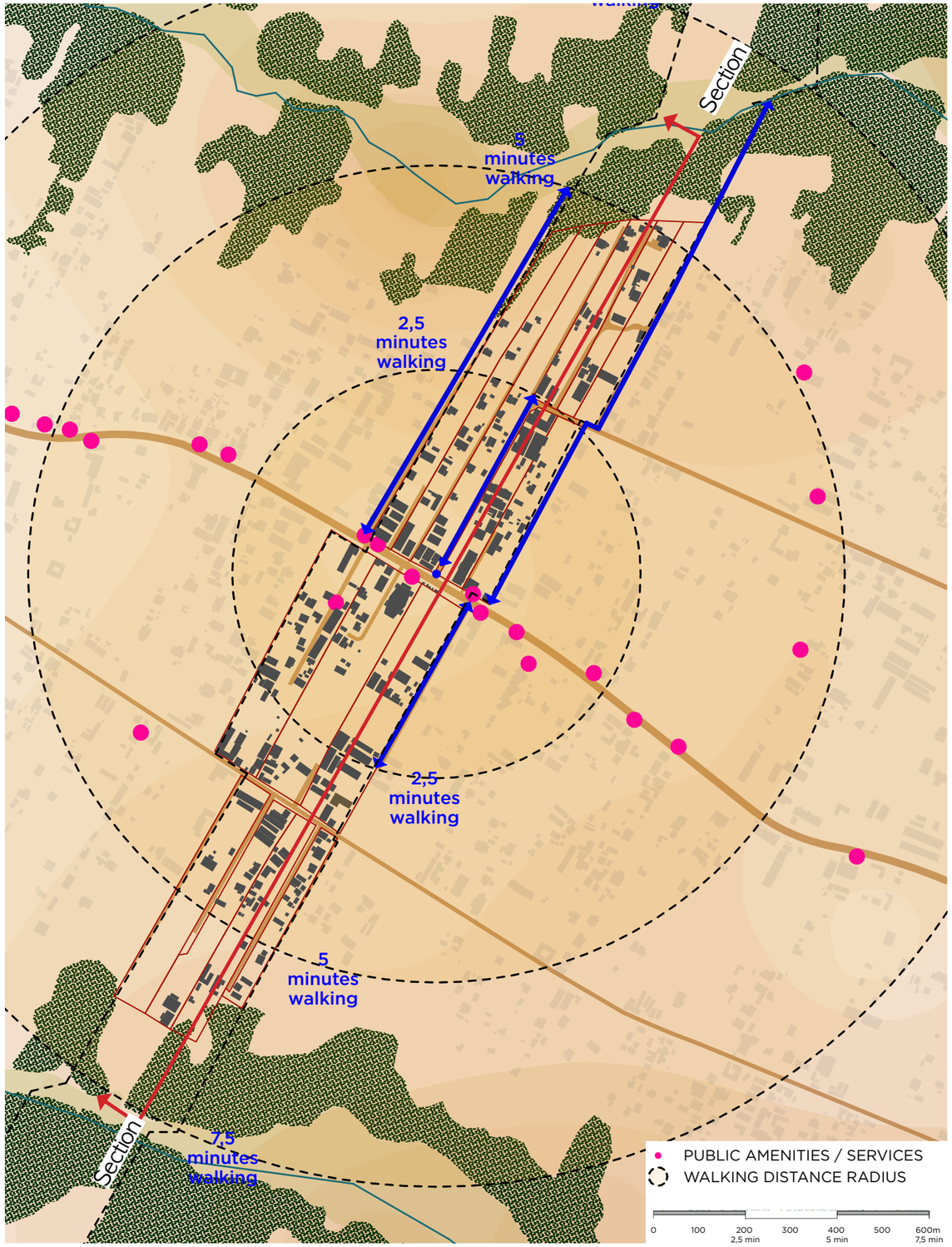
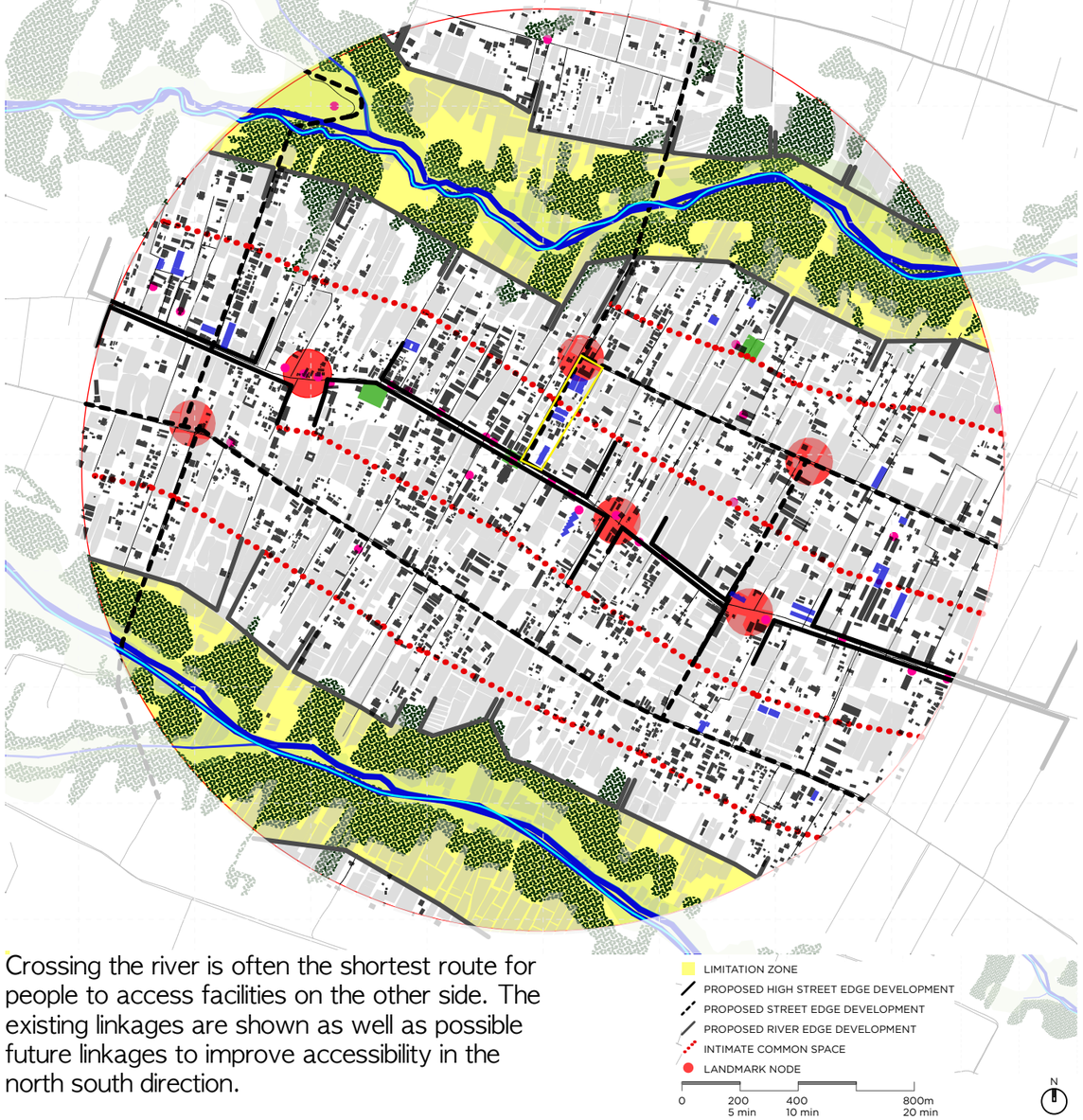


Fig.208 Tool-kit application area-Status Quo Informants-(Author, 2021)

PROPOSAL CONSIDERATIONS

This plan illustrates suggestions towards urban design tools to support the development of the area with common spaces as generators of initiatives.

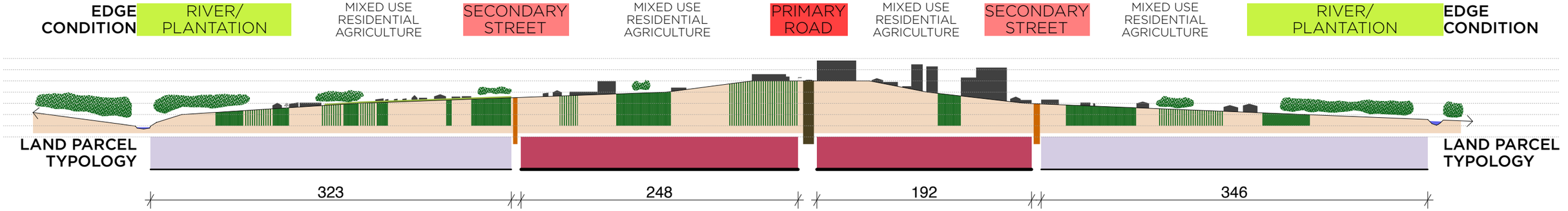
This strategy plan shows the potential areas of creating a wider common space network in the context of Ndenderu. This acts as a base towards shaping a tool-kit for land owners to improve their land according to the wider environment.



Crossing the river is often the shortest route for people to access facilities on the other side. The existing linkages are shown as well as possible future linkages to improve accessibility in the north south direction.

Fig.209 Tool-kit application area-Spatial Considerations(Author, 2021)

STATUS QUO VALLEY CROSS SECTION WITH INFORMANTS



- MAIN ROAD, 2 SERVICE ROADS
- MAIN ROAD, 1 SERVICE ROAD
- MAIN ROAD, 1 SERVICE ROAD:CENTRAL
- SECONDARY ROAD, 2 SERVICE ROADS
- SECONDARY ROAD, 1 SERVICE ROAD
- SECONDARY ROAD, PARTIAL SERVICE ROAD

This section shows the irregular distribution and densities of built fabric and agricultural land as well as the typologies of land parcels associated to the area.

This section should be read with the plans that follow on page 144-145.

Fig.210 Tool-kit application area-Status Quo Section through the Valley-(Author, 2021)

ANALYSIS- LAND PARCEL EDGE TYPOLOGIES

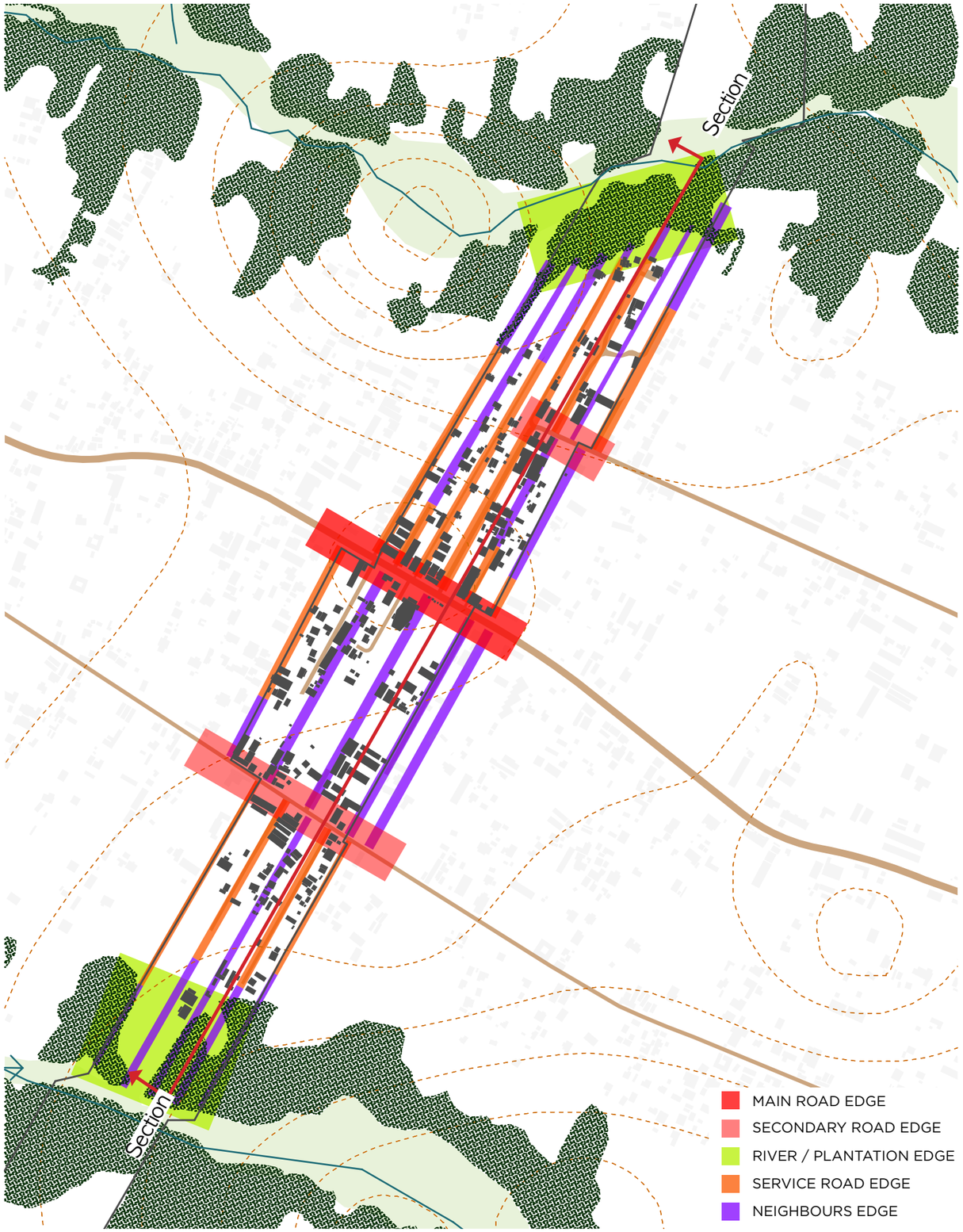


Fig.211 Tool-kit application area-Status Quo-Preperty Edge Condition Typologies(Author, 2021)

ANALYSIS- LAND PARCEL TYPOLOGIES

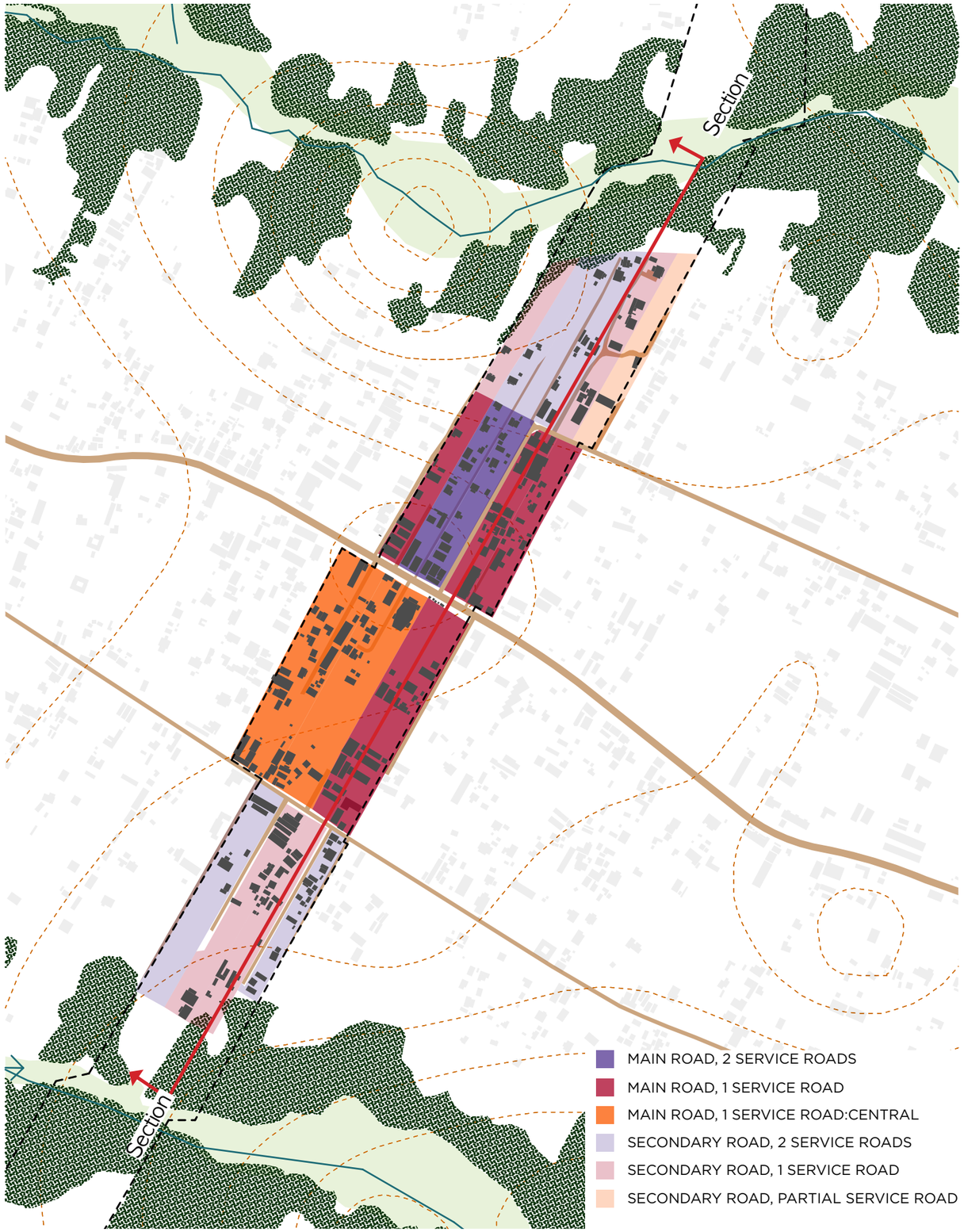


Fig.212 Tool-kit application area-Status Quo-Land Parcel Typologies(Author, 2021)

PROPOSAL-CONTROLLED AVENUES OF DEVELOPMENT, LAND PARCEL DEVELOPMENT STRATEGY AT THE LARGER SCALE

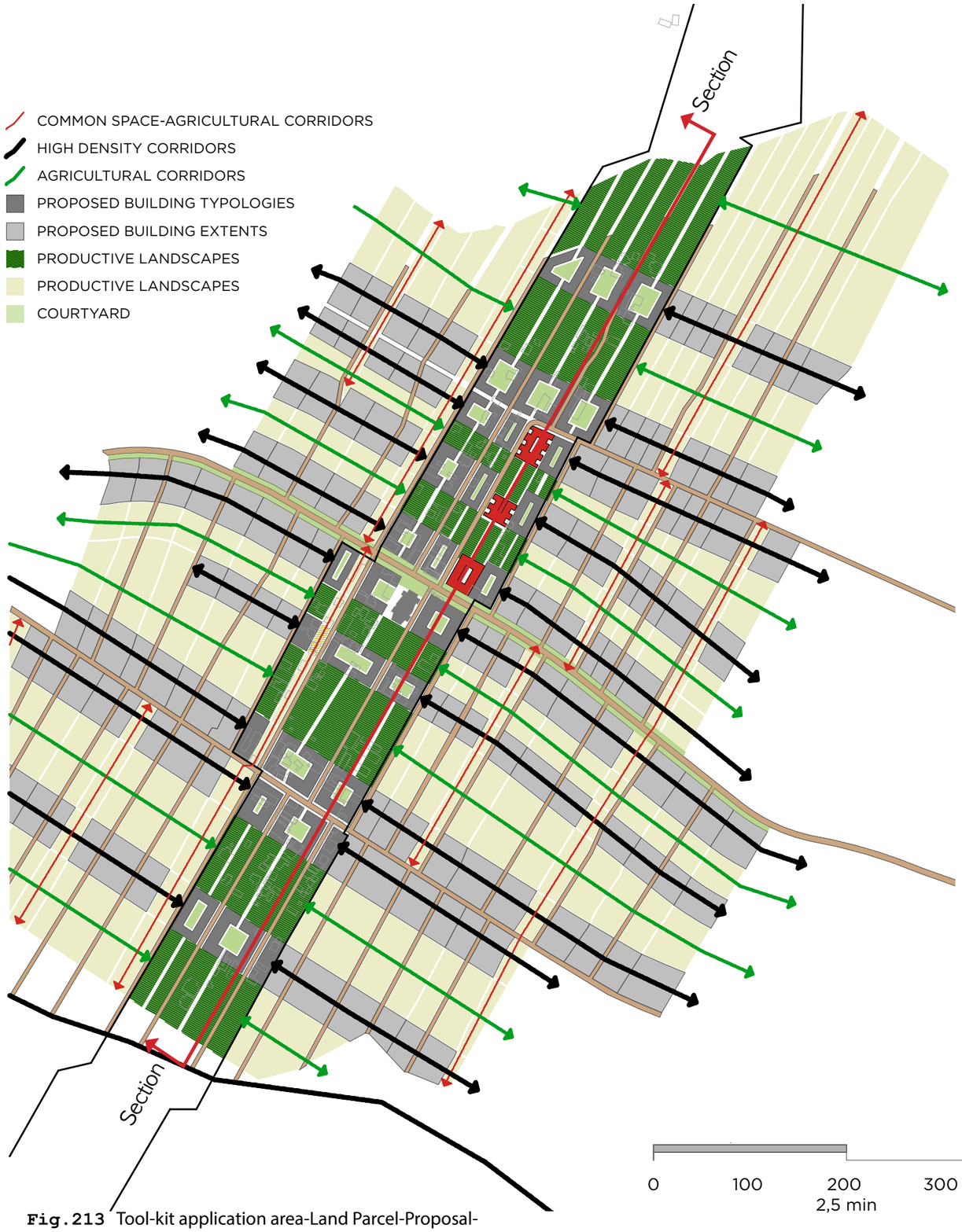
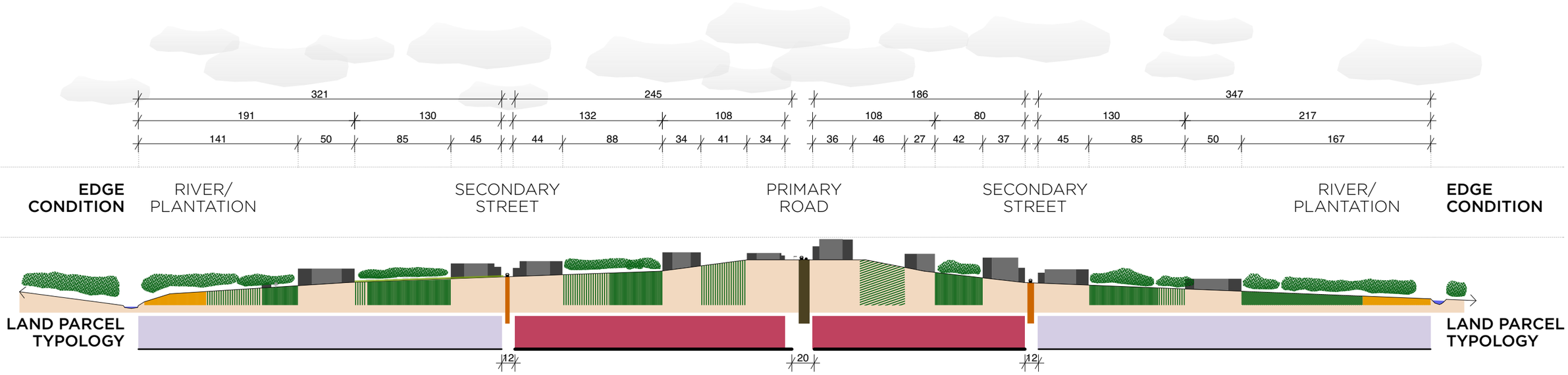


Fig.213 Tool-kit application area-Land Parcel-Proposal-(Author, 2021)

PROPOSAL-LAND USE INTENTIONS



Fig.214 Tool-kit application area-Land Use Proposal(Author, 2021)



- MAIN ROAD, 2 SERVICE ROADS
- MAIN ROAD, 1 SERVICE ROAD
- MAIN ROAD, 1 SERVICE ROAD:CENTRAL
- SECONDARY ROAD, 2 SERVICE ROADS
- SECONDARY ROAD, 1 SERVICE ROAD
- SECONDARY ROAD, PARTIAL SERVICE ROAD

This section shows a balanced proposal of built fabric and agricultural land

This section should be read with the plans on page 146-147.

Fig.215 Tool-kit application area-Proposal Section through the Valley-With consideration(Author, 2021)

LAND PARCEL FOCUS AREA

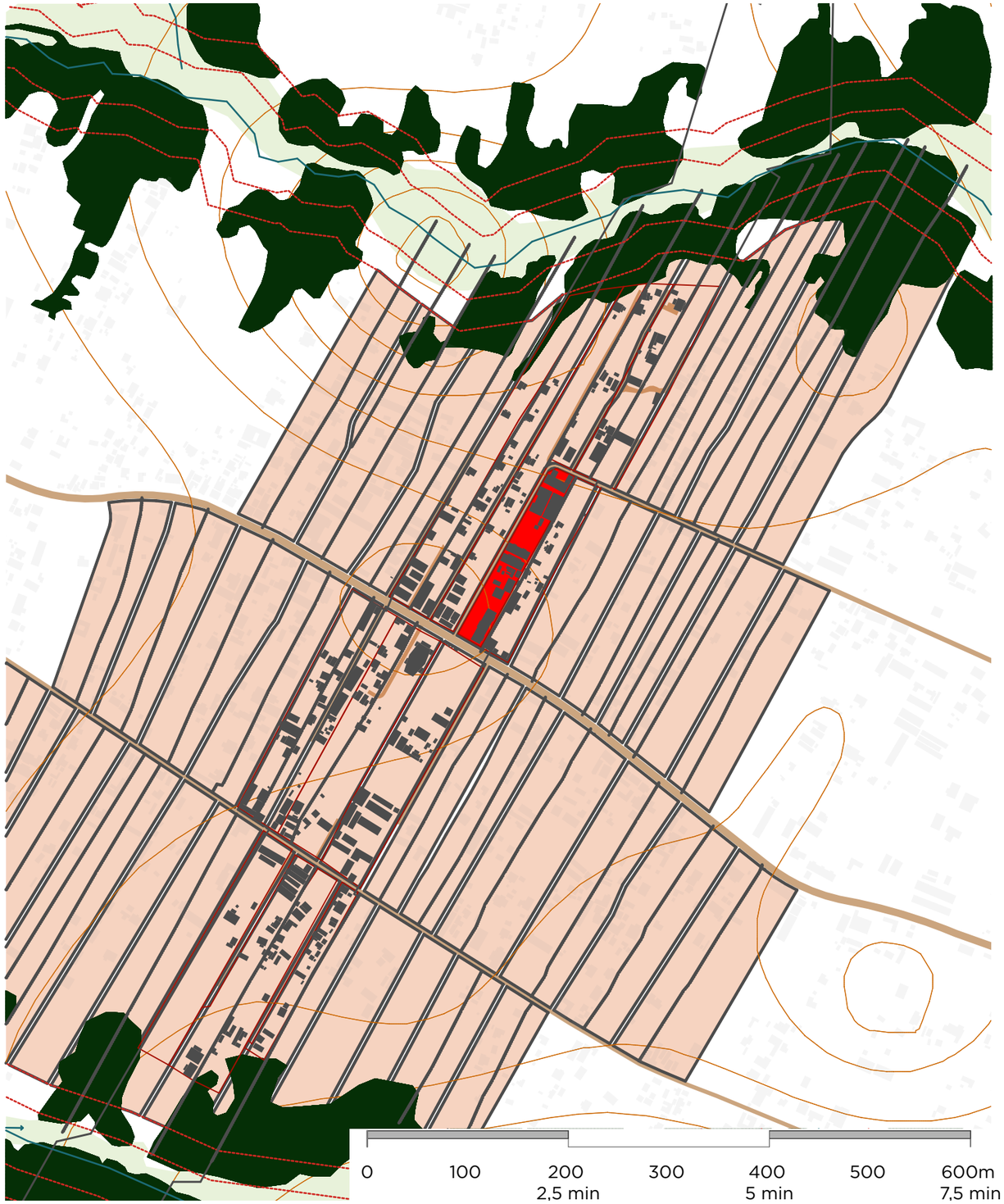


Fig.216 Land Parcel Focus Area and the possibility to repeat the proposal over the greater area(Author, 2021)

LAND PARCEL PROPOSAL

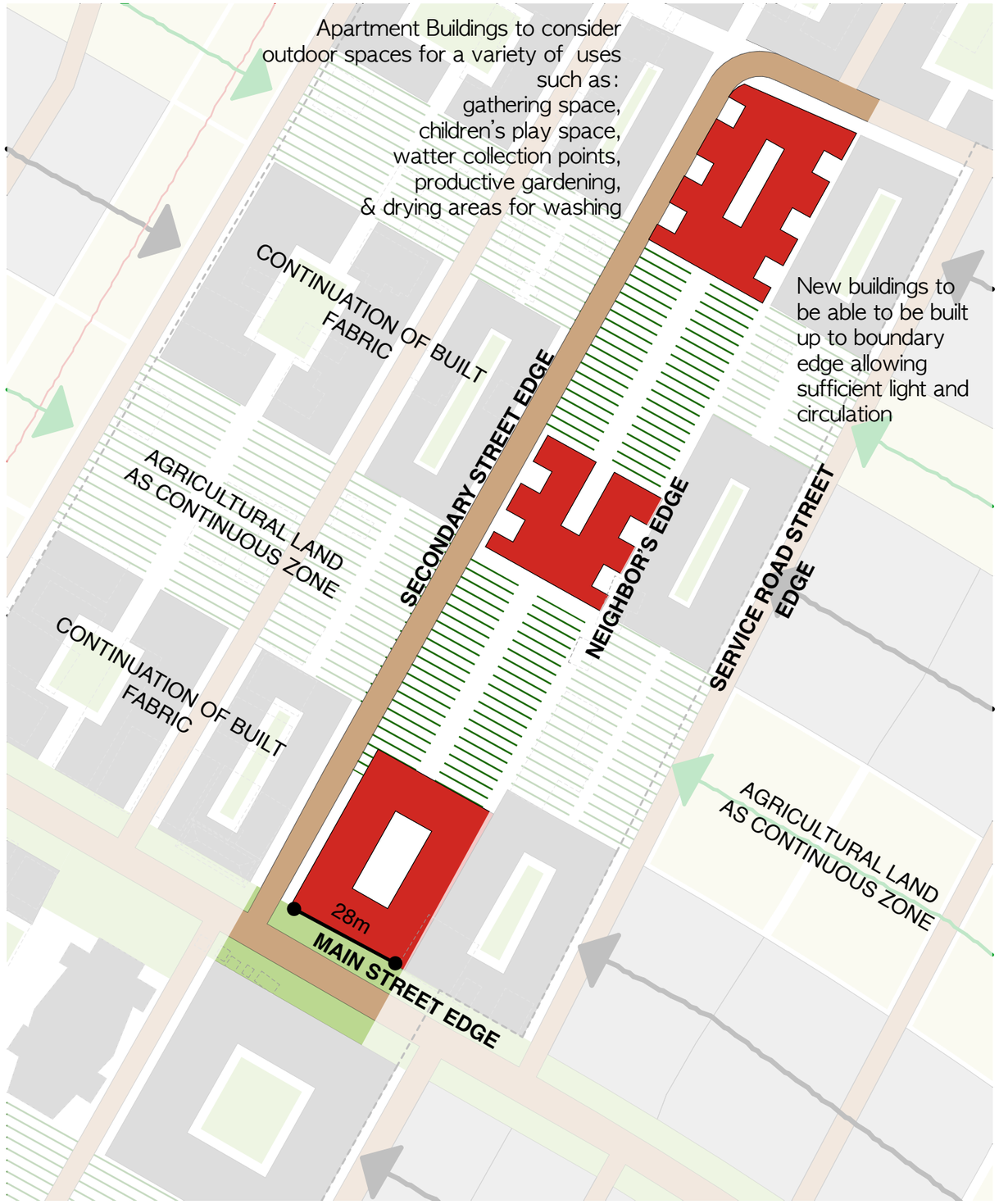


Fig.217 Land Parcel Proposal(Author, 2021)

9. THE CONSIDERATIONS TO SUPPORT THE DEVELOPMENT OF A TOOL-KIT

TOWARDS THE IMPLEMENTATION OF MORE SUSTAINABLE COMMON SPACES

The purpose of the TOOL-KIT is to enable awareness of the role players of the city. The role-players are the community and citizens themselves as land owners. Their development actions have consequences, since they are moving faster than city planners can give them the guidance and limitations required for sustainable development.

THE FIRST INTENTION

Making landowners aware of their position in a wider framework and context, paying special attention to the edges of their properties and the relationship to different surroundings.

EXAMPLES:
- Sustaining forests and natural vegetation along the river and to prevent pollution
- Protecting the edges of the river with natural vegetation rather than agricultural planting
- The long term benefit of not developing the entire land parcel with residential, commercial structures or hard surfaces
- The benefits of the type of community structures they have in comparison to more dense areas

THE SECOND INTENTION

To advocate the positive uses and considerations towards common space. To stimulate various uses and alternative opportunities for both the landowner and the wider community. To realize the potential towards environmental and economic features of public space.

POSSIBILITIES:
- Generating income, providing services, exchange opportunities
- Improve quality of life / sense of place
- Improve identity of the community
- Safe places for children
- Continuation of agriculture
- Recreational opportunities
- Improvement of overall communal health
- Increase “Eyes on the street” through active shared use structures

THE THIRD INTENTION

Providing spatial tools to improve the individual owner’s development considerations. These are familiar materials and spatial arrangements found in the context easy to implement in order to attempt a better quality of common space.

EXAMPLES:
- Using old tyres as seating opportunities where it is needed and appreciated.
- Having low boundary walls / conditions to allow a visual connection to the street.
- Providing parking space along the main road
- Negotiating with neighbours to only have one access road to the river between t neighbours.

Fig.218 Tool-Kit Principles and Intentions (Author, 2021)

A SPATIAL PROPOSAL SHOWING THE APPLICATION OF THE CONSIDERATIONS AND PRINCIPLES SHAPED THROUGH THE LESSONS LEARNED.

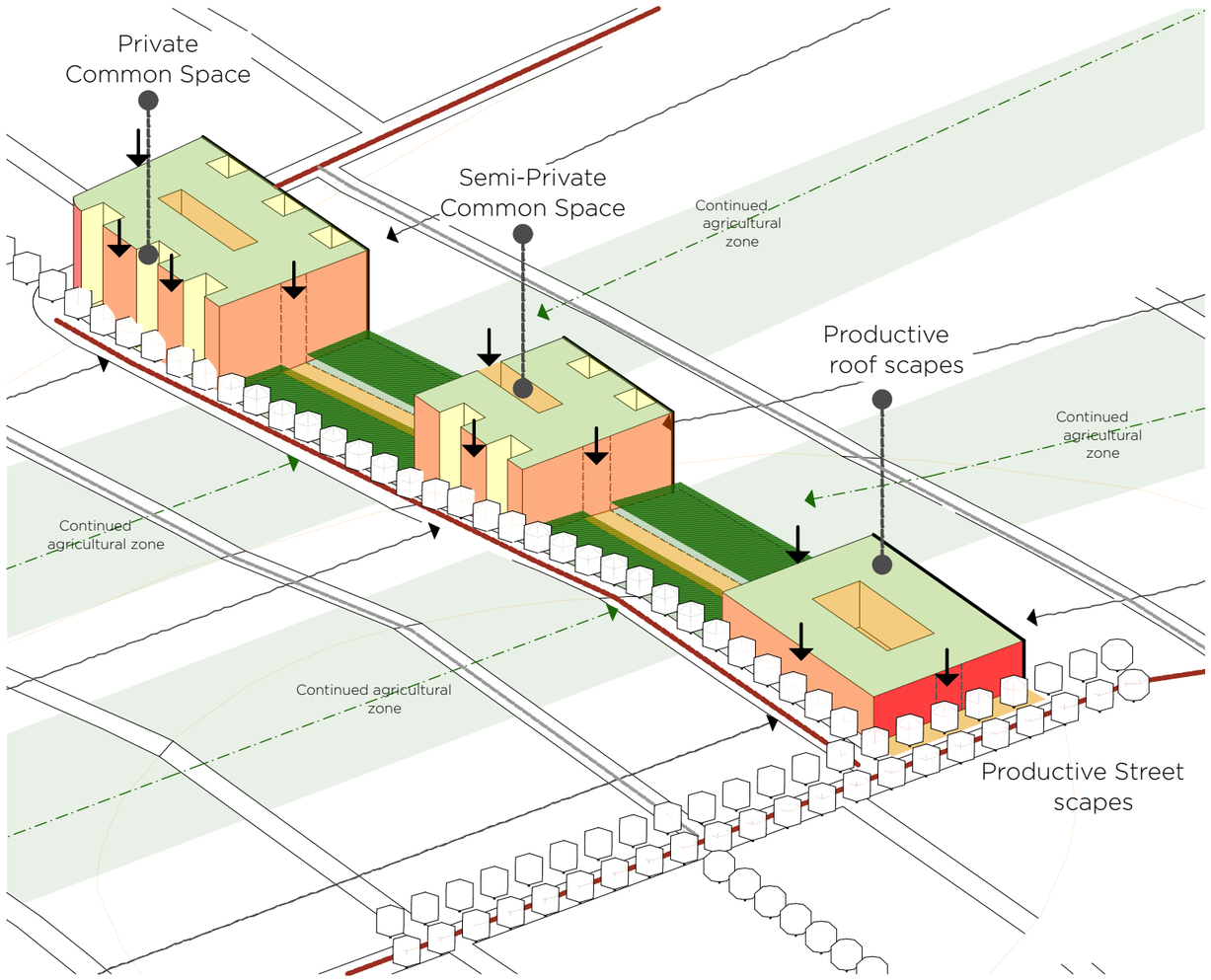


Fig.219 Tool-Kit Graphic to show the spatial intentions and possibilities of developing a land parcel (Author, 2021)

10. CONCLUSION

KEY CONSIDERATIPONS:

- To maximise trade possibilities on the main and secondary roads through mixed use high density structures
- Continuous building edges & development zones
- Continuous agricultural zones
- Continuous river edge as reserve
- Private & semi private common space provision within the land parcel developments
- Productive roof scapes
- Shared service roads between land parcels (to avoid access roads to each individual land parcel)
- Gradation of land use, public to private uses in relationship to the road type and the topography
- To promote variety in common space networks
- Seperating vehicles from pedestrians only on the main road
- To use buildings as secure edges rather than boundary walls and the continued use of low plant hedges for other boundaries
- Increase ntrances to the street edges of buildings, separate entrances to residential areas compared to commercial
- Provide internal spaces for community gatherings
- Safe spaces for children to play
- To promote the planting of new street trees as a productive cycle
- To avoid the development of the entire land parcel for residential and commercial functions
- To use hard surface materials that allow rainwater to infiltrate into the ground rather than adding to stormwater management
- To promote public arrival foyers to civic

amenities buildings

TOOL-KIT STATEMENT AS CONCLUSION

The tool-kit is intended to become an educational communication strategy towards communities with the hope that people could learn from graphic communications rather than mistakes in built form.

The 3 different intentions on page 152-153 will adapt and be unique in different settings.

Each area would have different stakeholders taking part in the development of the tool-kit. Urban designers can present the various observations made in an area and consult with other spatial & infrastructural roleplayers to include additional findings and recommendations. The summary of findings should be shared with the various stakeholders before approaching community members with the spatial recommendations they could consider.

Urban design professionals are challenged to find alternative ways to better communicate the intentions behind the underlying principles and how this could be manifested spatially.

The tool-kit could be a regular cartoon published in the local newspaper with a graphic design team to assist communicating the principles in the most appropriate way for the readers. The tool-kit approach is a way to involve a wider community to take part in the sustainable growth of urbanizing environments, with knowledge rather than limitations.

The intention is for common space structures to evolve into public spaces with alternative role-players. Where more people are involved in the shaping of common and public spaces, rather than depending on local municipalities to provide.

11. LIST OF FIGURES

Fig. 1 Conceptual frame of reference to support the study (Author, 2021) 13
Fig. 2 Common space as shaping agent (Author, 2021) 14
Fig. 3 Bentley, Ian; Alcock, Alan; Murrain, Paul; McGlynn, Sue; Smith, Graham , 1985. *Responsive Environments A manual for designers* *16*
Fig. 4 Bentley, Ian; Alcock, Alan; Murrain, Paul; McGlynn, Sue; Smith, Graham , 1985. *Responsive Environments A manual for designers* *17*
Fig. 5 Presentatios at TUK (Jeroen Stevens, 2020) 18
Fig. 6 Team 9 in Ndenderu Valley (Zeeshan Javaid Ghani, 2020) 18
Fig. 7 Team 9 in Ndenderu Valley (Author, 2020) 18
Fig. 8 Team 9 in Ndenderu Valley (Zeeshan Javaid Ghani, 2020) 18
Fig. 9 Fieldwork Teamwork / Tasks Matrix (Fieldwork Tutors: David Njenga (TUK), Jeroen Stevens (KUL), Khalda El Jack (KUL) & Solam Mkhabela (Wits), 2020) 19
Fig. 10 Matrix Results (Fieldwork Tutors: David Njenga (TUK), Jeroen Stevens (KUL), Khalda El Jack (KUL) & Solam Mkhabela (Wits), 2020) 19
Fig. 11 Team 9 at the Railway Museum (Jeroen Stevens, 2020) 19
Fig. 12 Fieldwork moments from Urban to Rural Contexts in Kenya (taken by students of KUL & Wits, 2020) 20
Fig. 13 Nairobi Base File (Drawn by students of TUK & KUL, edited by Author, 2020) 22
Fig. 14 Survey of Kenya. 1962. *Limuru, Kiambu, Ngong & Nairobi.* 1:50 000. Survey of Kenya, tiles (148/1-148/4) compiled by Author, 2021 23
Fig. 15 Staff no. 2527.1910. *Nairobi & Surrounding Country.* 1:62500. Southampton: East Africa Protectorate 24
Fig. 16 Staff no. 2527.1912. *Nairobi & Surrounding Country.* 1:62500. Southampton: East Africa Protectorate 24
Fig. 17 Survey of Kenya. 1950. *City of Nairobi.* 1:10000. Nairobi: Photo-Litho Government Printer 25
Fig. 18 Western Bypass in Construction-Ndenderu to Kikuyu (Author, 2020) 27
Fig. 19 Kware market, Ongata Rongai-second hand books and clothes for sale (Author, 2020) 27
Fig. 20 A boundary condition with a weak relationship to the street-Ndenderu (Author, 2020) 27
Fig. 22 Study Area extents, Google Earth 2020, edited by Author (2021) 28
Fig. 22 Overall study area (Google Earth 2020, edited by Author, 2020) 31
Fig. 23 Remaining Natural Heritage Sites (Google Earth 2020, edited by Author, 2020) 33
Fig. 24 Nairobi-Civic Centre Focus Area (Author, 2021) 34
Fig. 26 Ongata Rongai- Main Road Focus Area (Author, 2021) 34
Fig. 25 Nairobi-Distribution Focus Area (Author, 2021) 34
Fig. 27 Ongata Rongai- Intersection Focus Area (Author, 2021) 34
Fig. 28 Ndenderu- Intersection Focus Area (Author, 2021) 35
Fig. 30 Kiserian- Focus Area (Author, 2021) 35
Fig. 29 Ndenderu- Valley Focus Area (Author, 2021) 35
Fig. 31 Ngong- Focus Area (Author, 2021) 35
Fig. 32 Nairobi-Civic Centre Focus Area Mapping Analysis (Author, 2021) 36
Fig. 33 Nairobi-Distribution Focus Area Mapping Analysis (Author, 2021) 36
Fig. 34 Ongata Rongai- Main Road Focus Area Mapping Analysis (Author, 2021) 38
Fig. 35 Ongata Rongai- Intersection Focus Area Mapping Analysis (Author, 2021) 38
Fig. 36 Ndenderu- Intersection Focus Area Mapping Analysis (Author, 2021) 40
Fig. 37 Ndenderu- Valley Focus Area Mapping Analysis (Author, 2021) 40
Fig. 38 Kiserian- Focus Area Mapping Analysis (Author, 2021) 42
Fig. 39 Ngong- Focus Area Mapping Analysis (Author, 2021) 42
Fig. 41 Urban to Rural Focus Area Graphs (Author, 2021) 44
Fig. 40 Urban to Rural Focus Areas Comparison table (Author, 2021) 44
Fig. 42 Focus Areas ordered according to highest measure of informants (Author, 2021) 46
Fig. 43 Detail Plans of the areas studied in relationship to the larger urban environments-Urban (Nairobi) (Author, 2021) 48
Fig. 44 Detail Plans of the areas studied in relationship to the larger urban environments-Urban-Rural (Ongata Rongai) (Author, 2021) 49
Fig. 45 Detail Plans of the areas studied in relationship to the larger urban environments-Urban-Rural (Ndenderu) (Author, 2021) 50
Fig. 46 Detail Plans of the areas studied in relationship to the larger urban environments-Rural (Kiserian & Ngong) (Author, 2021) 51
Fig. 47 Public Space Performance Table (Author, 2021) 52
Fig. 48 Nairobi- Civic Centre Focus Area (Author, 2021) 54
Fig. 49 Kenya Supreme Court Parking lot as the Maasai Market on weekends (Author, 2020) 55
Fig. 51 Nairobi- Arcades as an extension of the common space structure of the City (Author, 2020) 55
Fig. 53 Nairobi- Hale Selassie Avenue traffic and pedestrian streets (Author, 2020) 55
Fig. 50 Nairobi-Cinema entrance as an extension of common space (Author, 2020) 55
Fig. 52 Nairobi- Formalised pedestrian walkways ,continuous common space network (Author, 2020) 55
Fig. 54 Nairobi-Typical Building and street relationship (Author, 2020) 55
Fig. 55 Nairobi- Civic Centre Focus Area-Analysis (Author, 2021) 56
Fig. 56 Nairobi- Civic Centre Focus Area-Analysis (Author, 2021) 57
Fig. 57 Nairobi- Uhuru Park- Analysis (Author, 2021) 58
Fig. 58 Uhuru Park from Uhuru Highway moving in a southerly direction, (Author, 2020) 60
Fig. 59 Nairobi-Uhuru Park overlooking Nairobi Civic Centre, the illusion of a continuous park continued deep into the civic centre. (Author, 2020) 60
Fig. 60 Nairobi-Aga Khan Pedestrian Walkway area and a multi-functional parking lot (Author, 2021) 62
Fig. 61 The parking lot used as training grounds for athletes (Author, 2020) 64
Fig. 62 Aga Khan pedestrian walkway with support infrastructure (Author, 2020) 64
Fig. 63 Skills and training exchanges, with spectators viewing the activities from the edges (Author, 2020) 64
Fig. 64 Common space allowing movement, lingering, comfort, entertainment and support infrastructure (Author, 2020) 64
Fig. 65 Nairobi-Distribution Focus Area (Author, 2021) 66
Fig. 66 Nairobi-Peripheral areas-typical highway intersection with goods trading and social exchange (Author, 2020) 67
Fig. 67 Nairobi-Slums along the Nairobi river towards the Southern Bypass-common space concerns (Author, 2020) 67
Fig. 68 Nairobi-Livestock presence along the peripheral areas (Author, 2020) 67
Fig. 69 Nairobi-Typical Apartment Densification typologies along the peripheral areas (Author, 2020) 67
Fig. 70 Nairobi-Distribution Focus Area-Analysis (Author, 2021) 68
Fig. 71 Nairobi-Distribution Focus Area-Analysis (Author, 2021) 69
Fig. 72 Nairobi-Distribution area, Kariokor Market Analysis (Author, 2021) 70
Fig. 73 Nairobi- Kariokor Market (Benjamin Baggott, 2020) 72
Fig. 74 Nairobi- Typical Street / sidewalk environment in the distribution area-trade and transport orientated (Benjamin Baggott, 2020) 72
Fig. 75 Google, "Streetview," digital images, Google Maps (http://maps.google.com), photograph of Ring Road Ngara, Nairobi, Nairobi County, taken Dec 2017. 72
Fig. 76 Google, "Streetview," digital images, Google Maps (http://maps.google.com), photograph of Ring Road Ngara, Nairobi, Nairobi County, taken Dec 2017. 72
Fig. 77 Google, "Streetview," digital images, Google Maps (http://maps.google.com), photograph of Ring Road Ngara, Nairobi, Nairobi County, taken Dec 2017. 72
Fig. 78 Ongata Rongai- Main Road Focus Area (Author, 2021) 74
Fig. 79 Ongata Rongai- Building typologies (Author, 2020) 75
Fig. 81 Ongata Rongai- Emerging building typologies (Author, 2020) 75
Fig. 83 Ongata Rongai- Typical street and buildings relationship (Author, 2020) 75
Fig. 80 Ongata Rongai- Building typologies (Author, 2020) 75
Fig. 82 Ongata Rongai- Emerging building typologies (Sylvia Juliana Parra Pabon, 2020) 75
Fig. 84 Ongata Rongai- Public transport expressions (Sylvia Juliana Parra Pabon, 2020) 75
Fig. 85 Ongata Rongai- Intersection Focus Area (Author, 2021) 76
Fig. 86 Typical street and buildings relationship (Luis Alberto V. Carcamo, 2020) 77
Fig. 88 Courtyard Building Typologies (Author, 2020) 77
Fig. 90 Typical water distribution from boreholes to residences (Luis Alberto V. Carcamo, 2020) 77
Fig. 87 Industrial functions associated to the sidewalk (Author, 2020) 77
Fig. 89 Work Environments fabrication activiteis on the sidewalk (Luis Alberto V. Carcamo, 2020) 77
Fig. 91 Exposed Stormwater channels appropriated by citizens (Luis Alberto V. Carcamo, 2020) 77
Fig. 92 Ongata Rongai- Main Road Focus Area- Analysis (Author, 2021) 78
Fig. 93 Ongata Rongai- Intersection Focus Area- Analysis (Author, 2021) 78
Fig. 94 Ongata Rongai- Main Road Focus Area- Analysis (Author, 2021) 80
Fig. 95 Ongata Rongai- Intersection Focus Area- Analysis (Author, 2021) 80
Fig. 96 Ongata Rongai- Kware Market- Analysis (Author, 2021) 83
Fig. 97 Ongata Rongai- Kware Market street relationship & sidewalk (Luis Alberto V. Carcamo, 2020) 84
Fig. 98 Ongata Rongai- Kware Market & main street conditions (Author, 2020) 84
Fig. 99 Ongata Rongai- Kware Market continues in a side street (Zeeshan Javaid Ghani, 2020) 84
Fig. 100 Livestock in the shade of the busses (Zeeshan Javaid Ghani, 2020) 85
Fig. 101 Ongata Rongai- Kware Market street relationship & sidewalk (Luis Alberto V. Carcamo, 2020) 85
Fig. 102 Ongata Rongai- Kware Market street relationship & sidewalk (Luis Alberto V. Carcamo, 2020) 85
Fig. 103 Ongata Rongai- Open Air Market- Analysis (Author, 2021) 87
Fig. 104 Open Air Market-Celebrated entrance (Luis Alberto V. Carcamo, 2020) 88
Fig. 106 Open Air Market- Infrastructure-Roof structure & Hard surfaces (Luis Alberto V. Carcamo, 2020) 88
Fig. 107 Open Air Market- Main route (Zeeshan Javaid Ghani, 2020) 88
Fig. 105 Open Air Market-Civic Amenities (Author, 2020) 88
Fig. 109 Open Air Market- Shops facing the surrounding streets (Zeeshan Javaid Ghani, 2020) 89
Fig. 108 Open Air Market- Outer edge conditions (Zeeshan Javaid Ghani, 2020) 89
Fig. 110 Ndenderu- Intersection Focus Area (Author, 2021) 90
Fig. 111 High rise apartments as emerging building typologies within agricultural land (Author, 2020) 91
Fig. 113 Church among agricultural land-no fences (Author, 2020) 91
Fig. 115 Ndenderu Valley borehole water tank collection point-common space (Benjamin Baggott, 2020) 91
Fig. 112 High rise apartments as emerging building typologies-boundary walls (Author, 2020) 91
Fig. 114 Emerging building typologies & access roads-no fences (Author, 2020) 91
Fig. 116 Bridge crossing to improve travel distances to town-common space (Zeeshan Javaid Ghani, 2020) 91
Fig. 117 Ndenderu- Valley Focus Area-Analysis (Author, 2021) 92
Fig. 118 Emerging Apartment Building typologies with boundary walls (Author, 2020) 93
Fig. 120 Agriculture and housing typologies with hedges for boundaries (Author, 2020) 93
Fig. 122 Subsistance farming typical to the Ndenderu Valley (Loverina Cruz, 2020) 93
Fig. 119 Emerging Apartment Building typologies with boundary walls (Author, 2020) 93
Fig. 121 Communal borehole and water collection point (Loverina Cruz, 2020) 93
Fig. 123 A secondary street with low vehicular traffic (Sylvia Juliana Parra Pabon, 2020) 93
Fig. 124 Ndenderu- Intersection Focus Area (Author, 2021) 94
Fig. 125 Ndenderu- Valley Focus Area-Analysis (Author, 2021) 94
Fig. 126 Ndenderu- Intersection Focus Area (Author, 2021) 96
Fig. 127 Ndenderu- Valley Focus Area-Analysis (Author, 2021) 96
Fig. 128 Ndenderu- Valley -Open Air Market-Analysis (Author, 2021) 99
Fig. 129 Ndenderu- Intersection -Public Transport Node-Analysis (Author, 2021) 101
Fig. 130 Vending Stalls in the road reserve area associated to the intersection and public transport node (Zeeshan Javaid Ghani, 2020) 102
Fig. 131 A service road as gathering and social space-common space (Author, 2020) 102
Fig. 133 Community gathering space on route to the intersection (Author, 2020) 102
Fig. 134 Emerging Building Typologies-Mixed Use (Author, 2020) 102
Fig. 132 Transport options a the intersection: Taxis, motorcycles and Tuc-tucs (Zeeshan Javaid Ghani, 2020) 102
Fig. 135 Ndenderu- Valley -Sites Visited-Analysis (Author, 2021) 105
Fig. 136 A gathering and shared space for different households living on the same property (Zeeshan Javaid Ghani, 2020) 106
Fig. 137 A shared water collection point-common space (Zeeshan Javaid Ghani, 2020) 106
Fig. 138 Low hedges as erf boundary demarcation (Author, 2020) 106
Fig. 139 Agricultural land & vending structures facing the street (Author, 2020) 106
Fig. 140 Typical Densification Typologies (Zeeshan Javaid Ghani, 2020) 106
Fig. 141 Secured gathering/arrival space to a church (Zeeshan Javaid Ghani, 2020) 107
Fig. 142 Typical boundary conditions associated to emerging high density apartment developments (Zeeshan Javaid Ghani, 2020) 107
Fig. 143 Typical emerging high density apartment developments (Zeeshan Javaid Ghani, 2020) 107
Fig. 144 Ngong- Focus Area-Analysis (Author, 2021) 108
Fig. 145 Ngong hill-Livestock grazing in pastoral land to and from market spaces (Author, 2020) 109
Fig. 146 Kiserian-A typical street condition towards the Livestock market (Author, 2020) 109
Fig. 147 Kiserian- Motorcycles to transport meat from the slaughterhouse to surrounding butcheries (Author, 2020) 109
Fig. 148 Fieldwork moments (_) 109
Fig. 149 Kiserian-A typical street condition towards the Livestock market (Author, 2020) 109
Fig. 150 Kiserian-A man with a sheep bought at teh Livestock market (Author, 2020) 109
Fig. 151 Kiserian- Focus Area-Analysis (Author, 2021) 110
Fig. 152 A view from Ngong hill towards Nairobi (Author, 2020) 111
Fig. 153 Ngong-Main street and emerging building typologies (Author, 2020) 111
Fig. 154 Ngong-A woman with self made goods to sell heading towards the market (Author, 2020) 111
Fig. 155 Ngong hill waterhole, a resource for livestock shared by the community- (Author, 2020) 111
Fig. 156 Kiserian-Typical sidewalk conditions (Author, 2020) 111
Fig. 157 Kiserian- Focus Area-Analysis (Author, 2021) 112
Fig. 158 Ngong- Focus Area-Analysis (Author, 2021) 112
Fig. 159 Kiserian- Focus Area-Analysis (Author, 2021) 114
Fig. 160 Ngong- Focus Area-Analysis (Author, 2021) 114
Fig. 161 Kiserian-Goods Market-Analysis (Author, 2021) 117
Fig. 162 Kiserian-Goods Market-pedestrian access only areas (Author, 2020) 118
Fig. 163 Kiserian-Goods Market-Interior-with clothing and active production (Author, 2020) 118
Fig. 164 Kiserian-Goods Market-Exterior-fresh goods area (Author, 2020) 118
Fig. 165 Kiserian-Goods Market-Exterior-second hand clothes vendors (Author, 2020) 118
Fig. 166 Kiserian-Goods Market-Exterior-fresh goods (Author, 2020) 118
Fig. 167 Kiserian-Goods Market-Exterior-pedestrian street (Author, 2020) 118
Fig. 168 Kiserian-Goods Market-Interior-second hand clothing (Author, 2020) 119
Fig. 169 Kiserian-Livestock Market-Analysis (Author, 2021) 120
Fig. 170 Kiserian- The view from the first floor of a retail building facing the Livestock market below and the Ngong hills in the distance (Author, 2020) 122
Fig. 171 Goats and sheep market space separated from cattle (Author, 2020) 122
Fig. 172 Vendors selling goods for Maasai shepards (Author, 2020) 122
Fig. 173 Kiserian-Exposed Stormwater channels (Author, 2020) 122
Fig. 174 Kiserian-Emerging building typologies-shipping containers (Author, 2020) 122
Fig. 175 Kiserian-Social exchange (Author, 2020) 123
Fig. 176 Kiserian-Custom made clothing (Author, 2020) 123
Fig. 177 Kiserian-Productive sidewalk (Author, 2020) 123
Fig. 178 Ngong-Open Air Market-Analysis (Author, 2021) 125
Fig. 179 Open Air Market-Interior (Author, 2020) 126
Fig. 180 Open Air Market- view towards the entrance (Author, 2020) 126
Fig. 182 Open Air Market-towards the main road leaving the market (Author, 2020) 126
Fig. 181 Open Air Market-Woman socialising and making beaded products (Author, 2020) 126
Fig. 183 Open Air Market-towards the main road leaving the market (Author, 2020) 127
Fig. 184 Open Air Market-In construction 2019/02 (Google Earth, 2021) 127
Fig. 185 Open Air Market-expansion over 2 years (Google Earth, 2021) 127
Fig. 186 Precedent Study Mapping-Mexico City: La Merced (Author, 2021) 130
Fig. 187 Google Maps Photo, Liz Garcia Chavez, 2020 131
Fig. 188 Google Maps Photo, Michael Scott Novilla, 2021 131
Fig. 189 Google Maps Street View, Merced Ruta, Circunvalaci□n St, Screenshot, 2021 131
Fig. 190 Precedents-Comparative measurements Table (Author, 2021) 131
Fig. 191 Precedent Study Mapping-Morelia: San Agustin Square (Author, 2021) 132

Fig.192 Google Maps Photo, Alexis Giovanni □lvarez, 2020 133
Fig.193 Google Maps Photo, Jesus O, 2020 133
Fig.194 Google Maps Photo, Lic. Roberto Saavedra,2017 133
Fig.195 Precedents-Comparative measurements Table (Author, 2021) 133
Fig.196 Precedent Study Mapping-Xochimilco: Civic Centre & Agricultural Periphery (Author, 2021) 134
Fig.197 Google Maps Photo, Alexis Giovanni □lvarez, 2020 135
Fig.199 Google Maps Photo, Lic. Roberto Saavedra,2017 135
Fig.200 Precedents-Comparative measurements Table (Author, 2021) 135
Fig.198 Google Maps Photo, Jesus O, 2020 135
Fig.201 Precedent Study Mapping-Mixquic: Civic Centre & Agricultural Periphery (Author, 2021) 136
Fig.202 Google Maps Photo, Liz Garcia Chavez, 2020 137
Fig.203 Google Maps Photo, Michael Scott Novilla, 2021 137
Fig.204 Google Maps Street View, Merced Ruta, Circunvalaci□n St, Screenshot, 2021 137
Fig.205 Precedents-Comparative measurements Table (Author, 2021) 137
Fig.206 Ndenderu Focus Area AerialGoogle Earth 2020, edited by Author (2021) 138
Fig.207 Tool-kit application area-Informants(Author, 2021) 139
Fig.208 Tool-kit application area-Status Quo Informants-(Author, 2021) 140
Fig.209 Tool-kit application area-Spatial Considerations(Author, 2021) 141
Fig.210 Tool-kit application area-Status Quo Section through the Valey-(Author, 2021) 142
Fig.211 Tool-kit application area-Status Quo-Preperty Edge Condition Typologies(Author, 2021) 144
Fig.212 Tool-kit application area-Status Quo-Land Parcel Typologies(Author, 2021) 145
Fig.213 Tool-kit application area-Land Parcel-Proposal-(Author, 2021) 146
Fig.214 Tool-kit application area-Land Use Proposal(Author, 2021) 147
Fig.215 Tool-kit application area-Proposal Section through the Valey-With consideration(Author, 2021) 148
Fig.216 Land Parcel Focus Area and the possibility to repeat the proposal over the greater area(Author, 2021) 150
Fig.217 Land Parcel Proposal(Author, 2021) 151
Fig.218 Tool-Kit Principles and Intentions (Author, 2021) 152
Fig.219 Tool-Kit Graphic to show the spatial intentions and possibilities of developing a land parcel (Author, 2021) 154

12. REFERENCES

Abuya, D., Oyugi, M. & Oyaro, E., 2019. Management of the Effects of Land Use Changes on Urban InfrastructureCapacity: A Case Study of Ruaka Town, Kiambu County, Kenya. American Journal of Geographic Information System, 10(DOI: 10.5923/j.ajgis.20190804.02), pp. 158-190.

Aggrey, D. & Maina, T., 2010. Community and social responses to land use transformations in the Nairobi rural-urban fringe, Kenya. Field Actions Science Reports, Issue Special Issue 1, pp. 1-10.

Avermaete, T., Schmidt-Colinet, L. & Herold, D. eds., 2018. Living Lab: Constructing The Commons. Vienna: IKA Academy of Fine Arts Vienna.

Bentley, I. et al., 1985. Responsive Environments A manual for designers. Oxford: Architectural Press Elsevier.

Campbell, E. H., 2006. Economic Globalization from Below: Transnational Refugee Trade Networks in Nairobi. 〔Online〕 Available at: https://link.springer.com/chapter/10.1057/9780230603349_6 〔Accessed 12 05 2020〕.

Carmona, M., Tiesdell , S., Heath, T. & Oc, T., 2010. Public Places Urban Spaces. Second Edition ed. London: Elsevier.

Chipperfield, D., 2020. Domus Guest Editor. 〔Online〕 Available at: https://www.domusweb.it/en/speciali/guest-editor/david-chipperfield/2020/06/03/domus-1047-david-chipperfield-looking-for-community.html 〔Accessed 04 June 2020〕.

Fratkin, E., 2001. African Studies Review: East African Pastoralism in Transition: Maasai, Boran and Rendille Cases. 〔Online〕 Available at: https://www.jstor.org/stable/525591?origin=JSTOR-pdf 〔Accessed 22 10 2021〕.

Garau, P., n.d. Public Space UCLG Think Piece. s.l.:s.n.

Hardin, G., 1968. The Tragedy of the Commons, The Population Problem has no Technical Solution; it requires a fundamental extension in morality. Science, 162(3859), pp. 1243-1248.

Harteveld, D. I. M., Aikaterini, M., Aranda Iglesias, C. & Evangelia, G., 2018. African Public Spaces?. 〔Online〕 Available at: https://humanspace.weblog.tudelft.nl/african-public-spaces/ pp. 8-11. 〔Accessed 04 June 2020〕.

Juma, M., 2019. African Architecture Matters, Department of Urban and Rural Planning, Zanzibar. 〔Online〕 Available at: https://www.asclibrary.nl/docs/9939361562802711.pdf 〔Accessed 23 10 2021〕.

Kingoriah, G. K., 1983. The causes of Nairobi's city structure. Ekistics, Volume July / August, pp. 246-254.

Kitur, R. C., 2019. Barriers to implement urban plans in Kenya, Walden: Walden Dissertations and Doctoral Studies Collection.

Makworo, M. & Mireri, C., 2011. Public open spaces in Nairobi, Kenya, under threat. Journal of Environmental Planning & Management, 54(8), pp. 1107-1123.

Martin, L. & March, L., 1972. The Grid as Generator. In: Urban Space and Structures. s.l.:s.n., pp. 6-27.

Morgan, W., 1968. Urbanisation in Kenya: Origins and Trends, Durham: The Royal Geographical Society(with the Institute of British Geographers). Available at: https://www.jstor.org/stable/621415?seq=1&cid=pdf-reference#references_tab_contents. 〔Accessed 09 December 2019〕

Project for Public Spaces, 2018. Placemaking. What if we build our cities around places?. s.l.:s.n.

Garau, P., n.d. Public Space UCLG Think Piece. s.l.:s.n.

Satge, R. d. & Watson, V., 2018. Conflicting Rationalities in Contested Urban space. In: Urban Planning in the Global South. Cape Town: Palgrave Maclillan, pp. 1-26.

Smart, J., 1950. A Jubilee History of Nairobi, Nairobi: Nairobi Jubilee.

Smith, C., 2017. 'Our Changes'? Visions of the Future in Nairobi. Urban Planning, 2(1), pp. 31-40.

Tayob, H., 2019. Infrastructure-by-migrants:the porous infrastructures of Belville. Anthropology Southern Africa, 09 May, Issue 2332-3256(print)2332-3264(online), pp. 46-58.

The World Bank, 2016. Republic of Kenya. Kenya Urbanization Review, Washington: s.n.
Project for Public Spaces, 2018. Placemaking. What if we build our cities around places?. s.l.:s.n.

Thuo, A. D. M., 2010. Community and social responses to land use transformations in the Nairobi rural-urban fringe, Kenya.〔Online〕
Available at: https://journals.openedition.org/factsreports/435
〔Accessed 19 April 2019〕.

UN Habitat, 2016. Global Public Space Toolkit, From Global Principles to Local Policies and Practice, Nairobi: s.n.
The World Bank, 2016. Republic of Kenya. Kenya Urbanization Review, Washington: s.n.

United Nations, 2013. Charter of Public Space, Rome: Biennale Space Pubblica .

Wilson, D. S., 2016. Evonomics: The Next Evolution of Economics.〔Online〕
Available at: https://evonomics.com/tragedy-of-the-commons-elinor-ostrom/
〔Accessed 13 March 2020〕.