

**RIVER SIDE NEIGHBORHOOD DEVELOPMENT: THE CASE OF AWASH
MELKASA TOWN, OROMIA**

By

ABDULMENAN ABDUSELAM SANI



A Thesis Submitted to

The Department of Architecture

School of civil engineering and architecture

Presented in Partial Fulfillment of the Requirement for the Degree of Master's in urban
Planning and Design

Office of Graduate Studies

Adama Science and Technology University

Adama/Ethiopia

July, 2020

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Approval of Board of Examiners

We, the undersigned, members of the Board of Examiners of the final open defense by **Abdulmenan Abdusalam Sani** have read and evaluated his thesis entitled “**River Side Neighborhood Development: The Case Of Awash Melkasa Town, Oromia**” and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirement of the Degree of Master’s in urban planning and Design.

_____ Supervisor /Advisor	_____ Signature	_____ Date
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Declaration

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

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This MSc Thesis has been submitted for examination with my approval as thesis advisor Supervisor.

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Date of submission...

Supervisor's/Advisor's approval sheet

To: Architecture Department

Subject: Thesis Submission

This is to certify that the thesis entitled “**River Side Neighborhood Development: The Case Of Awash Melkasa Town, Oromia**” submitted in partial fulfillment of the requirements for the degree of **Masters of Science in Urban Planning and Design**, the Graduate program of the department of Architecture, Urban Planning and Design and has been carried out by **Abdulmenan Abdusalam Sani Id. No PGE/18889/11**, under my supervision. Therefore, I recommend that the student has fulfilled the requirements and hence hereby he can submit the thesis to the department.

Name of major Advisor/supervisor

Signature

Date

ACKNOWLEDGEMENTS

First and for most, my deepest gratitude goes to Allah Almighty for giving me the strength to go through this chapter of my life. I would like to express my sincere appreciation to my advisor, Yared Girma (Ph.D.), for his input, helpful thoughts and advises with commitment throughout all the study and thesis preparation period.

Many People and organizations have contributed to the preparation of this research work, particularly Awash Melkasa town administration office for helping me get secondary data resources and necessary security personal while conducting field survey. I have benefited greatly from the discussions I held with them all. I am indebted to them for their time, energy and consistent support. I would like to thank Mr. Ahmed Jamal, Mr. Anwar Shellema and my mother Miss. Nezem Minuta for their extended concern and full support in the various aspects of my educational engagements.

From The Bottom of My Heart.....Thank You All.

Abdulmenan Abduselam Sani

Adama, Ethiopia

July, 2020

Abstract

The town of Awash Melkasa is allocated along Awash River specifically on the artificial lake of Awash Hydroelectric II dam at 15km of distance from Adama and on primary arterial asphalt road to Asella. Though the location of the town is suitable for investment and creating comfortable living neighborhood, the opportunity is not being harnessed yet. The objective of the study is to assess the existing riverside development conditions and explore a design solution that overcomes the current challenges. The research used both descriptive and explanatory methods and data was collected from primary and secondary sources using census surveying method from residents in selected neighborhood of the riverside, local tourists, and different officials of the town through purposive sampling techniques. The study area survey and spatial observation analysis of the riverside neighborhood clearly shows that the town of Awash Melkasa is at a lower level of basic infrastructure provisions, job opportunity, miss management of local administration with respect to land use practice management along the river side and undeveloped public spaces. The study findings obtained that a revitalization in land use and riverside neighborhood development design intervention is necessary so as to facilitate the development of the study area and overcome the current challenges that the neighborhood and the river edge area is facing. According to the proposed solution, a new development riverside neighborhood is necessary; the local government should develop rules and regulations to properly implement the riverside development plan. Beside genuine public participation is mainly recommended at different level to keep the buffer zone challenges. More over the job opportunities can be created through upgrading riverside activities for the jobless part of the community.

Key Words: *Riverside, Census Survey, Land use, Revitalization.*

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Abbreviations

AAEPA _ Addis Ababa Environment Protection Authority

EPA_ Environment Protection Authority

ORAAMP_ Office of the Revision of Addis Ababa Master Plan

SEARCH_ South and Eastern Africa Research Cooperation for Habitats Local term

MoUDHC_ Ministry of Urban Development, Housing and Construction

LPO---the lake protection ordinance

CHAPTER ONE

1. Introduction

Properly planned and developed riverside neighborhood contributes positively to the quality of urban life and the city economy. Despite the fact that the vital roles of riverside receive high attention worldwide, they are still not receiving full attention in sub-Saharan Africa in general and in Awash Melkasa town of Ethiopia in particular, and are consequently under threat from urban development and human activities.

The problems are clearly visible in almost all cities starting from the capital city Addis Ababa and other surrounding cities to remote area cities. Based on the above problems the research has motivated to undertake thesis on revitalization of riverside city along Awash River in Awash Melkasa town. Our cities need to get intervention treatment to cure their problems by proposing urban planning and design solutions for each of the cities depending on their requirement, in terms of social, economic and environmental sustainability. Although Ethiopia is considered as mother of rivers, there is a huge research gap on this topic; so, my research will play its role to fill this gap. These interventions also need to be timely, as time goes, cities continue to grow in a wrong direction without development, which is most of our cities case, and leads to a high cost of compensation and relocation of social forms.

To this effect, this chapter deals with the background of the study, statement of the problem, objectives of the study, research questions, scope of the study, the significance of the study, limitation of the study and description of the study area.

1.1. Background of the study

Ancient human settlements and civilizations like Egyptian and Mesopotamia civilization were structured along water bodies. These water bodies had provided their population an easy access for transportation and allow food security for its inhabitants as a whole. As time goes by the importance of these natural flow of water has been declined in major urban areas. Water is one of the most important natural resource which is essential for the survival and health of most of living organism. Its extended use for drinking, agriculture, transport, industrial input, electrical power generation and recreational facility shows to what extent water is an integral part of human life in every single day to day life. (Munir, 2012)

Meanwhile, urban water issues in developing countries are complex and increasingly urgent. According to the United Nations report (2009), one billion people live in slums, largely in Asia (550 million), Africa (187 million), and Latin America and the Caribbean (128 million). The highest slum concentration in the world is situated in Africa with 72% of its urban residents (UN-HABITAT, 2009). One of the biggest series challenges for inhabitants in slums is getting clean and healthy water sources to drink and clean surrounding area to live in.

Most of developed countries have harnessed the presence of their cities along water bodies in terms of functional benefit in which serving the water body as transportation, societal benefit in which using the space as public and open spaces, Ecological benefit in which the water is used as ecological stabilizer and visibility so as to give their cities around water bodies a pleasant and unique visual identity.

But, it is quite different situation in developing and undeveloped countries experience with respect to harnessing water bodies in the cities for common good of the society in social, economic and environmental aspects. These water bodies are considered as source of malaria and other water pollution diseases. The culture of using rivers and lakes for neighborhood development visual identity, public space and other water bodies side related activities is not developed due miss management and experience related issues.

Ethiopian urban development is principally driven by local economic activities (except in Addis Ababa and Oromia surrounding area where foreign direct investment also plays an important role). Recent and continued increases in urban employment generation and accumulation of finance and increased demand for land and housing create pressure for urban

services, including enormous need and quick delivery of land and infrastructure. Such demands require proper urban planning, which their absence could lead to inefficient management of limited resources; proliferation of informal settlements etc. and local authorities need to keep pace with city growth and extension of urban services (NUDP, 2015). The same is true for the riverside towns or neighborhood development; it requires a proper attention to include the water bodies in the planning process as an urban element, not as a separate entity as it is has been being practiced in Ethiopian cities like Addis Ababa.

Like in many developing cities, a rapid population growth and high rural-urban migration poses many environmental problems to the city of Awash Melkasa, especially in the old settlement areas around Awash II hydroelectric power plant area. Also it is clearly observed that there is a land grabbing activities in the city peripheries due to loss of clear land use policy design and implementation, actually this kind of problem is not observed only in Awash Melkasa city but also in the capital city of the country like Addis Ababa and other many major cities like Adama as instance.

These slow transformations of informality along riverside areas have highly contributed to the pollution of the river water. Moreover, Awash Melkasa city river side residential neighborhoods are characterized by overcrowding, inadequate services, scarcity of water supply, and lack of toilets and are susceptible to flooding and natural as well as manmade hazards.

1.2. Problem Statement

The number of population in developing countries is increasing because of high demand of job and low supply of job opportunities. Rural populations are internally migrating from rural areas to urban cities. Due to the proximity in geographical location of Awash Melkasa town to major economically active cities in Ethiopia like Adama and Addis Ababa large number of population is migrating to this town every year.

The increased number of urban population in the urban centers causes a burden on the natural resources and creates a conflict of interest among different group due to the scarce natural resource. The increased burden threatens the quality of the air and water, thereby negatively impacting the natural and living environment (UN-HABITAT, cited in McInnes, 2010).

Most urban planning activities in Ethiopia do not constitute water bodies adjacent or even in the middle of the cities, as part of planning element. Towns containing a water bodies are not utilizing the potential of being adjacent to such natural resources to take their development a step forward. As a result, Rivers and the river-edges are highly polluted and degraded parts of the most of Ethiopian cities including my focus town Awash Melkasa. Currently, a river edge of Awash Melkasa has become destination point for most of the garbage and sewers from household and factories. Their catastrophic result is much higher and dangerous because river water contamination diseases can easily be spread among the community leaving along the edge of the river.

Most of the access roads towards the river are blocked due to farming activities inside the buffer zone on the edge of the river. Though the artificial lake on river is suitable for fish farming, a scientific way of fish farming and urban farming is not taking place, which could be a source of job opportunity for the jobless young community in the neighborhood. Though the river edge is a destination for youth of the community who want to swim and wash their clothes, the spaces are not developed and comfortable for such and any recreational activities..

Studies on the riverside development which can improve the lifestyle of the riverside neighborhood and community by revitalizing the riverside and overcoming the current challenges in Awash Melkasa town are very limited. Thus, this particular study is intended to investigate existing status of riverside areas of Awash Melkasa town and also the relationship between the river and adjacent urban land in order to understand the parameters which will enable to design best alternative ways of spatial and land use with proposed urban design reconfiguration capable of overcoming the limitations of the latest proposals and future growth scenarios with possible trajectories in developing smart strategies of preserving areas edging the river. Ways of effectively revitalizing riverside settlements, reinstating rivers and shores as major urban component, redefining the corresponding public realm, creating public spaces along the riverside areas and evaluating how these would stimulate and induce change in urban space design organization, land use patterns and proposed urban design are main interests of investigation of this research.

1.3. Objectives of the study

1.3.1 General objective

The general objective of the study is to assess the existing riverside development conditions and propose alternative strategies and design solution that overcomes the current challenges.

1.3.2 Specific Objective

- To analyze the existing situation of riverside
- To evaluate management condition of the riverside
- To explore alternative design solutions for creating comfortable living neighborhood, commercial and public recreational riverside services

1.4. Research Questions

Based on the objectives described above, the following research questions are designed in order to meet the intended objectives

- What does the exiting condition of the riverside looks like?
- How does the riverside managed in Awash Melkasa?
- What type of strategy and urban design solution should be proposed as a final output to promote commercially and socially sustainable riverside neighborhoods?

1.5. Significance of the study

Assessing the impact of unplanned riverside development and proposing a proper urban design for the study area will have a multiple importance for several factors of which are, ecological conservation, sustainable urban planning and design in all aspects of sustainability measurement economic, social and commercial to create convenient livable riverside city.

The study also will have great significance in developing a plan that the study area have to stick with in terms of keeping setbacks from the edge of the river (buffer zone) and providing standards for public spaces and street designs. Also it will be a useful reference for city planning professionals and decision makers to develop awareness of the existing situation the riverside in which it is densely populated due to horizontal development of residences and other public service buildings. Moreover, this research will have its significance as an

academic input, social transformation, economic development, and technological improvement.

1.6. Scope of the study

The scope of the study is limited both by geographical location of Awash riverside and by the subject matter. Spatially, the research paper is confined within the Awash Melkasa town along the riverside neighborhood. The thematic scope covers the issue of investment, the issue of public spaces, the issue of land use and the like may come under this study, in which collection of the relevant socio-economic, spatial, environmental and institutional information from all relevant sources, review of pertinent policies and strategies, analysis of the information, identification of major problems and opportunities, prioritizing strategic issues, to prepare neighborhood development proposals accompanied by a riverside urban revitalization design based on the outcome of the study.

1.7. Description of the study area

1.7.1. Location

Awash Melkasa city is found in Oromia Region at the border between two zones, namely Arsi Zone and East Shewa zone, because these two zones use Awash River as their borders and my study area is located on the section of Arsi Zone side at 115km from the capital Addis Ababa. The altitude of the study area ranges from 1500 to 2300 meters above sea level. Notable land marks include the sodore recreational resort and other huge industries like Awash Hydro Power Plant, II and Wonji sugar factory. The study covers 13 hectare constituting 8 blocks of residential neighborhoods and commercial corridors. The astronomical location of Awash Melkasa town is 8°24'12''N Latitude and 39°20'26'' E Longitude.



Figure 1 Location map of the study town of Awash Melkasa

Source: - Google map and GIS computation

The town has the following relatives surround its location:

- ❖ To the north – Tatecha hill
- ❖ To the east – the royal palace at Sodare
- ❖ To the south – Awash River
- ❖ To the west – the boundary of Sugarcane plantation

Area and Shape

The total area of the town is 882.2ha. The area of the biggest inscribed circle to the area of the town is 355.3ha. The ratio of the area of the circle to that of the town is 0.403. Since this decimal approach to zero, the shape of the town's area is said to be an elongated one.

Climate

The area experiences a warm climatic condition, receives summer (June to August) rainfalls. The prevailing winds blow east to west through most of the months of the year.

Water Resources

Awash River and deep wells are the main sources of water in the area.

Soil- The soils in the area are mainly the silt resulted from volcanic and erosion materials.

Vegetation

Natural vegetation cover is scanty. Acacia species, thorny bushes and broad leaf trees following the river course are some of the remnants. Eucalyptus and other shade trees are also planted in the town.

1.7.2 Historical Background of the Town

1.7.2.1 Pre-foundation

The present area of Awash Melkasa town was under a dense natural forest which consisted of various tree species and bushes like: acacia, *Kiltu*, *rukecha*, *oda*, *olenso*, and other broad leave trees. Some of the wildlife inhabited the area were include monkeys, apes, antelopes, wild pigs, etc. The first settlers of the area are the Oromo clans like *Jile*, *Obori*, *Yaya*, *Eka*, *Gullele*, *Gumbichu*, etc. All of them were engaged at the beginning in activity of animal husbandry. Following the commencement of sedentary agriculture land ownership and land lordship were gradually emerged. People like Boset Gare and Dejazmatch Kifle Dadhi were among the landlords of the area. The majority were became tenants.

1.7.2.2 Foundation

The first cause for the foundation of the town was the huts built by the wage laborers hired by the land lords to cut trees for timber. The land owner of the site was a man whose name Dajazmatch Yemane Kifle. He gave permission for peoples who want to build huts in the site by levying a tax of 2 Birr. A wooden bridge was also built across Awash River to ease the movement here and there. The construction of asphalt road and concrete bridge was followed later on. However there was a great problem concerning the health of residents as malaria epidemic killed dozens repeatedly. Because of this the area was nicknamed '*Kontir Mariam*'. A Greek whose name Muse Gorgon had also contributed for the growth of the town. He had engaged in producing vegetables and fruits by using irrigation of Awash River. His employees made their residences in the town. Muse Gorgo himself built his house in the site. The ruin of his house is still stand as a witness in the town. He had also built a grain mill operating by the power of water.

Awash 2nd and 3rd hydroelectric dam was built in 1960s by a contractor company known by the name Citra. The budget was allowed by the Italian Government as a war compensation for Ethio-Italian war destruction in Ethiopia (1941 – 1945 E.C). Seifu Mateme Silassie, the Manager of the then Electric Power Authority, facilitated the building of the Royal Palace of

Haile Silassie I at Sodere by using the remainder budget from construction of the dams. The palace built on Dajazmatch Kifle Dadhi's land. Hence the King (Haile Silassie I) gave an instead land from another place. Hot water has been drawn by pipe to the palace from Sodere natural hot spring (Roba Sodere). The king used to enjoy the palace life biweekly.

1.7.3 The Development of Urban Economy and Social Services

Currently the town has got fulfilled the following basic infrastructures and services, which are Electricity, telecommunication, inter urban and intra urban transport like motorized and cart transport and postal service are infrastructures regarding communication and transport including Pipe water, inter and intra urban roads (asphalt and gravel), Municipal and sector offices as well as public halls, Police stations, Governmental and non-governmental Primary schools, a high school and Kinder Garden, Health services : health center, private clinics and drug stores

1.7.4. Naming

The name Awash Melkasa is the combination of two words *Awash*, the name of the river crossing the area and *Melkasa* (in Oromo: *Malkaa Sa'aa*), the shallow river course where people and animals can cross by walk. It is also the comfortable site where animals can drink river water. The local elders told that the specific site of *Melkasa* is found at the south west of the town.

1.7.5. Municipal Status

The town has got a township legal personality since 1998 E.C and the municipal identity of level 3rd B in 2005 E.C from Oromia Industry and Urban Development Bureau.

1.7.6. City Infrastructure

The Awash Melkasa city is served within a single regional asphalt road that cross the city and some gravel roads connecting the city with main road. In terms of communication facility, there is a digital telephone and mobile communication even though there is a weak internet connection service provision, postal services, and all day and night hydroelectric power supply and water supply coverage.

1.7.7. Investment potentials of the town

Agriculture, Industry, Trade, Services, Construction, Hotel and Tourism

1.7.7.1 Tourism

The city of Awash Melkasa is rich with natural resources that can be used as an attraction for local and international tourists, but most these potentials haven't been harnessed to be source of economic benefit to the city and the community. Sodere Recreation and Tourism Center is one of tourism attraction around the city, it is located at 7km away from the town. So Awash Melkasa is the primary host and entertainer for the visitors of Sodere and it is beneficiary from this (tourism) sector.

1.7.8. Public Spaces and Places in Awash Melkasa

Streets, public parks, squares, playfields and other public recreational centers are considered as public spaces. Unfortunately the city of Awash Melkasa has almost nothing to consider being a public recreation center. The local administration is not well-developed in terms of both manpower and economical ability to achieve this crucial need of the public.



Figure 2 undeveloped public spaces and narrow local streets

Source: - own photography, 2020

As shown in the figure above public space at the riverside is undeveloped and it is as it was created by God, this public riverside is widely used by youth living at the neighborhood. The local streets are also undeveloped, not even enough neither to drive a vehicle in one way direction nor comfortable to take a walk in the neighborhood local streets.



Figure 3 fruit plantation on public space

Source: - own photography, 2020

The above figure shows a papaya fruit plantation farming right on the public space that takes a route to the river and the local community is suffering so much as observed by the researcher.

1.7.8.1. Land Use Planning in Awash Melkasa

current Awash Melkasa town land use planning	
services	Area (Hectare)
residential	80.78
commercial	29.54
recreational	10.75
administration	3.47
forest	16.87
industries	86.43
social services	21.17
roads	148.49
urban farming	257.66
backup services	4.7
general services	51.9
Total	711.76

Table 1 current land use planning of the Awash Melkasa town

Source: - compiled from secondary data sources, 2020

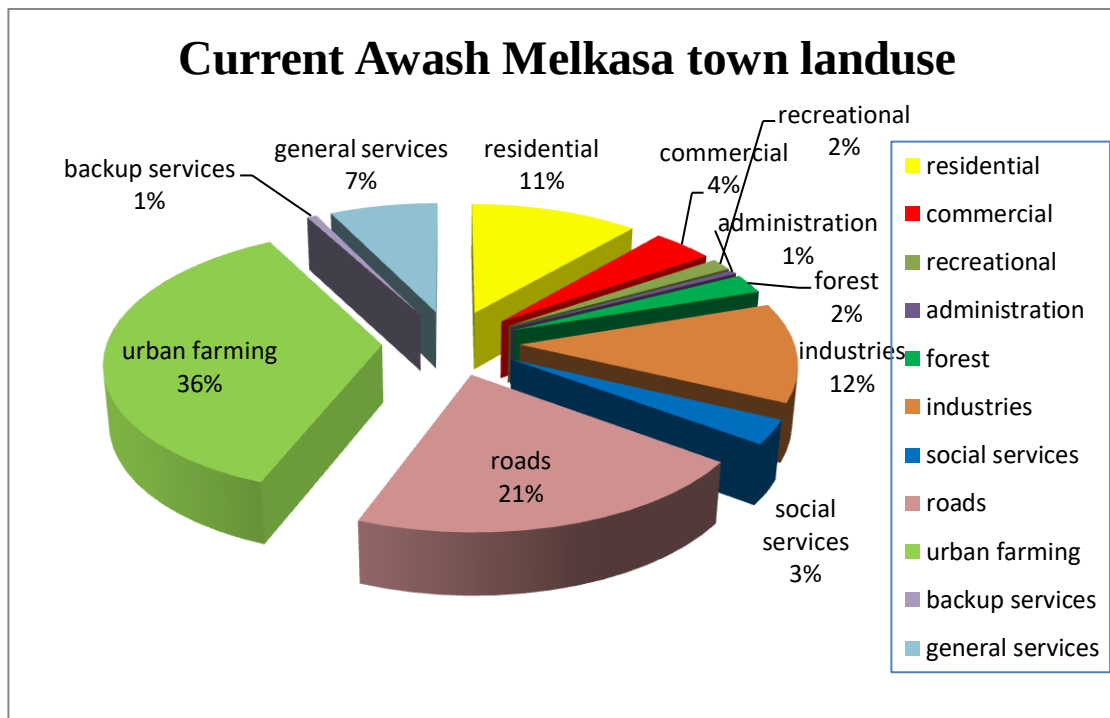


Figure 4 pie chart of representation of currnet land use the town

Source: - own computation, 2020

1.8. Limitations of the Study

The researcher has faced some limitations while carrying out the study due to different aspects, mainly due to the global pandemic Covid-19, in which government officials were arguing among each other weather to allow me to conduct the field survey or not till I convinced them that the study outcome will be for the benefit of the city itself.

The research took more time to acquire the relevant data particularly from the primary sources and interviewers since they were busy to respond as per the schedule.

1.9 Organization of the Study

This study is prepared to be categorized into six chapters. Their content is discussed as follows.

Chapter one consists about the description and introducing of the research method, with description about the problem statement, the research questions, research general and specific objectives, research method and methodologies, scope, limitation, significance of the study and historical background and some basic facts of the town of Awash Melkasa..

Chapter two discusses some literature reviews related to the concept of the riverside urban developments and revitalizations. Theories and principles related to the study have been discussed. In addition, in this chapter the empirical literature have been discussed to assess different experiences of riverside developments across the world.

Chapter three discusses about the method methodologies and analysis of the collected data, the current riverside development practices and situations, the relation of the community with the river side area etc.

Chapter four discusses about the field findings, analysis and discussions of the study.

Chapter five deals with the conclusions of the study and alternative solutions are recommended to maintain the proper development of the study area. Finally, design proposal to overcome the current challenges composed of two dimensional plans, three dimensional design and sectional views of the proposed riverside neighborhood development design.

1.9.1 Operational Definition

A number of generic objectives can be identified in urban design. The built environment should be efficient in the way it handles the variables in the environment. It should be designed to encourage economic growth. It should provide a sense of historic continuity to enhance people's self-images. It should help sustain the moral and social order of a society and should be designed with a sense of justice for all to the extent that these are physical design concerns. (Jon Lang, 2005)

Generally, the main ideas of this research are to assess the existing urbanization of riverside settlement area along Awash Melkasa town in which data is gathered by various data collection methods. After the data is analyzed the problems that are found through research progress is solved by proposing accordingly appropriate urban design that upgrades the area in terms of land use management, public utilities, building arrangements in terms of land use criteria, landscape design etc.

The operational terms and their respective definitions that I am going to use in this research can be listed as follow.

Accessibility: - The ease of reaching destinations. In a highly accessible location, a person, regardless of age, ability or income, can reach many activities or destinations quickly, whereas people in places with low accessibility can reach fewer places in the same amount of time.

Active frontage: - Refers to street frontages where there is an active visual engagement between those in the street and those on the ground and upper floors of buildings.

Built form: - The height, volume and overall shape of a building as well as its surface appearance.

Communal open space:- An area within a private site providing for informal recreation activities for common use by building occupants and, in some cases, visitors. It is distinct from private open space. Some communal open spaces can be accessible to the public (such as that associated with a library or hospital) while other spaces can be accessible to customers only (Such as the courtyard of a restaurant or café). Incorporates private car parking lots.

Land use: - The purpose for which the land has been or is being or may be developed or the type of activity taking place on the land.

Permeability: - The extent to which the urban structure permits, or restricts, movement of people or vehicles through an area, and the capacity of the area network to carry people or vehicles

Mixed-use development: - A range of complementary uses within the same building, site or precinct. The different uses may be arranged floor by floor, or side by side. The uses may be residential, commercial, retail or institutional.

Walkability: - The extent to which the built environment supports walking for transport and for recreation, where the walking environment is safe, connected, accessible and pleasant.

River: - a large natural stream of water, flowing in a channel to the sea, a lake, or another river.

Riverfront: - is a region along a river. Often in larger cities that are traversed or bordered by one or more rivers, the riverfront is lined with marinas, docks, cafes, museums, parks, or minor attractions. Today many riverfronts are a staple of modernism and city beautification.

Public space: -is a place that is generally open and accessible to people. Roads (including the pavement), public squares, parks and beaches are typically considered public space.

CHAPTER TWO

2. Literature review

2.1. Introduction

Cities are incredibly complex and textured or shaped in many ways. Economics, politics, society, culture and nature all play crucial part in this process. Cities often seem disordered created by spontaneity and almost infinite variety of place, people and practices. Whatever the forces and practices are cities are always the result of design (El-Khoury, 2004). Design may be conscious and formal, undertaken by architects and planners. On the other hand, city is made and remade through daily activity of its inhabitant's every day. It is the result of informal cultural, social and economic practices. The Informal practices also create new form of urbanism in cyberspace. According to Gandy (2004), there is a mutual conception of relations between nature and culture in urban space. Nature is not conceived as an external blueprint or template but as an integral dimension to the urban process which is itself transformed in the process to produce a hybridized and historically contingent interaction between social and bio-physical systems.

In history, man and nature has been complementary to each other. The human survival within nature is closely related to living with water in a way which tied urbanization and built

up patterns of cultural as well as urban landscape in close relation to the logics of watershed areas (stockman, 2008). The flow of water in the natural landscape became one of the most important visual and spatial components in structuring and organizing early human settlements (van Buuren, 1993; Picon, 2005; Shannon, 2007 cited in Stokman, 2008).

Recently, cities are facing huge challenges concerning environmental issues. They are disconnected from their ecology for various reasons. This point is emphasized by Gandy (2004) thus "...the relationship between water and urban space can be understood by features such as new moral geographies and modes of social discipline based upon ideologies of cleanliness". Most modern cities have centrally controlled drainage system. This invisible water infrastructure system disconnects urban land-use from the logic of the watershed as well as people's experience from the ecological processes of the landscape

(Stokman, 2008). While in others case, water bodies have become so polluted that they are becoming problematic part of the urban fabric.

To revitalize and develop riverside areas which are polluted and degraded, needs an understanding of historic relationship between water and adjacent land use patterns. Thus, relationship between water and cities and how water as element of urban morphology structures a city are discussed below using various theories. Then the discussion flows to the settlement evolution pattern of the city of Addis Ababa and its planning regulation towards watershed areas.

2.2 Definitions and Concepts

2.2.1. Concepts of waterfront and land:

Cities seek a waterfront that is a place of public enjoyment, a waterfront where there is ample visual and physical public access – all day, all year - to both the water and the land. Cities also want a waterfront that serves more than one purpose: they want it to be a place to work and to live, as well as a place to play. In other words, they want a place that contributes to the quality of life in all of its aspects – economic, social, and cultural”. Remaking the Urban Waterfront, the Urban Land Institute (Seattle Department of Planning and Design, 2012)

Water front: As cited in Timur, 2013 the word meaning of waterfront get through as “the part of a town or city adjoining a river, lake, harbor, etc.” in the Oxford American Dictionary of Current English in English Dictionaries and Thesauruses (Dong, 2004).

In the UN publication land is defined as the surface of the earth with everything on it, under it and over it (Abraham W. 1995)

Land Delivery System: Any approach or system or mechanism whether formal or informal that enables people to acquire land for urban uses. However, the essential concepts of land and its characteristics has been defined by the Concise Oxford Dictionary as a delineable area encompassing all attributes of the biosphere immediately above or below the earth’s terrestrial surface, including the soil, terrain, surface hydrology, the near-surface climate, sediments and associated groundwater reserve, the biological resources, and the human settlement pattern and infrastructure resulting from human activity. Land is required for

various uses in both the urban and rural areas of all society. As nations grew in size and rural areas became urban centers and urban centers became large metropolitan areas, there is always increased competition as well as demand for land for different purposes.

Investment: It means expenditure of capital by an investor to establish a new enterprise or to expand or upgrade one that already exists (FDRE. (2002). Proclamation)

Public spaces: “Public spaces are a fundamental feature of cities. They represent sites of sociability and face-to-face interaction, and at the same time their quality is commonly perceived to be a measure of the quality of urban life” (Oosthuizen, M. 2009)

2.2.2. The need for waterfront spaces

According Ch. Alexander, the need that people have for water is vital and profound. He wrote “...people will build places near the water because it is entirely natural; but that land immediately along the water’s edge must be preserved for common use. To this end the roads which can destroy the water edge must be kept back from it and only allowed near it when they lie at right angles to it.”(Alexander et al. 1977). This quote expresses importance of riverside as public, open place and space. Possibilities of embankment development as open space for city dwellers were analyzed in the aesthetic, compositional approach by C. Moughtin (1999).

The formation of the embankment is described by K. Lynch (1990) as well. Furthermore, there are even standards and design strategies created for the riversides planning (Buttler et al., 2006). Following overall strategies for the design of successful waterfront area continuity, variety, sequence, and connection should be considered. Danish architect and urban design consultant J. Gehl (2010) has focused on improving the quality of urban life by creating humanistic open spaces (including riversides) and re-orienting city design towards the pedestrian and cyclist. This perception of the riverside as public space is mostly common among urban designers and architects as well.

River and its influence for the city center is quite broad topic. Function (river as a “functional cog”), Society (river as public, open space), Ecology (river as ecological stabilizer), Visibility (river as formant of visual identity). Under the cover of the first group “functional cog” there are the scientists and urban planners who analyze river as a part of

urban structure, however they bring out just the functional importance and tangible benefits. Le Corbusier, one of the pioneers of what is now called modern architecture, especially highlighted the functional importance of the river. In his opinion, river is the infrastructural object, something like liquid railway (Rekevičius 2010).

2.2.3. History of urban waterfront development.

The history of urban waterfront redevelopment starts following the decline of old harbor sites and water front industrial areas in many countries all over the world in the second half of the 20th century, urban waterfront redevelopment started in Baltimore's Inner Harbour in the 70s and has gradually spread to Europe and elsewhere since the 80s (Aspa Gospodini, 2001).

Most developed European countries who took the experience of waterfront developments from the United States of America have harnessed their water bodies' frontier areas to develop a tourist attraction spots, a sustainable living and commercially active corridors. This shows the potential of developed neighborhoods around water bodies in generating incomes through activities related to river, lake or any other water bodies' activities and creating comfortable living surroundings.

2.3. The effects of water as a planning element in urban area

One reason for the importance of natural water source in urban area is aesthetic effects which create on human. These effects are visual, auditory, tactual and psychological effects

Riverside developments take place in a dynamic nature, as an edge environment of the water body contains an overlapping of various kinds of communities of users so, different conditions make for enormous amounts of complexity and energy. In the non-human realm, waterfronts are the interface of the aquatic or the water body and the terrestrial or the land site of complex intertidal communities, the point of release for wave action, and the vehicle for many dispersal patterns.

The primary power of attracted people on waterfronts is visual landscape effects of water on relaxation. Throughout, designs related to water take over motion and serenity factors. Moving water (waterfall, Cascade Rivers and etc.) adds vibrancy and excitement to a

space. Stagnant water creates the mirror effect in its space as a visual (Cited in Timur, 2012)

In addition, water areas in urban spaces are composed of a barrier to artificial sounds with its creating the natural sounds. For urban design, the value of the waterfront means that varied urban spaces have to be created, which allow diverse uses of the waterfront. The water has to be used with all of its plurality: It should not only be used to compose geometries of urban spaces, but its characteristics and the particularities of circulating have to be integrated in the design proposal.

Harbors overcome their former use and become part of the existing city center. Thereby, the center expands and sites at the waterfront are offered to the inhabitants of the city. The water is a symbol for living quality and an exceptional location within the city context and the surrounding region. The development of the waterfront is considered as one of the most significant and comprehensive tasks of contemporary urban design. In this field architectural and urban experiments can be combined with ecological, economic and social sustainability intentions (B. Nieann & T. Werner, 2016).

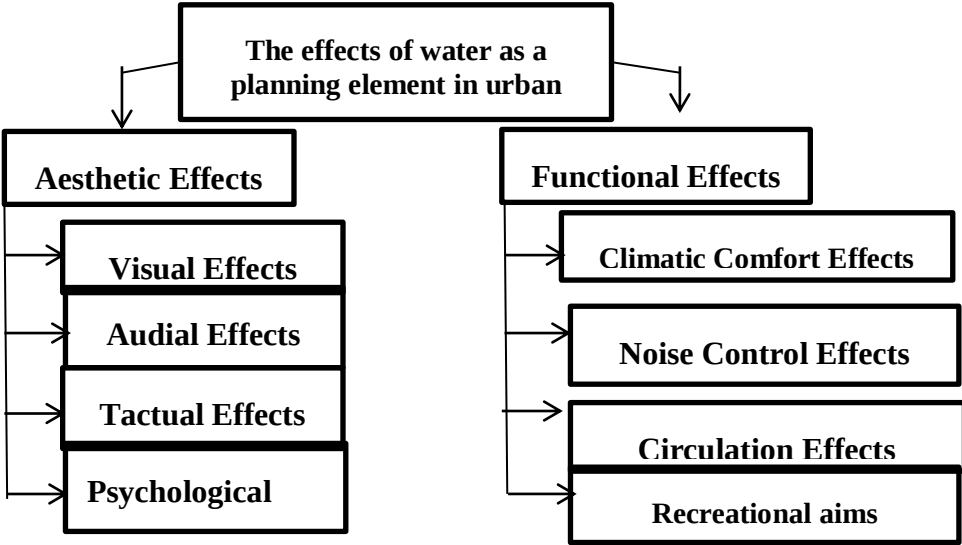


Table 2 the effects of water as a planning element in urban area

Source: - Adopted from Timur, 2012

As cited in Timur, 2012 Rivers taken on a spine task which is established cities and in the formation of streets, parks and other urban spaces have become a major factors. For example, Manhattan, Pittsburg, Philadelphia and Pekin (Hattapoğlu, 2004).

According to Wrenn et al. (1983), regardless of that separation, the shoreline shape is a major influence on how the location of the city in reference to the water impacts the city-water links. Cities which are located on peninsulas, headlands or small islands benefit from longer waterfronts at a short distance from the city Centre. The same could be said of cities located on the banks of intersecting rivers, estuaries and deltas. They have many long waterfronts, which increases the chance of public spaces located on the waterfront and also of these being connected to other hinterland public spaces (Al Ansari 2009).

Similarly, sustainable urban development at the waterfront has to lead to improved living conditions for the city's inhabitants. Hereby, ecological, economic and social goals have to be combined. A sustainable waterfront is "a place where people from all backgrounds and ages can live, work, play, visit, and learn in a way that strengthens and celebrates the beauty, the diversity, the economic vitality, the opportunities, the creativity, the heritage, and the natural environment of the city"

2.4. Features of waterfront developments

As cited in Timur, 2013, According to Dong (2004), Yassin et al. (2010) and Seattle Department of Planning and Design (2012), certain features of waterfront is represented to below: It is become an urbanized area, an important land, Water and land are the two essential elements of waterfront, so this area an aquatic and terrestrial features, The "water" may be a river, lake or sea, It has uncertain spatial boundaries and dimensions which change from place to place, The waterfront area may be a historical port area or urban area for other usages close to water, An essential structure of mixed land uses characterizes this essential area of the city, It supplies opportunity for interaction between human settlement and nature and water, As an edge environment, it is a dynamic place which changes biological, chemical and geological character, It is a special area because of being productive and biologically diverse ecosystems, It is a natural defense area for flooding, erosion with plant cover and the waterfront area is a pollution moderator.

Urban rivers should not be neglected a deserved and proper attention to develop a prestigious sites in a town. Generally, the ideal way of using riverside areas is a public space and related services usage, they are not designed in complicated way, just some basic elements like steps, greeneries, floating islands and so on. Since river side areas are where people meet to spend their free time or for an appointment as it is clear in most of

European water front cities, so the feature of designing water front areas should be people friendly.

As of Schueler and Capiella (2000) explanation, American lakes by now are well kept through the government concern and implementing of the LPO. For Americans as of the literature the lake protection ordinance which is a very useful tool to guide how and where new developments will occur. Buffering on the other hand is the other mechanism of which most countries of the world adopt to keep the lakefront for public and used as strategy to protect the lake.

Furthermore the international experience on land use rivers or along lakeside shows that more emphasis is given for the public particularly in the sensitive areas like lakefront, wet land, river and sea front cities of the world even though land is allocated along the lakeside for real estate developers and high class tourist attractive facilities like; hotels, malls, and recreational centers. Here, in case of most of Ethiopian cities and town, particularly, Awash Melkasa town, the spaces at the riverside area are not being allocated for either recreational service or investments for further developments yet.

2.5. Discussion of waterfront development concepts

Different types of waterfront developments require different types of space configurations and managements. There are some classifications about waterfront developments. According to (chang, 2001) waterfront is approximately divided into different classifications in views of location and function, which are Ecological protection zone, New development, Rebuilding of old industrial areas, Connected to residential area, Connected to downtown area and For leisure and travel.

A waterfront, the edge between water and land, a potential spot for residential, industrial, recreational or business developments. It's possible that a diversity of uses can occur along a waterfront development process, as it enables in bringing in as many interests as possible to the development, but it's not always necessary that a diversity of uses occurs within each waterfront projects. For example, due to environmental, public safety and security reasons, it may not be appropriate to locate a public park and residential neighborhoods within the same zone as an industrial port. Each site has its own environmental, political, resource, climatic, and a social context there is no one solution for all.

Developing waterfronts can rise from reasons like to create pleasant environments to live, work and recreate, urban development and growth, economic development along enhancing vibrant economic activities around the waterfront, natural and ecological conservation with creating unique identity for the area, connecting existing areas etc.

Emerging from the concept of waterfront spaces as public priority, (as cited in Dila Andini, 2011) Good public space should be responsive, democratic, and meaningful. Responsive public space serves the needs of the users, it is democratic when different types of users have the rights to use the public space and have a sense of control within it with a precise balance between different user groups to avoid conflicts, and a public space becomes meaningful when it allows people to make strong connections between the place, their personal lives and the larger world. Table 3.2 summarizes a comprehensive discussion about human dimensions for public spaces based on the work of (Carr et al. 1992).

Being responsiveness in public space concept explains the “comfort” by which people seek both physical and psychological comfort e.g. sitting space, shade and exposure to the sun, safe from crime, the need for toilet, etc. “Relaxation and/or liveliness” by which Some people seek public space for relaxation – to experience natural elements, greenery, and silence – but some others look for liveliness in public space – engagement with the life of a city. “Passive engagement” means Passive experiences with a place and people within it e.g. the possibility to observe people and sceneries. “Active engagement” means more direct experiences with a place and people within it e.g. the possibility for social interaction with other people, physical contact with place elements, and active use for exercise and health. And lastly “Discovery”, which emphasizes the diversity in the physical design and the changing vistas to create the opportunity to observe the different things – physical qualities and human activities – when people are moving through the site.

2.6. Principles for sustainable developments of waterfronts

The waterfront plans in general and riverside areas in particular need a vital importance to consider in water bodies frontier developments. Riverside or any other waterfront developed public spaces need to be integrated with the adjacent residents of the neighborhood so as to simplify the access of the neighborhood residents towards the water bodies' frontier areas.

As explained in (Timur, 2012) principles for a sustainable development of urban waterfront can be discussed as firstly, securing the quality of water and the environment in which keeping the neatness the physical view and the sense of smell in general for the surrounding public. The second principle of riverside development in particular and waterfront development in general is, keeping the water body as existing urban fabric that should be considered in the development process of the surrounding by reconnecting it to the surrounding as an integral part of the town and contribute to its vitality. The third principle is to give the historic identity to the development by which the newly developed waterfront area practice keeps the natural and cultural landscape conceived together to identify the past historical character of the spot. The fourth principle is mixed uses is a priority, by which keeping the water as a priority and the waterfronts used as mixed of cultural, commercial and housing purposes. The fifth principle is public access, by which ease access of the people to waterfronts should be maintained both physically and visually regardless of locals, tourists of all ages and income at any time. The sixth principle is making the waterfront as a community priority. The seventh principle is forming partnership between public and private to speed the process of planning, to secure strategic public investment and attract private resources.

Waterfront development principles should consider on being as lively public destinations that keep people coming back to the area. According to (Project for public spaces, 2009), any waterfront project seeking to create vibrant public spaces, and, by extension, a vibrant city should follow principles and frameworks by making public goals the primary objective so as to enable waterfront as inherently public asset, creating shared community vision for the waterfront so as to achieve citizen-led initiative that outlines a set of goals--ideals to strive for--that set the stage for people to think boldly, make breakthroughs, and achieve new possibilities for their waterfront, creating diverse and layered activity to ensure that no single use will predominate at the waterfront spaces, waterfront spaces ought to enable to

connect destinations by mixing uses (such as housing, parks, entertainment and retail) and mixing partners (such as public institutions and local business owners), optimizing public access through creating interaction of the water with the people in different ways like swimming, fishing, dining or picnicking dockside, boarding boats etc. it is also essential to ensure that new development of the waterfront should fit with the community's vision, encouraging day and night activities throughout the day around the waterfront areas by keeping away the waterfront from being dominated by residential, since residentially dominated surroundings require a limited diversity of waterfront use and creates constituencies invested in preventing 24-hour activity from flourishing. Enabling a multiple modes of transportation and limiting vehicular access and proper management.

2.7. Empirical literature

Water front in general and riverside developments in particular is a worldwide phenomenon. Empirical literatures about experiences of other cities or towns throughout the world are necessary so as to avoid mistakes done before in the developments of prior tasks.

2.7.1. Hawassa waterfront planning

Lake hawassa waterfront development has passed through different major classes in terms of considering the water body (lake hawassa) as planning element of the city. In the planning process which took place before 1990 the lake was designated as a backyard of the city apart from uses for fishing activities. The next development stage follows after 1990 till 2003 by which it included two main changes which are anthropogenic and natural, the anthropogenic change was resulted from expansion of residential and agricultural land towards the waterfront and the natural change is due to flooding. The occurrence of the flooding repelled further development because of the risk. But, after the year 2003 the investment trend has helped in developing the area in which hotel industry and ecotourism businesses begun to grow. However, the development process has lacked to consider a proper and sustainable waterfront planning and management.

Most of Ethiopian cities with water bodies development plans do not give much attention in developing the waterfront area. This kind of practice has led in to runoff damages and

pollution of water bodies like lakes. Land use planning and design are primary methods of runoff and pollution control for water bodies' protection.

According to Yemane (2004), the water balance of lake Hawassa as compared from 1965 to 1998 scenario yields an increment of catchment runoff by as high 22 % therefore the high generation in recent years even for small rain fall inputs as compared to 20 years age could be the result of land use change . Net ground cover component has negatively increased over the simulation period from 1981-1998. Land use development affect phosphorous load , as impervious cover increases runoff from primary phosphorus sources such as Residential land, Commercial land, Roadways, Industrial land, Rural land, Forest land and Agricultural land. Therefore land use development within the waterfront can be used as a sink of runoff from the whole city into the lake.

Types of land uses taking place adjacent to water bodies like lakes and rivers could have their specific impacts for example, people living adjacent to the lake engage into urban agriculture and other lakeside activities for their livelihood activities, when population number increases the consumption of water also increases consequently the demand for natural resources like riverside or lake side land increases too, which leads to causing traits for the water bodies in general.

The town of Awash melkasa town has a suitable ground for urban farming, especially on the riverside area, since there is a nearer source of irrigation water for farming. Due to this practice the space that should have been left for public space has been occupied by farming process throughout the time.

Generally, like many other cities in Ethiopia which are adjacent to water bodies hawassa city has been facing challenges like expansion of illegal settlements, encroachment of the buffer zone and pollutions due adjacent land uses, unmanaged runoffs, removal of natural habitats etc.

2.7.2. Lithuanian case.

As cited in (Justina M. & Ingrida P, 2017), the perception about turning to the cities' rivers slowly proceeds in Lithuania. Many architectural, urban contests, workshops were designed to revitalize rivers of cities centers and still appear. Taking into account Vilnius city example, creative architectural workshop for Vilnele's riversides revitalization was presented in 2008. Although the revival works of territory moved a little, students and

young people prefer to spend their time close to the river. There are art and cultural centers formatting (Vilniaus architektūros... 2008).

The Neris' waterfront embankments revitalization and upgrading the services ideas were presented during workshop program "Design forum" in 2009. Guggenheim museum contest was organized to reveal the idea how is possible to revive Neris riverside forming its territory as social place. However, Neris embankments are still green place without clear zoning or some architectural elements nevertheless is favourite citizens open green place.

The building-up along the river was close to Dane river and cafes with outdoor terraces let enjoy the flowing watercourse. Dane riverside is adjusted in front of these buildings as well: the paths were made; benches were set creating a comfortable visual inter action with the river. However, the benches were fixed in close to the Dane river, but they were not oriented and turned away from the water.



Figure 5 Klaipėda riverfront, Lithuania

Source: - Klapeda, 2011).

Riverfront historical buildings were restored and renewed, cafes, hotel rooms were established inside. Besides, Dane riverside was developed, Castle harbor was expended, lightning, benches were installed and pedestrians' paths were created. (Jūros vartai, 2013).

There are Lithuanian resorts with exceptional recreational potential like Druskininkai, Birštonas. Furthermore, these towns like urban phenomenon do not compete with nature, but organically merge with present natural environment and the role of the river in cities centers is exploited too. For example, according to general plan of Druskininkai and survey of present situation, Nemunas riverside is being used actively by city's guests, residents all

over the year (Druskininkų savivaldybės teritorijos... 2012). Nemunas riverside is rich with greenery, planted parks. There are pathways, cycling routes paved. Also, relaxation zones are established even pier is made. What is more, riversides are lively not only because of pedestrians, cyclists, but fishermen are spread too (Fig. 6). On the other hand, more access and connections with the other Nemunas' riverside is needed.



Figure 6 Druskininkai riverfront in spring, Lithuania

Source: - (Druskininkai...2009)

Generally, the freedom of access to the riverfront public spaces is major features of most of successful developments. Keeping the diversity of the space land use is also a key point of success by which keeping without domination of residential blocks because, residential areas require a relatively quiet space at night time other than concerts and group activities on the waterfront areas. Keeping historical heritage and ecological balance with the participation of the public in the surrounding.

CHAPTER THREE

3.1. Research Methods and Methodologies

3.1.1. Research Design

The research design part shows the systematic flow of research activities through various description steps so as to reach to the source and the reason behind the current riverside neighborhood residents' problems through analysis of field surveying data and secondary sources data interpretation and analysis until the proposal of appropriate solutions to overcome the current challenges of day to day life of the neighborhood community in all aspects.

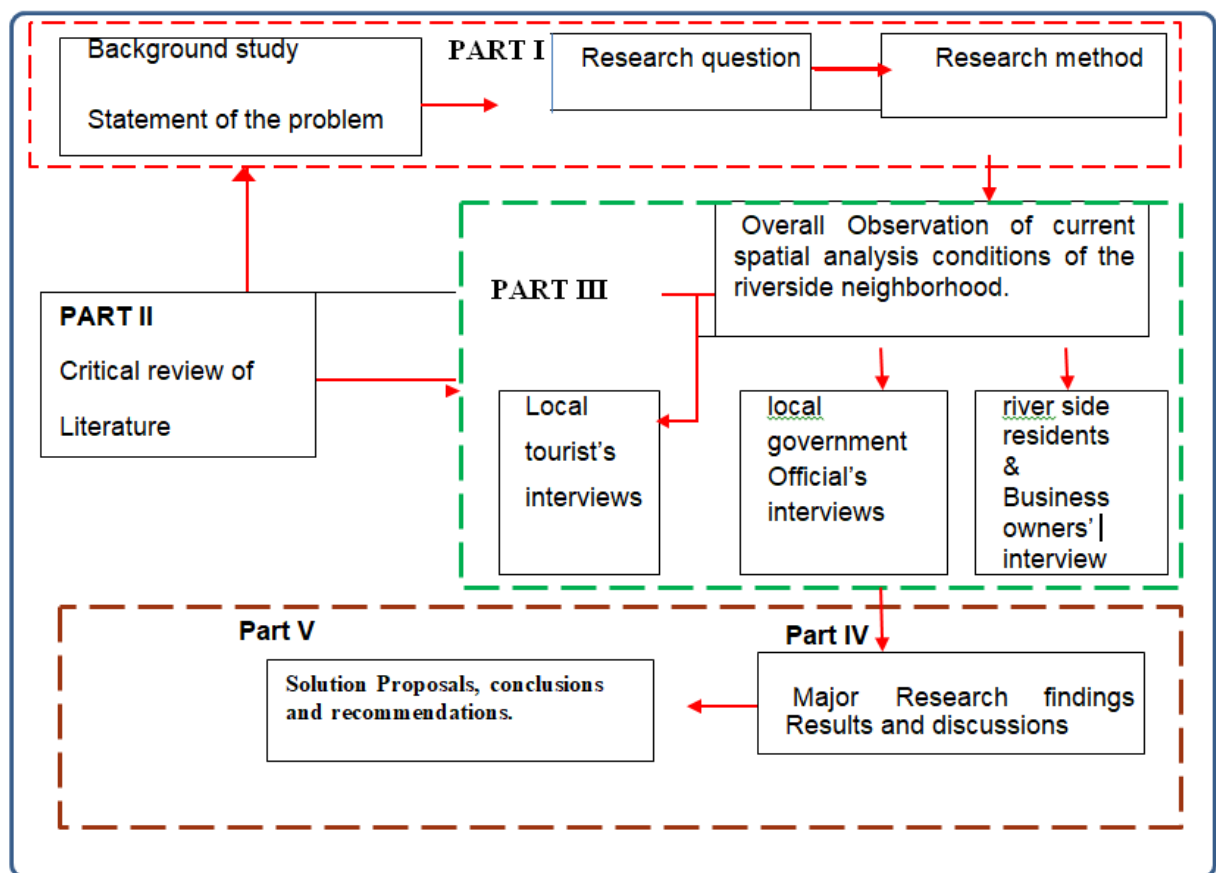


Table 3 schematic diagram of the research design

Source: - own design, 2020

The schematic diagram above shows the flow of the steps through five parts. The first part includes background and problem statements of the study and research implementation methods; the second part includes literature review of the concept of the study along with empirical literatures about the experiences of other countries; the third part contains field surveys and observation of current spatial condition; the fourth part proceeds to research

findings and result discussions and the last part deals with the solution proposals, conclusions and recommendations.

3.1.2 Data Types and Sources

The study has used both primary and secondary data sources. For this study the main sources of data was from Awash Melkasa city administration government officials, local tourists, neighborhood business owners and neighborhood residents of selected research area.

The primary data was collected from residents found around the riverside of the study area, government officials of local administers, local business owners and tourists in the form of structured and semi structured questionnaires

In addition to interviewee and questionnaires the research used focus group discussion to acquire the necessary data. Participants of the focus group discussion were: group of government officials comprising of mayors of Awash melkasa city from both sides of Arsi zone and east Shoa Zone administration since the city is divided into two along the line of awash river in which the southern part after river lies under Arsi zone and the Western side of the city lies under east Shoa Zone, land administration bureau heads of both sides of the city. The other group is comprised of a group of youth who usually spend their time along the riverside and group of local tourists.

The secondary data sources have been acquired from government offices, researches, journals, books and other supporting documents.

3.1.3. Sampling Size and Techniques

The researcher used census type of survey for the research data collection from the selected study area residents; as a result, the sample size comprises all 85 households in the study area. Local administration officials comprising of the mayor and land administration office heads have been interviewed to understand the current overall situations and challenges of the study area.

The sampling technique was purposive sampling method to do the field survey for all study area residents and intended officials who can give reliable information about the topic of the research.

3.1.4 Sampling frame

The researcher have carried out a census survey in order to plainly understand the planning area's socio-economic character of the residents and current riverside activities and their respective expectations, so that it can be utilized for the planning purposes, even though the timing is difficult to conduct an interview nearly 100 % of the intended neighborhood residents have been interviewed in house hold to house hold basis.

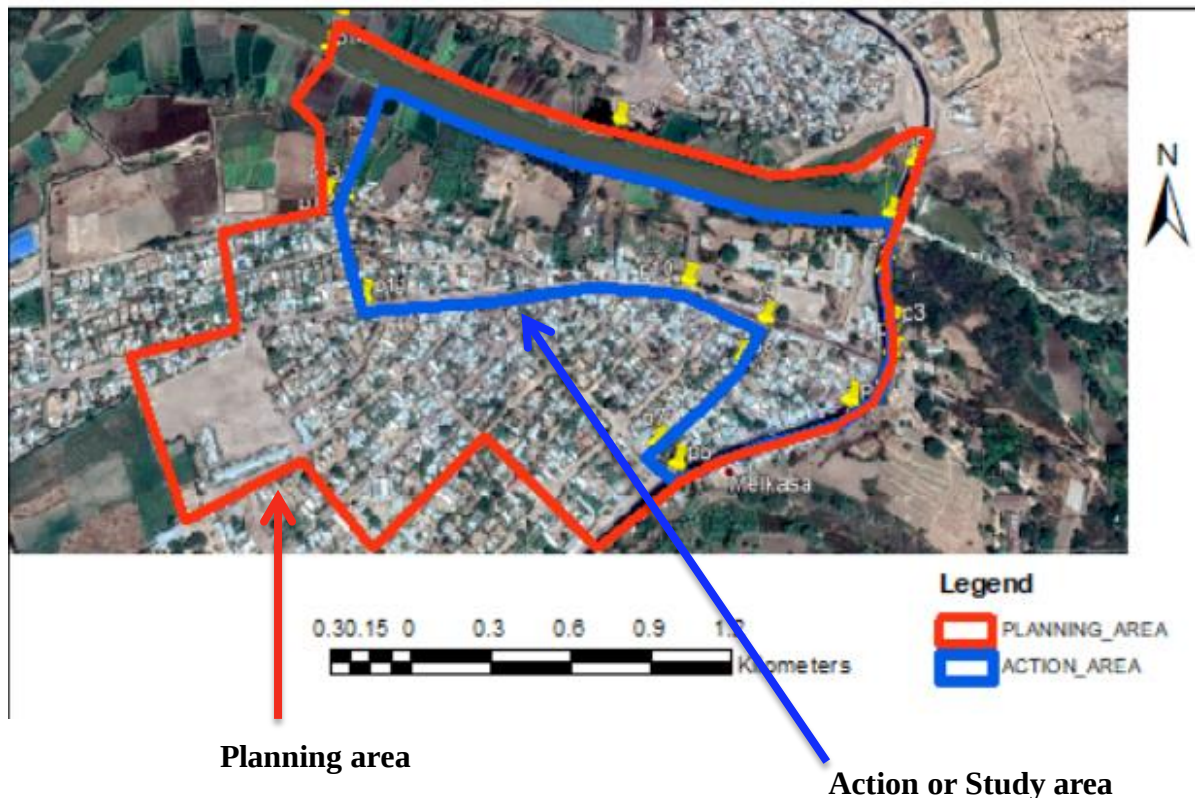


Figure 7map of selected study or action area and planning area of riverside neighborhood

Source: Edited and Modified from Google maps and GIS, 2020

The figure above shows the selected study area the one bounded with blue line and the planning area which is bounded with the red line.

3.1.5 Methods of Data Collection and Instruments

3.1.5.1. Questionnaire

Interview with stakeholders using structured and semi-structured questionnaires to assess the suggestion and level of satisfaction of existing site condition in their day to day life of residents business owners have been conducted. The interview on residents considers key socio economic parameters for analyzing their pressure on the river and the fringe zone ecosystem. In addition, a discussion with professionals and experts has been undertaken.



Figure 8 community interviewing process

Source: - own survey photography, 2020

3.1.5.2. Focused group discussion

Discussions with groups of business owners, local youth who are participating in activities along the riverside and city government officials and professionals have been conducted to reveal the impact of riverside activities and their role in the protection and the deterioration of the river and the fringe zone ecosystem. These discussions also analyses socioeconomic activities with nature conservation and management principles.

3.1.5.3. Site Survey

On-site evaluation by observation of the study area based on principles of landscape ecology and sustainable waterfront development are conducted. The observation took place using checklist which considers basic parameters of mentioned principles. During the observation the waste management practices are considered. Specifically the vegetation pattern, wetland condition, liquid and solid waste management practices, existing road

networks, housing conditions, public service institutions location in the study area and degree of recreational pursuits in relation to natural ecosystem have been analyzed.

3.1.6 Methods of Data Analysis

The collected data analysis was carried out using qualitative and quantitative techniques. Data gathered through questionnaires, interview and field surveys is interpreted and analyzed using software's like GIS, MS-excel, IBM-SPSS statistics computer programs. The results of those analyses were expressed in terms of statistical tables, charts and graphs which were generated from the program. In doing qualitative analysis based on evidences of data sources, efforts were made to understand and correctly interpret the contents of the data. Wherever appropriate the data sources have been mentioned in brackets to indicate its origin. In-depth interview made on residents about their own views, concerning their opinions was supported by maps and photos.

3.1.7 Data Presentation

The data collected from the residents, local tourists, and business owners is presented through tables, graphs photographs and charts. On the other hand the data collected from secondary sources is presented in graphics, texts and maps.

CHAPTER FOUR

4. Field Findings, Analysis and Discussions

4.1. Characteristic of the Sample population

4.1.1. Sex of the Respondents.

The study area is being inhabited by 85 household resident families at the time being, using census survey method all of the households have been included as respondents, the sex frequency distribution has been analyzed as follows in terms of both tabular and graphical form.

SEX FREQUENCY		
	Frequency	Percent
MALE	40	47.1
FEMALE	45	52.9
Total	85	100.0

Table 4 sex distribution

Source: - own survey, 2020

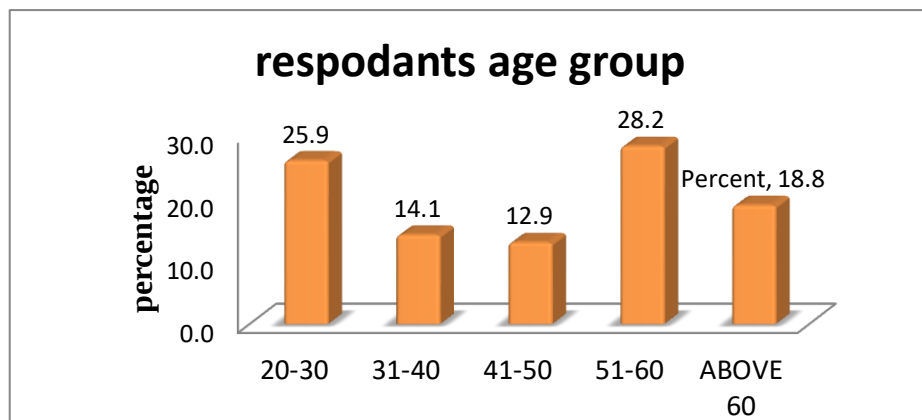


Figure 9 Age of the respondents

Source: - own survey, 2020

4.1.2. Summary of length of years of stay of the respondents

The productive age group should be provided with plenty of facilities like job opportunity and public recreation centers in order to keep them away from addiction practices as widely observed by the researcher in the study area.

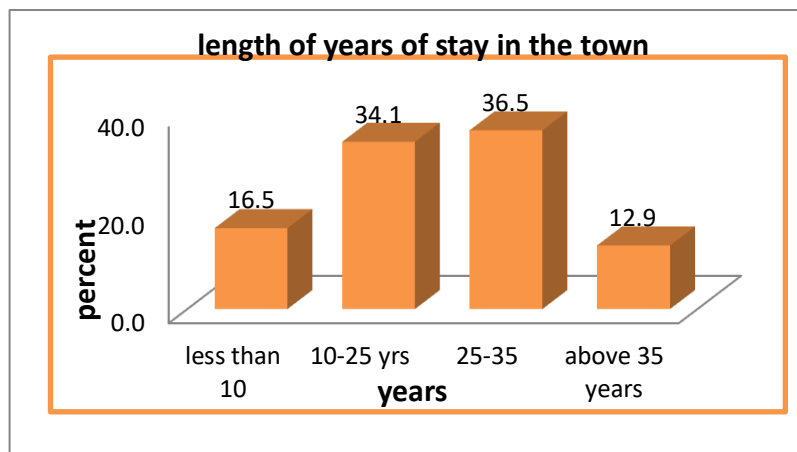


Figure 10 length years of stay in the town of the respondent

Source: - own survey, 2020

On the other hand looking into the duration of stay in the study area, the finding indicated that 36.5% of the respondents have stayed there for a years between 25-35, while 34.1% of the respondents stayed for a years between 10-25 and 12.9% of them have stayed for more than 35 years as shown on the figure 7, this shows that the respondents are able to give necessary information about the riverside activities based on their life time experience.

4.2. Existing conditions of the riverside

4.2.1. Living along the riverside neighborhood

The residents are happy to be located in a neighborhood along the riverside, but they don't have much benefit from the river except those who own farming on the peripheries of the river edge.

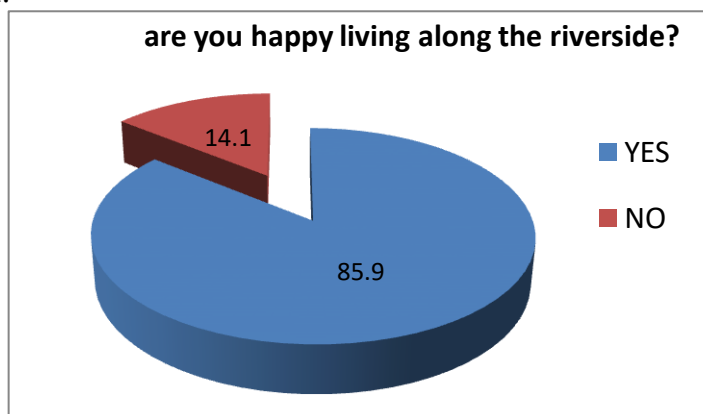


Figure 11 perceptions of residents on their neighborhood

Source: - own survey, 2020

As shown on the figure above, 86% of the respondents are happy on living in the riverside neighborhood just in case there is no clean pipeline water supply, awash river can be used as an alternative water source and 14% of them are not happy, since there is nothing to be benefited from the river instead they are afraid of malaria and other pollution risks that could possibly emerge from the river.

4.2.1.1. Infrastructure and social service provision around riverside neighborhood

The survey conducted shows that 96% of the respondents are not satisfied with the way the local administration is performing to develop the city of Awash Melkasa in terms of infrastructure and social services provided by the administration, the respondents argued that local administration has failed to attract investors and developers despite the presence of enough natural resource to do that.



Figure 12 infrastructure condition of the town

Source: -Own photography, 2020

The researcher has observed that the town of Awash Melkasa is a much lower level of infrastructure provisions like well-developed and managed road networks, street lightning, public greenery and open spaces and job opportunity. Majority of the youth living in the neighborhood are jobless and trying to take part in informal marketing activities like loading and unloading of goods from transportations and on street marketing of fruits and vegetables as the town is well known for its fruit production and yummy juice shops.

4.2.1.1.1. Clean water provision for the residents of the riverside neighborhood

According to the information from the household questionnaire, 91 percent of the respondents have access to clean water through a pipe line throughout the year, this shows the public has no ambition to go to the river or riverside areas for other activities like entertainment along the riverside since the spot not developed for such public space activities

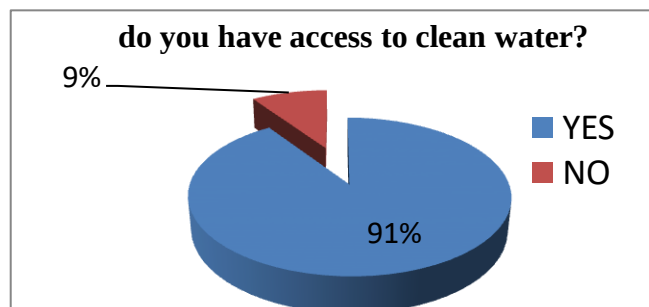


Figure 13 Access to clean water in percentage

Source: - own survey, 2020

4.2.1.1.2. Sewerage line infrastructure of the riverside neighborhood

Sewerage line is one of the most important infrastructures in a typical neighborhood to facilitate the ease of removal of storm water or liquid wastes. But, the riverside neighborhood is not well-provided with this basic infrastructure.

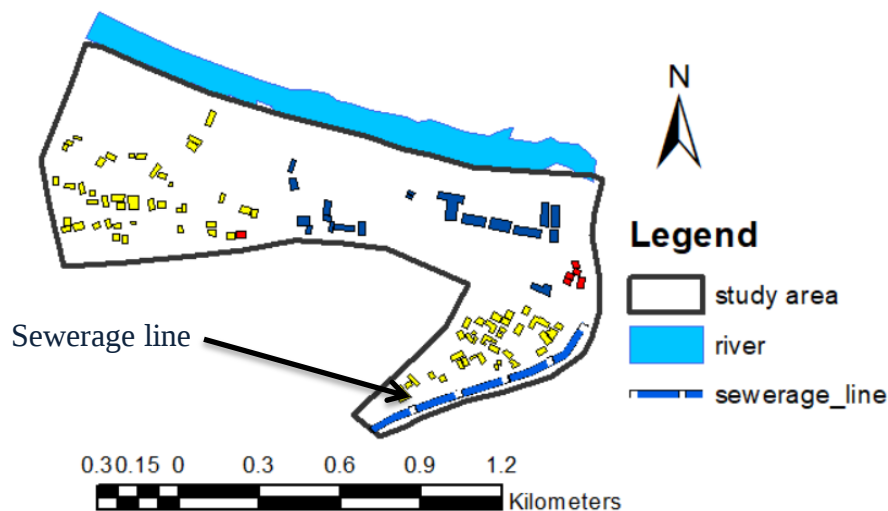


Figure 14 Existing Sewerage line

Source: - own survey, 2020

The above figure shows the only storm water sewerage line in the neighborhood which is found on the main asphalt road.

4.2.1.1.3. Electric Power Supply line of the riverside neighborhood

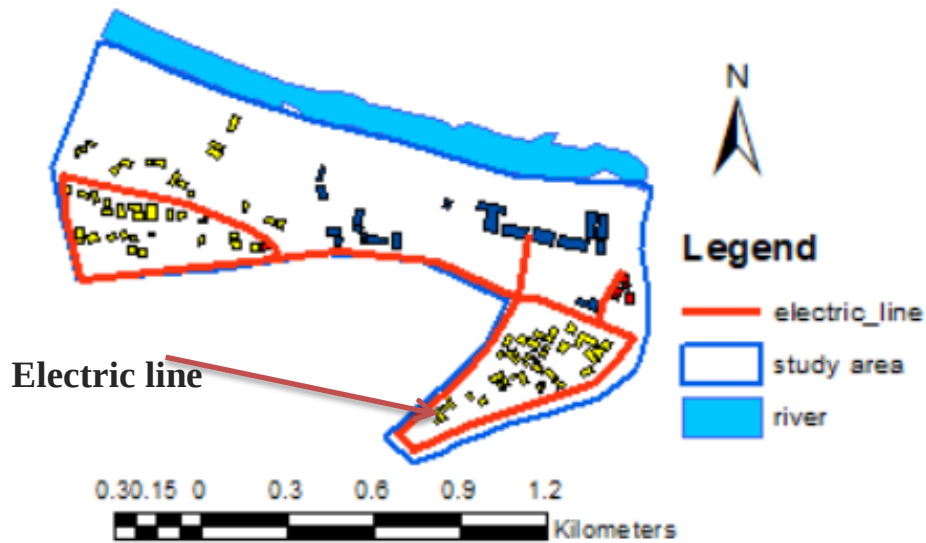


Figure 15 electric power supply line

The electric line is Source: - own survey, 2020 distributed following the road network of the neighborhood which is under substandard and irregularly oriented.

4.2.1.2. Current Social and administration services

There are some social service facilities on the action area of the project, which are Kebele Administration and related services compound, Elementary school and clinic. As shown in the figure below the primary school is found in the riverside neighborhood at distance for the students in the study area; but, the physical structure of the school is not at expected level of quality which satisfies the need of the neighborhood residents including site observation analysis of the current condition of the study area .



Figure 16 existing elementary school

Source: - own photography, 2020

The land allocation of the school is on the edge of the riverside, which shows the incompatibility of the land use, in which riverside areas would have been much better if allocated for commercial or public open services.

4.2.1.3. Current development and land use allocation along the riverside

Riverside residents' opinion about the land allocation along the riverside are assessed to make the study more reliable. Out of the total respondents of the riverside residents all of them have respond negative to the performance of the local and zonal administration regarding land allocation and current investment condition along the riverside.

your preception on current riverside development				
	Frequency	Percent	Valid Percent	Cumulative Percent
Not good	85	100.0	100.0	100.0
Good	0	0	0	0
Total	85	100	100	100

Table 5 perceptions of residents about current land allocation and investment conditions

Source: - own survey, 2020

As qualitatively analyzed responses of my respondent's states, the reason behind the negative answers of the respondents is the overall wake performance of local and regional administrators.



Figure 17current river side condition and narrow streets due to land grabbing

Source: - own observation and photography

No public green space along the river, no investment though the place comfortable to build hotels and lodges, most of the riverside spaces are occupied by farmers blocking the neighborhood community from accessing the river directly, local government didn't maintain local streets shouldn't be occupied informally. As the researcher observed most of the farmers have blocked routes that take to the river by land grabbing practices. Generally, the observation and discussion with prominent residents of the area, it was found out the riverside of Awash Melkasa town is neither attracting the investors who can develop the area, nor being developed by the government or community participation, instead it is being hold by different activities like social services and farming practieces.



Figure 18 riverside farm lands

Source: - own photography, 2020

The school compound fence is built along the riverside as shown in the figure below, which denies riverside recreation spaces from being used by the neighborhood residents.



Figure 19 School along the riverside

Source: - own photography and Google image edition, 2020

Only small portion of the river is left for public access which is undeveloped and most of its part is filled with weeds and harmful landscape conditions.



Figure 20 plant weeds covering the riverside peripheries

Source: - own photography, 2020

Based on the information obtained from the key informants of local administration officials the riverside land of Awash Melkasa is allocated for investment through negotiations in zonal or regional level and through the evaluation of the project from its economic and social benefits. He mentioned that there is no policy regarding the riverside development and how to use the riverside for common good. According to the respondent there is no local development plan prepared particularly for the awash riverside in the town.

4.2.1.4. Existing land use around the riverside

The major land use components in the action area are described below all of built up settlements in the study area are G+0 developments that covers 1.22 ha, which is 9.27% of the action or study area including all kinds of buildings like residential, mixed use and service areas. Trees and green vegetation covers 1.46 ha, which is 11.09 % of the study area, farmlands cover 2.4 ha, which is 18.22 % of the study area which shows the urban farming practice that takes place along the river peripheries, roads cover 1.96 ha, which

14.89 % of the study area and bare lands in the study area covers 4.06, which is 31 % of the total of the study area which is the largest component of the land use of the area and the other open spaces in the residential compounds cover about 15.72% of the study area.

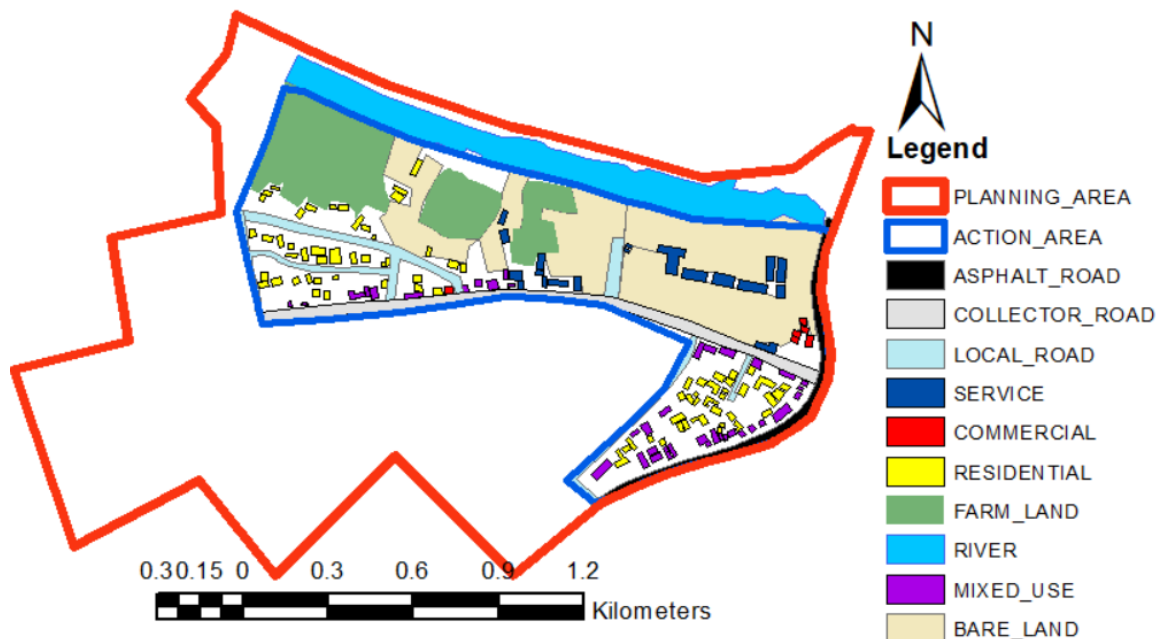


Figure 21 Existing land use map of the study area

Source: - own GIS computation, 2020

The table below shows that most of the study area is covered with bare land and farm land along the riverside area which totally covers 49 % of the total area. The road network in the study area is below the standard amount, which is only 15% while it should have been 30% of the study area. The housing settlement and built up area covers only 9% of the study area, while the standard amount of built up area in an area should be 40% of total area.

Existing Land Use by Type and Area of the study area.			
No	Land use type	Area (ha.)	Percent
1	Green forest	1.46	11.09
2	settlements	1.22	9.27
3	farmlands	2.4	18.22
4	roads	1.96	14.89
5	bare lands	4.06	30.82
6	other open areas	2.07	15.72
		13.17	100.0

Table 6 Existing land use of the study area.

Source: - own survey, 2020

Furthermore, the international experience on land use rivers or along lakeside shows that more emphasis is given for the public particularly in the sensitive areas like lakefront, wet land, river and sea front cities of the world even though land is allocated along the lakeside for real estate developers and high class tourist attractive facilities like; hotels, malls, and recreational centers. Unfortunately Ethiopia in general and regional government of Oromia as well as Awash Melkasa town administration in particular did not develop separate land allocation and investment strategies, guidelines, and standards how to keep the public interest and how to allocate riverfront prime land to bring sustainable development.

The analyzed data from interviewee of the government officials of the town and focus group discussion confirm that the riverside land is not being utilized for the right purpose of land use services like hotels and lodges, public recreational spaces as well as how they keep the public interest

The existing land use map shows that the existing road networks are in an insufficient amount, the built up area is below the standard and a very low percentage amount and though open space areas are sufficient, it is not developed; the area is suitable for development of wide public recreational space along the riverside.

The other part of the site observation was about the existing settlements and particularly housing conditions of the study area. The housing physical conditions were labeled as “good”, “fair” and “bad”, based on the current condition of the physical structure of the house, type of construction material by which the house is built from and quality of construction. The study shows that total redevelopment of the built up structure and landscape treatment of the riverside is important to create a comfortable living neighborhood.

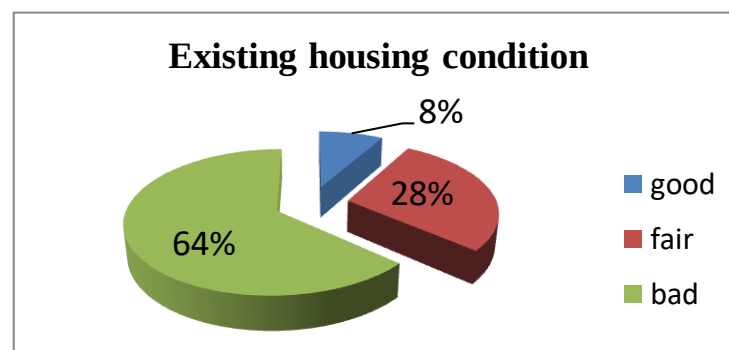


Figure 22 Pie chart on existing settlements condition

Source: - own photography, 2020

The researcher has covered some of the settlements condition with photography and it can be shown as follows.



Figure 23 Housing settlements in a bad condition

Source: - own photography, 2020

Most of housings in bad condition are characterized by slum settlements with deteriorated roofs sheets, mud HCB walls and walls with corrugated sheets



Figure 24 Mixed use settlements in bad conditions

Source: - own photography, 2020

.As shown in the figure above buildings in the study area including kebele office is deteriorated and old age settlements that need high level of maintenance.



Figure 25 housing settlements in fair condition

Source: - own photography, 2020

Housings in fair condition are characterized by relatively available fair structures having fair roofing material and wall building materials with relatively better appearance as well.



Figure 26 settlements in relatively good condition

Source: - own photography, 2020

The above shown figures are only relatively good building settlements in the study area.as shown on the picture the construction materials of the houses is relatively the best one on the area with good quality and appearance.

4.2.1.5. Public space and Existing vegetation cover

Awash Melkasa town has a suitable ground for almost every vegetation types, as observed around the action and planning area the surrounding is suitable for gardening activities. There are abundant undeveloped open spaces all around the study area for greenery and public uses.



Figure 27 bare land on the riverside and undeveloped public space

Source: - own photography, 2020

Young communities of the neighborhood usually come to this riverside space to take shower on the river, swim or fishing activities, but as it is shown on the above figure there is no development that meets the level and standard of the need of the young or any other part of the community.

4.2.1.5.1. Open Space and Recreation Areas

The study Area is located at a city-center part of the town and, the riverfront area is, where adequate recreational facilities ought to be available, but there are inadequate public spaces. Even there is no provision of public access toward the river, and most of the study area of the riverside is covered by informal settlements of farming lands and residential



Figure 28 Riverside area being covered with water hyacinth ("EMBOCH" pest).

Source: - own photography, 2020

Households which make the site more appropriate to build a new design without much consider demolition costs of existing structures except the compensation cost of relocating the farmers.

River side areas are the most preferable spots of recreation spaces in the town but most of the riverside areas have been occupied by farming practices even crossing the buffer line should have to be kept away from the river.

Government officials stated that, the buffer zone is delineated on the basic plan which is at least 10m away from the river, but he said that there is a mismatch between basic plan delineation of buffer zone and actual implementation on the ground. The reason is that most of the farmers do not understand about the importance the equity of riverside area for all parts of the community, in which everyone has the right to get direct access to the river without any blockages. On the other hand land administration office is not writing a letter of building permit for anyone who intends to build in the buffer zone.

4.2.1.5.2. Green forest

The study area is mainly irrigation farming neighbourhood and it is suitable for urban farming and forestry development so as to keep the environmental air condition at stable and comfortable temperature level, but the greenery activity is not taking place in scientific and satisfactory level

4.2.1.6. Existing Road Network

The existing road network of the study area not the same with the basic plan recommendation and proposed standards, in which, the 24m width arterial asphalt road proposed road is only 15m wide on the actual one, the collector road, which was proposed to be 16m is actually measured to be only 8m actually, and it a gravel road. Lastly the local streets which were proposed to be 10m are actually range from 2m-6m only on actual site observation. Most of the study area streets don't follow street hierarchy and there are some dead ended junctions; some parts of the roads are not accessible for vehicles and even difficult to access it on foot, especially access roads to the riverside.

Existing Road network area and percentage the study area					
	width	area (ha)	%	standard	remark
local road	2 to 6m	0.76	5.75	30 % of total area	insufficient amount road network
collector road	15m	0.74	5.61		
asphalt road	12m	0.47	3.54		
total		1.96	14.90		

Table 7 Existing road area and percentage

Source: - own survey

The existing road network is not sufficient as per the standard shown in the table above in which only 14.9% of the existing land use is oriented for the road network services, while the required amount of road network is 30% of the total neighborhood area.

Generally, Additional road network is required to meet the required 30% of the total area of the neighborhood as per the land use standard.

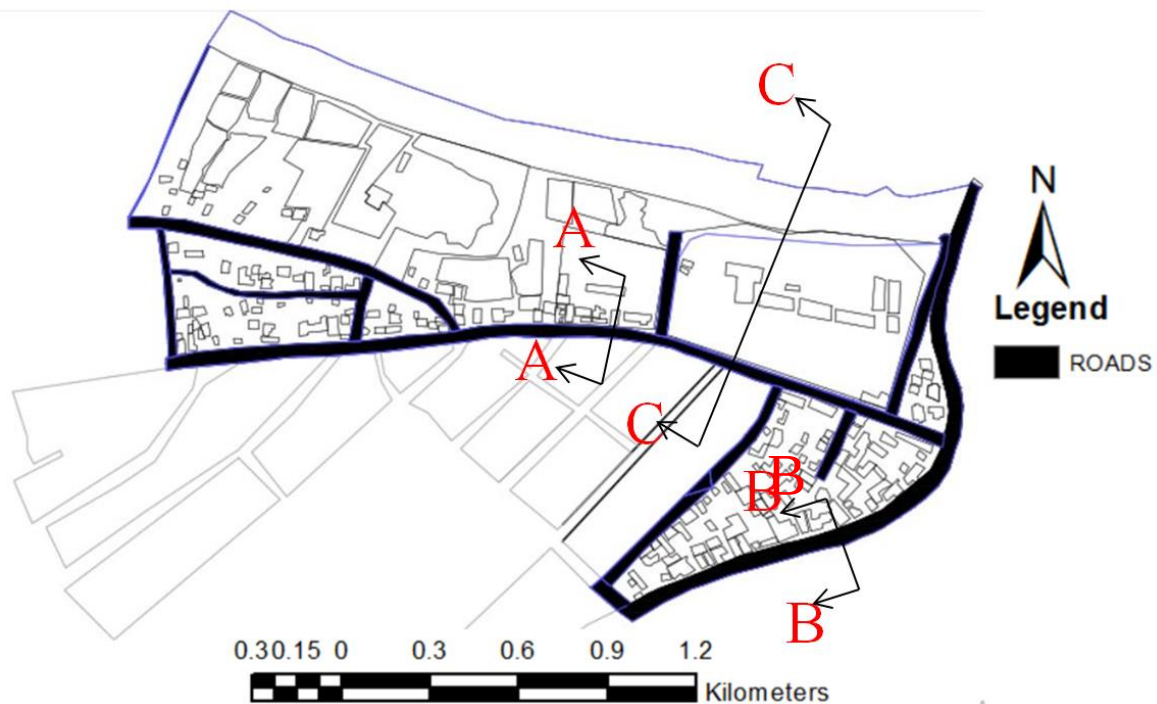


Figure 29 Existing road network and sectional views

Source: - own computation, 2020

The road network proposed in the Basic plan for the study Area was Asphalt road: PAS (Primary-arterial Street) with the width of 24 m, CS (Collector Street) with a width of 16m and local road with different width between 10-12m wide, But this this basic plan proposed road network design is not implemented on actual basis.

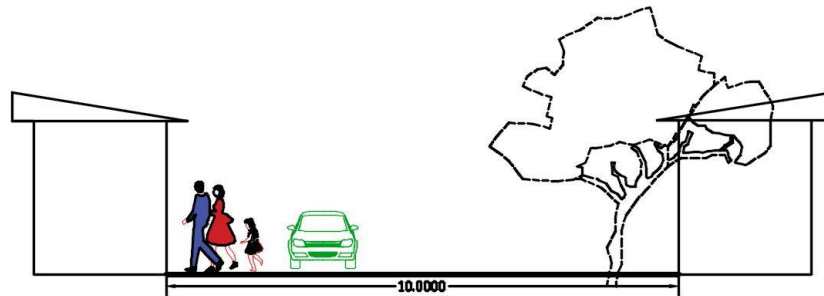


Figure 30 Existing collector road section view (section A-A).

Source: - - own AutoCAD drawing, 2020

As shown in the section view above the collector road is not wide enough to accommodate all kinds of transport modes like cars, bicycles and proper pedestrians' walkways. It is bounded by low standard and G+0 settlements. The side of the road is not provided with ditch or sewerage line along at all. As a result, the road usually gets eroded during rainy seasons since the road surface material is soil and gravel and there is no street lighting provision.

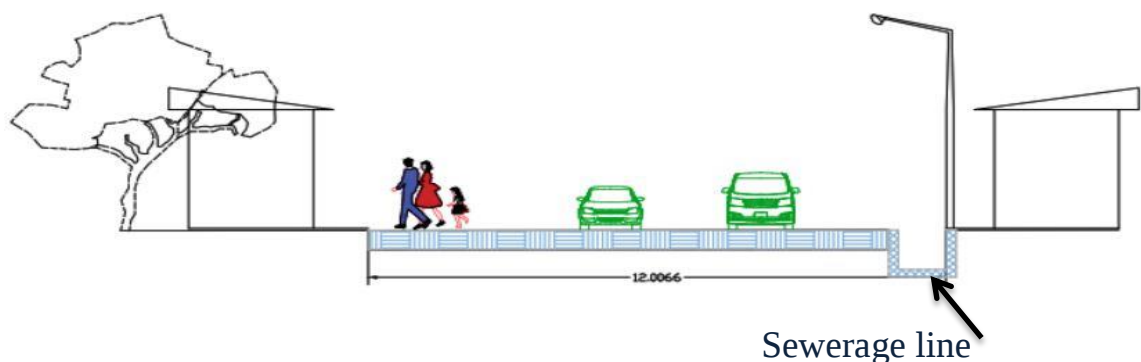


Figure 31 asphalt road section view of the study area (section B—B)

Source: - own AutoCAD drawing, 2020

The primary arterial road is an asphalt road in the study area, which is located along the way from the Adama to Asella. The road is provided with a street line along the road in one direction and there is no separated pedestrian walkway along the road.

As observed on the study area, the road is bounded by low rise buildings and it is the only commercial corridor of the area. Almost all of the business types along the asphalt road is fruit juice shops and transport vehicles take park aside to take a break along their journey, and the road gets congested, because there is no on street or off street parking spaces.

Most local street width ranges between 6-8m wide only. Farming activities and individual residents have been abusing the width of the local streets. Sometimes local roads are completely blocked by farmers and riverside community cannot access the river.



Figure 32 Narrow local streets

Source: - own photography, 2020

Though the existing roads in the Action area have less width than the standard mentioned in the structure plan to Awash melkasa town, the road is have enough width for the time being since there is no much attraction for tourists, weather local or foreigners. The local streets in the action area don't follow the hierarchy. Some parts of the roads are not accessible for vehicles. There are dead end roads which impedes connection. The streets in the Action Area have also bad junctions and fragmented.

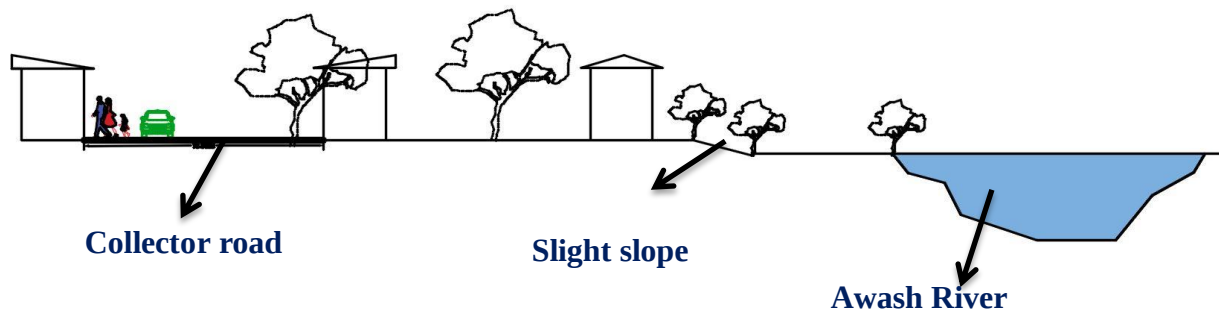


Figure 33 Road section view of section C-C

Source: - own AutoCAD drawing. 2020

Topographic feature of the site is almost flat but, there is a slight slope around the riverside area. And the road network is not appropriately designed and implemented to arrange a comfortable block arrangement. As a result, there are narrow local streets and at other side there is a very long block without junction, this shows the road network is poor and it needs an improvement



Figure 34 Road network analysis

Source: - own computation, 2020

4.2.1.7. Existing Morphology and Block Arrangements

The study area settlements are characterized by irregular blocking patterns. The site has an irregular settlement pattern on its most part since most of the area is covered by farming lands and scattered settlements. There is no clear visibility and permeability through the nodes and edges of the study area due to the arrangement of the blocks. The following figures show the irregular morphological settlements arrangement.

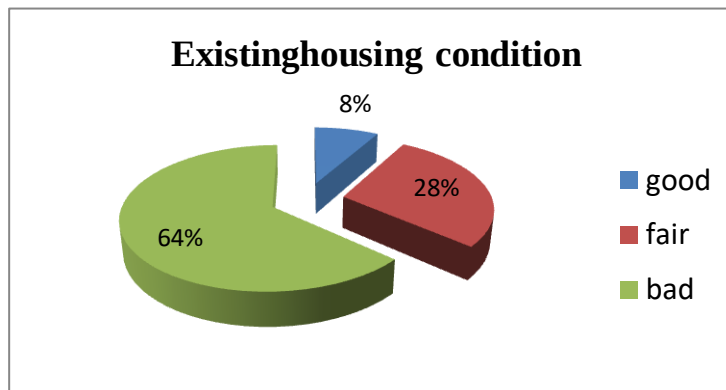


Figure 35 Existing housing condition

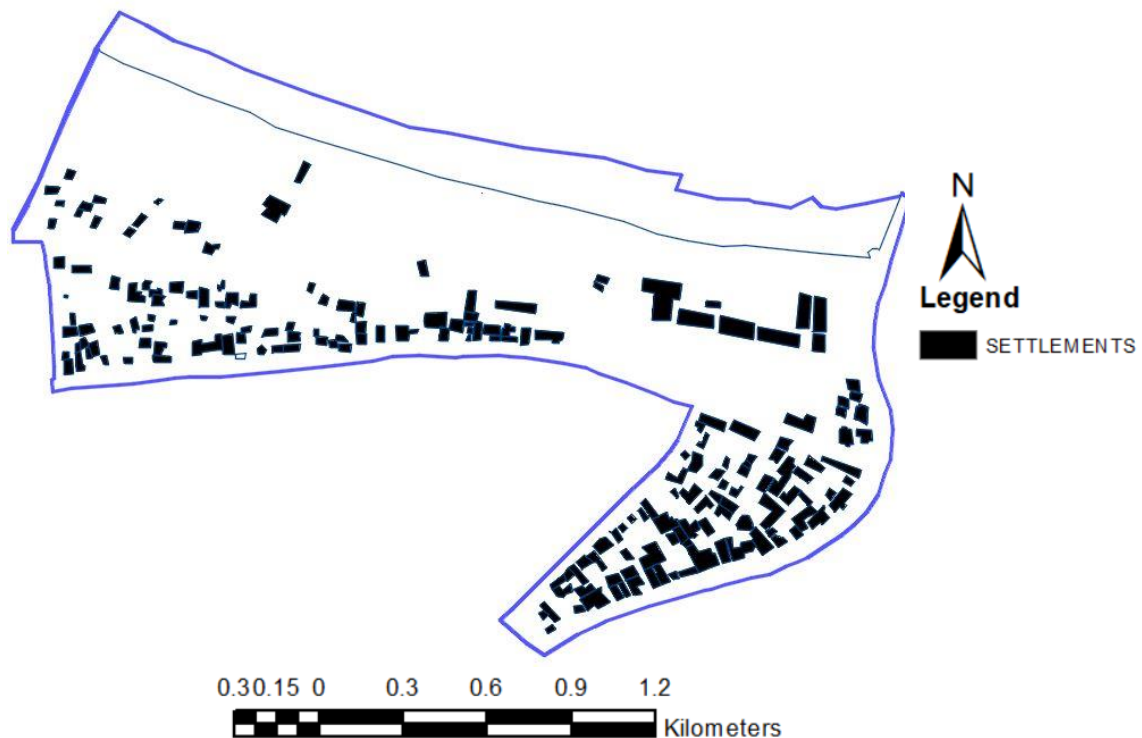


Figure 36 existing morphology and block arrangements

Source: - own computation, 2020

The households are overcrowded, not following the street patterns and are mostly in bad condition with no connection to main infrastructures like sewerage lines and waste removing spaces.

No	Land Use Classification		Area (Hectare)	%age		
1	Pure Commerce	BAR (Solid)	0.04	0.3	9.3	
2	Residence & Mixed Use		0.84	6.4		
3	Social Service		0.34	2.6		
4	bare land, Greene forest and farming		Void	9.99	75.9	90.7
5	Transport (Road Network)			1.96	14.9	
TOTAL			13.17	100	100	

Table 8 existing land use solid and void space ratio

Source: - own survey, 2020

As shown in the table above only 10% of the study area is covered with settlements in which most of the households have a wide compound. While most of the study area is covered with farmlands and bare lands without any relevant function.

4.2.1.8. Density

Net density of the area has been calculated including the local roads and open spaces. The total number of households in the site is 85. The average net density is 0.155ha/hh or 38.6 people/hectare or 6.49 HH/hectare. According to the standard set, the area has a very low density. The gross density includes the residential area local roads and open spaces.

According to UN-HABITAT the five principles mentioned on discussion note 3 of urban planning to achieve a high density of population per hectare at least 150 people per hectare or 61 people per acre should be achieved, but, in our study area case the number of people per hectare is calculated to be 38.6 people per hectare which shows the low density of the study area, though the area looks like overcrowded, but due to unplanned land use system the built up area is not developed regularly.

4.2.1.9. Solid and Liquid Waste Management System in the Study Area

4.2.1.9.1. Solid waste management

Based on the survey, there are no communal containers within the site, although the way of life of the community in that area is susceptible to produce a considerable amount of wastes, the administration is not handling the situation in the right way to combat the waste disposing system problem, so as to keep the study area neat and clean.

do you have waste disposal area				
	Frequency	Percent	Valid Percent	Cumulative Percent
no	85	100.0	100.0	100.0
yes	0	0.0	0.0	0.0
total	85	100.0	100.0	100.0

Table 9 tabular representation waste disposal area

Source: - own survey, 2020

As shown in the table above, out of total 85 respondents of the study area, all of them responded that they don't have a waste disposing spot at all.

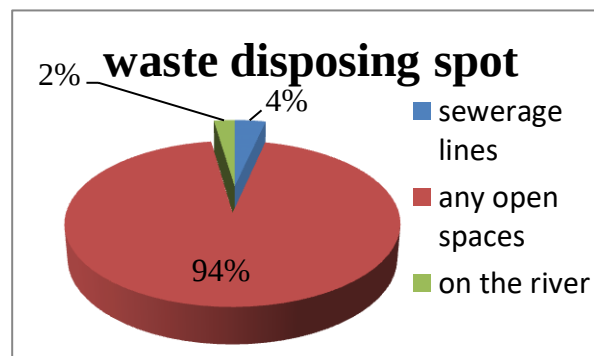


Figure 37. Waste disposing spot of the respondents

Source: - own survey, 2020

4.2.2. Attitude of the respondents regarding the improvement of the riverside

People do have wishes for a better condition of their public space; although few users whom I talked to did not know for sure about what they really want for the riverside space to be improved to attain much more comfort ability. Their answers to this question were mostly related to their comments on something that they do not like about the riverside edge area. What they want is not something extraordinary. In fact, it is something that a successful public space usually has. The improvement on the physical conditions of the

area was their main focus. They wanted clean and tidy riverside space. Good management and infrastructure provision and maintenance of the riverside was one of the topics they suggested for the cleanliness of the area. They also seem to realize that one of the factors that makes the riverside area dirty was the users themselves who carelessly leave or throw their garbage and water plastic bottles as they asked for the availability of waste disposing spots or garbage bins.

“There should be a good maintenance over here, especially about the cleanliness. They should provide garbage bins around here. And, more facilities for people’s activities, of course.” (Sisay, 33)

The provision of representative public facilities was another demand that the users asked for. These public facilities include seating furniture, shaded spots along the quays, and enough illumination in the evening.

“There is not installation of facilities such as sitting areas and benches...I think it is important for this area to be provided with public facilities to promote people’s visit to the area” (Lemma, 27)

“There should be a place to stay when it’s sunny or raining; shaded sitting areas for food services and drinks. And for the cleanliness, they need to provide garbage bins...” (Anuwar, 28)

For the users with specific activities like fishing, swimming or washing clothes, the availability of facilities and a more convenient space that support these activities is all they asked for. The fish lover wanted more government attention to promote well-organized modern fishery activities on the river.

“In the evening, this place doesn’t have street light. It’s not safe here for anybody to visit this place comfortably after sun set.”

“We need more green covered areas around here, public toilet facilities and security because sometimes, we lose our clothes while we are swimming” (Adam, 22).

“These areas definitely need more public facilities...hmm, a place for us to enjoy eating snacks and foods for example...” (Temesgen, 27).

It is obvious that all the users want for their riverside area is a good physical quality of urban public space. Although they seem happy about the presence of the river in general, they are aware that the existing conditions of the riverside today are poor; this place needs improvements and that’s why most of the people won’t visit the riverside area.

4.2.3. Interview with purposely selected government officials

Respondent-1

Based on the information obtained from the key informants the riverside land of Awash Melkasa is allocated for investment through negotiations in zonal or regional level and through the evaluation of the project from its economic and social benefits. He mentioned that there is no policy regarding the riverside development and how to use the riverside for common good. According to the respondent there is no local development plan prepared particularly for the awash riverside in the town.

In addition, Based on the information, the local governments are highly interested to keep equity for the society. The land along the riverfront will not allocated for investors at the cost of the poor rather the city administration is respecting the rules and regulations of the government through following of a win-win approach. The current status of the riverside area is pretty much in good condition. Though it is not developed as public space, major damages like land erosion and pollution haven’t happened yet.

Regarding the buffer zone along the river, it is delineated on the basic plan on basic plan prepared by oromia urban planning institute in 2011 E.C to be 10 meters away from the river. This buffer distance is being kept from construction practices, and local administration doesn’t issue building permit to building along the riverside. As a result most of activities along the river are farming only, so, the buffer zone is breached by farmers in order to expand their farming land area. Generally, the buffer zone is implemented as per the basic plan.

“Currently, there is no development along the river edge area, but the local administration keeps in touch with the farmer along the river in order to encourage them to keep the landscape of the neighborhood by planting trees and protecting it from erosion”.

The respondent also stated that the reason behind poor development of the area is occupied by farmers and hydroelectric power plant have occupied most of the river edge area so, it is necessary to have a strategy to transform the area from farming activity into multipurpose providing area in which hotels, lodges, public recreation areas and other standardized planning practice, and at the level of the town of Awash Melkasa preparing such sophisticated and complex neighborhood design is not possible, the local administration don't have a well-educated and experienced man power to perform it, because, it is complex and sophisticated for us right now ;but, I hope regional government officials will consider such ideas.

Generally, the respondent suggested that in order to overcome the current challenging condition of the riverside, it is preferable to have a transformation design ideas, rules and regulations to guide the riverside neighborhood on the right path.

Respondent-2

Based on the information from the second respondent, the land in the town is allocated for investors and developers by negotiation with zonal or regional level of land administration offices by presenting project proposal that explains the importance the development in terms of social or economic sustainability and environmental impacts.

The buffer zone is delineated on the basic plan which is at least 10m away from the river, but he said that there is a mismatch between basic plan delineation of buffer zone and actual implementation on the ground. The reason is that most of the farmers do not understand about the importance the equity of riverside area for all parts of the community, in which everyone has the right to get direct access to the river without any blockages. On the other hand land administration office is not writing a letter of building permit for anyone who intends to build in the buffer zone.

He also responded that, the riverside area is not being used as it is supposed to be used other than farming so as to change the lifestyle of the neighborhood community by creating

a job opportunities like recreation space (lodges and hotels), fishery farming etc. using the river as a resource.

The respondent also explained that the town has a huge number of tourist crossing the town towards sodore resort hotel, which is developed along the river that cross the town of Awash Melkasa, this is a clear justification that it is possible to develop similar investment in the town along the riversides.

The respondent also responded on the idea of revitalization, in which it could be a good solution method for the problems facing communities of the neighborhood by transforming the overall situation of existing conditions of the neighborhood like poor road networking, poor blocking arrangements of settlements, poor economic activity and job opportunity.

Even in case of implementation process it is easy to compensate the dwellers and re-accommodate them in the same neighborhood without displacing them away from their original neighborhood so as to keep the social order of the community.

4.2.4. Focus Group Discussions

Focus group discussion was carried out in between different groups of background, which are government officials, local visitors of the place and young community members.

4.2.4.1. Government Officials

These groups of participants were 4 in number. Professionally, all participants are qualified with first degree holders and coming from the municipality office, whom are, mayor of the city, head of land administration office and two members of land administration office staffs were part of this discussion.

The main discussion points were:-

- What are riverside activities that are currently taking place and are those activities maintaining the sustainability of the neighborhood in all aspects?
- What must be improved to develop public space along the riverside area?
- Do you think there is a need to intervention of revitalization of the riverside neighborhood?

Generally the meeting was short and consisted and each of them expressed their views about the points.. all of the participants gave almost the same idea that backed each other in which, the activities that are currently taking place are farming and seedling activities, but this doesn't help to maintain the sustainability of socially, environmentally and economically. And they all agreed on the need to change to maintain the sustainability by mixing activities along the riverside area, instead of using the riverside area for farming only, some other activities like, hotels and resorts, green public spaces for all would attract more local and international tourist toward the city.

But care must be taken so as not to expel farmers who farm on irrigation along the river from their farming lands, re accommodation or proper payment should take place.

Finally they agreed on the need of revitalization of the riverside neighborhood in order improve the life style of the neighborhood community and boosting the economy by attracting more investments along the river edge, including creating jobs for the young community of the neighborhood. All this mentioned activities should take place keeping the delination of the buffer zone from the river.

4.2.4.2. Local visitors

Local visitors are personals who visit the well-known sodore resort hotel and those who cross through the town of Awash melkasa as the town is located on along the main primary arterial street that leads to Arsi Zone administration, and it is a preferred spot for travellers to take a break to get some rest after some long journey. The reason behind choosing the town as resting point is that the town is well known for its yummy and quality fruit Juice production.

Based on the information collected from the visitors of the town the riverside neighborhood is well-known for its fruit juice production and it is serving like an attraction for the town. Generally they suggested that it would be more advantageous for the town if there had been tourist attraction developments on the riverside are like lodges and public recreational areas.

“once you taste this juice, it becomes like an addiction in which you can’t pass through the town without taking a bottle of juice or taking fruits to your family, it is very nice juice” (Amare, traveller)



Figure 38 fruit production in the town of Awash Melkasa

Source: - own photography, 2020

the other form of local visitor are, visitors those who come to entertain themselves to the well-known Sodere Resort Hotel, especially on weekends, the resort is visited by thousands of local and international visitors from all around the world. Some of those visitors won't miss tasting the Juice after their visit is ended in sodere resort on their way home.

“I usually visit Sodere Resort hotel, it a wonderful recreational place, though the services provided by the resort to the customer is not much satisfactory, it has been a favorite recreation destination for me and my kids and it has been like a trend that whenever I come to sodere, I always visit this place on my way back to Adama, I couldn't find this kind of juice anywhere else, they have specialized in fruit juice production” (Mohammed, 33)

The researcher has observed that most of local visitors are not coming directly to Awash Melkasa town riverside to entertain themselves; instead they just come across on their way to other town or on their way returning from sodere resort hotel.

By the time this research carried out, sodere resort was closed due to some problems between government and the resort. This directly harms the juice market of the Awash melkasa town since the visitors of the resort have stopped coming to the town whom used to stop by on their way to the resort or viceversa.

“ river is a natural resource that can be used an attraction to different kinds of investments like irrigation farming, industry, hotels and resorts along the riverside, but this town is not using its potential to develop the neighborhood and create a huge job opportunity to the young living around, the government need to consider this in the future” (Temesgen,)

4.2.4.3. Community members

Community member also have been included in focus group discussions to acquire more information about the current riverside activities and to differentiate things that need improvement in the future. Generally the points raised for discussion were

- What are the problems you faced at the neighborhood and riverside activities
- What should be done to improve the neighborhood lifestyle and to boost the commercial activities along the riverside.
- What do you think about revitalization of the riverside area?

The meeting was held in the neighborhood with some youngsters of the area who are currently residing in the neighborhood and who usually visit the riverside area in their day to day life. Their idea is 100% similar in which they are facing some series problems about activities taking place on the riverside and the neighborhood.

Most of my respondents were jobless or they don't have a constant job opportunity and they spend most of their time swimming on the river or on addiction on alcohols and chewing chat. They also criticized the governments' role in harnessing the opportunities of the town to change neighborhood communities' life including life of the young part of the community.

They also complained about job opportunities in industries and other sectors in which workers are brought from other towns and cities without considering job seekers of the town. These has led the youth to practice an informal type of commercial activities such as, street vending, loading and unloading services



Figure 39 focus group discussions with the young community

Source: - own photography, 2020

As shown in the figure above most of young communities of the town are not incorporated in to a formal job, which is a type of job like working for a company with working agreement with a stable location in regular hours and paying taxes to the government, to change their life as well as their families; so, they are forced to work in an informal marketing activities like selling fruits for passing travellers through the town or selling swimming outfits and sandals for tourist who are on their way to sodore resort hotel, which means having a little or no job security, no contract of working etc.



Figure 40 youth selling fruits and vegetables informally

Source: - own photography, 2020

4.2.5. Frequency of Riverside visit

In the pie chart figure below, the collected information about resident's frequency of river side visit states that, out of total respondents 47% (40 individuals) have responded that they visit the riverside area just in case they don't have water source from the usual source, which is pipeline water, which unlikely to disappear. The second figure, 35.3% (30 individuals) is those who don't visit the riverside area at all. On the other hand only 7.1% (6 individuals) out of 85 respondents have responded that they visit the riverside only once a month, similarly, 7% of the respondents visit the area 2-3 times a week, finally 3.5% of the total responding population visit the riverside usually once in a day.

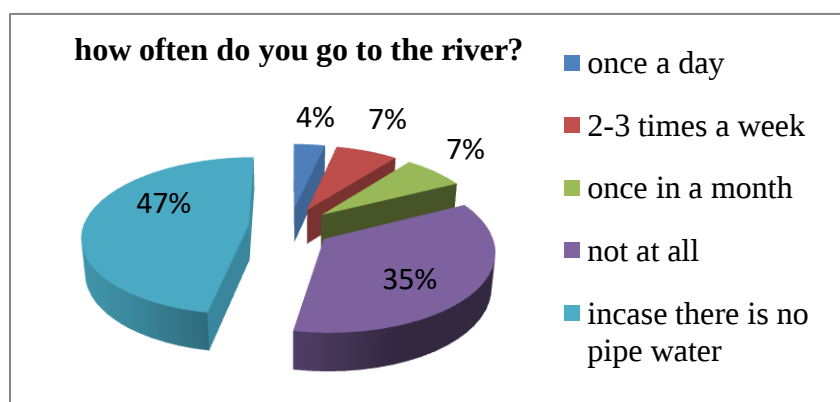


Figure 41 frequency of the respondents to visit the riverside

Source: - own survey and computation, 2020

According to the above figure, most of the respondents do not have regular connection with the riverside area, a potential area for an open public space, but due to the riverside area mismanagement and development condition only small portion of the respondents visit the area only 2-3 times a week or once a day passing challenges to use the riverside for washing clothes, fetching river water and swimming or showering purpose.

the cross tabulation of age of respondents and riverside visitors frequency cross tabulation shows that only younger age groups are main beneficiaries from the riverside recreation practices as shown in the table below.

Age Vs river visiting frequency of respondents Crosstabulation						
AGE	once a day	2-3 times a week	once in a month	not at all	incase there is no pipe water	Total
20-30	2	5	0	10	5	22
31-40	1	1	6	0	4	12
41-50	0	0	0	0	11	11
51-60	0	0	0	8	16	24
ABOVE 60	0	0	0	12	4	16
Total	3	6	6	30	40	85

Table 10 Age vs. Visiting frequency of riverside residents to the river cross tabulation

Source: - own survey and computation

Respondents at older age are not welcomed to be at the riverside open spaces because of dirtiness, pollution and discomfort ability of the river edge. Most of river edges are covered with urban farming practice, which makes it difficult for older edge groups to walk along the river edge on undeveloped walkways.

The researcher has carried out an interview with youth who spend some of their time along the riverside area on daily basis. Since of the respondents were household owner most of them do not come to riverside area, waiting for the youth who come to the riverside area and interviewing them was an option.

4.2.6. Reasons for visiting the riversides

People may have various reasons to be present in public spaces as public space fulfills many functions. Throughout all of the interviews that were carried out, the reason that kept mentioned by the users regarding their motives to visit the riverside was ‘to get some fresh air and swimming or taking shower in the river. This answer mostly refers to the condition of being outside since literally getting a ‘fresh’ air in such area located near to undeveloped riverside area which is often dirty and used without any boundary by everyone including animals like horses and cows seems not possible. Even for interviewees who seldom come to the riverside area, their reason to visit this public space was simply to be outside. This is probably a simple answer, yet it expresses the importance of public open space for the town dwellers. As Awash Melksa town has lack of public open spaces, the presence of the river as an urban public space offer a great chance and possibility for people to be outside. Some also indicated that being on the riverside area gave them a relaxing feeling.

“I like to come here to the river after my daily labor job to take bath and get some refreshment and get relaxed by swimming in the river . This place is fine for me.”(Dechasa, 30)

A group of teenagers, mostly boys, use the riverside as a meeting place. Some of the groups gathered on the area in a regular schedule to do more intense activities such as chewing chat and sometimes drinking alcohols.

“I sometimes come to this riverside place because we don’t have youth recreation centers that we can spend our time in it, our only chance is drinking alcohols and chewing chat to recreate ourselves. (Daniel, 32).

Some individuals visit the place for fishing practices, the action area is located on artificial lake on the river for the purpose of Hydroelectric power generation, As these area located on the dam of Awash Hydroelectric power plant II and open an access to it, these areas are also found attractive for fishing, I have seen people who were fishing in the area. The time when I conducted the fieldwork seems to be not a good time for fishing, but they have told me they catch some fish just for personal and family consumption.

“Fishing is my hobby especially on weekends when I’m off school and I can have enough amounts of fish for my personal consumption” (Tibebu, 19)

So, in general, for these users, the current riverside have provided space for public outdoor activities. Their motives for being here were influenced by several factors; from a simple reason like walking, hanging out or watching the surroundings to more specific intention like fetching water, washing clothes, washing horses, fishing, taking bath, chewing chat and swimming. The users with specific intentions usually visit the riverside regularly because, these areas are main setting for their activities while others are present when they feel like they want to come; no particular time to visit. Arranged activities conducted on the riverside usually bring more people to come like orthodox Christianity annual holydays that are performed on outdoor public spaces.

“What do you like and do not like about the riverside?”

Most of Awash Melkasa town community do not visit the area regularly, the reason behind is mismanagement of the area without any governmental development or private investment. Some part the community; especially the youth who visit the riverside seem to be happy with the presence of the river even without any further development.

“I’m happy with this riverside area. The city looks better with the presence of the river. It’s not well developed but still our source of happiness, when the weather is hot; this is the place we run in to cool ourselves. But there is no limitation and regulation on how to use the river, as you can see some people wash their clothes, other wash their horses, while others swim inside the river, so this needs a serious attention from the local administration is required to keep order and regulation so as to keep the riverside clean and beautiful” (Temesgen ,27)

4.2.7. Evaluation of the current management condition of the riverside

The current management condition of the riverside edge and neighborhood is being carried out by the local administration of the town. The level of management condition of the study area has been evaluated by general observation of the area, level of satisfaction of the neighborhood residents in terms of questionnaire and focus group discussion and through interviewing of selected local administration government officials.

The general discussions and questionnaire data shows that the performance of the local administration towards managing the riverside area is below level of satisfaction.

“The local government can change communities’ life with simple correction of development policies and strategies by encouraging us to form a micro enterprise and lending some financial supports so as to take part in some commercial activities like urban farming, fishing on the river since there is an artificial lake formed for Awash Hydroelectric Power Plant II, recreational spaces along the riverside area etc. but we are not lucky to have a local administration to facilitate such works” (Yohannes, 29)

On the other hand only 4% of the respondents have agreed that the government is performance is ok, in which the city administration is not well equipped with material and professionals to handle the management condition and harness the potentials of the city, in addition to that the city is divided between two zonal administrations, which are Arsi Zone and East Shoa Zone, this type of administration has led in to mismanagement and control of the town from the zonal level of administration which in turn led in to lower investment and prosperity condition of the riverside neighborhood.

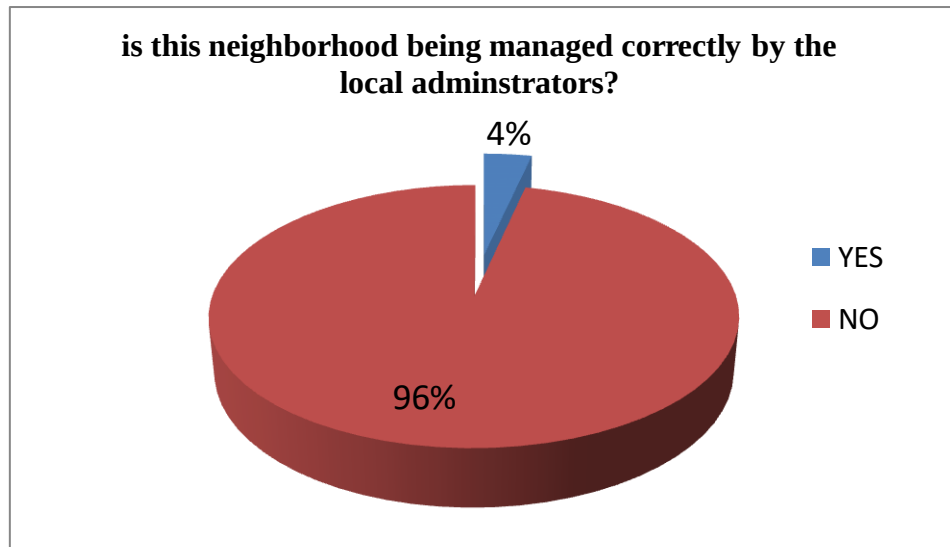


Figure 42 Pie chart on opinion of respondents on the management of the city

Source: - own survey

Government officials admit that the riverside neighborhood is not well managed in terms of creating public spaces and building other basic infrastructures like roads and social service facilities. The reason behind is that zonal and regional administration's hasn't been giving any attention in harnessing the investment opportunity of the neighborhood by promoting the area to the local and international investors along with preparing a proper land use and structure plan for the neighborhood.

4.3. Major findings

4.3.1. Social Aspects:

The major problems that have been observed in the action area include the following:

4.3.1.1. Adequate social service facilities

The existing primary school is adequate for the residents in the study area and planning area, so there is no need to provide a new school in the action area, instead, it needs to increase the service and the standard of the existing school and the medium clinic is prominent activity. As well as it is preferable to widen more public and business spaces to effectively utilize the site development capacity.

4.3.1.2. Inadequate public recreational areas

According to the survey, recreational facilities like green areas or parks, library, cinema, plaza, etc. are virtually nil.

4.3.1.3. Poor housing units

The physical condition of almost all of the housing units (64%) in the project site is found in bad condition. Only 8 percent are found to be in good condition and 28 percent of the settlements are found in fair condition.

The Revitalization project is expected to address these problems by reserving appropriate sites for annual cultural festivity of Irrechaa, orthodox Christianity annual holydays and other public recreational facilities. Regarding the housing units which are found in poor condition, an upgrading intervention will be conducted mainly along the major road which has to be dandified by increasing the building height.

4.3.2. Economic Aspects

From economic point of view, the major findings have been stated as follows: The study area is characterized by large unemployment rate among youth, most of them are graduated. At national level unemployment rate in the urban part of the country in 2012 G.C. was 17 percent. There is a small difference in proportion of sex among house hold owners, male (47.1%) and female (52.9%).

The monthly income for the majority of the respondents has been reported to be low. About 41.2% of the house hold respondents earn monthly revenue of between 1000-2500 birr. And the second highest majority of the respondents earn money between 2500-4000 birr.

Amount	Frequency	Percent
<1000	7	8.2
10001-2500	35	41.2
2501-4000	32	37.6
4001-5500	7	8.2
above 5000	4	4.7
Total	85	100.0

Table 11 level of income of the respondents

Source: - own survey, 2020

This survey shows most of the residents have moderate and low income level, so the transformation reform or revitalization should consider the income level of the community.

4.3.3. Spatial/Physical Aspects:

The major findings related to the spatial (physical) aspects of the Action Area include the urban center decay; poor development of commercial centers and residence units, Isolation of the river from public recreation activity, Less consideration for Public space developments (play grounds, city parks, waterfront developments, street side public spaces, court yards etc., Less consideration of pedestrian and bicycle transportation, Street parking and public parking problems, Poor road networks, roundabout and street scape design problems and dead end roads, Poor drainage system and poor waste management, Low density and horizontal development, Social services shortages like a developed public spaces.

Based on the analysis and intensive research, the researcher has found out that:

The Awash Melkasa town has a huge opportunity to attract investor and developers so as to transform the overall conditions of the riverside neighborhood lifestyle and commercial activity of the area in to much better one. Unfortunately, the government hasn't carried out

its obligation to prepare the spot so as to attract developers in terms of preparing land use plans and promotions.

The land allocation along the riverside is not supported by legal documents like local development plan and land policies, it is just granted by negotiation with no strategies, standards and guidelines set by the town administration particularly from transforming the riverside area into economically vibrant destination by developing public and private recreational areas.

Residents of the riverside area has discussed that the current river edge activities are only farming and swimming or showering spot for young community, and development conditions are not good at any aspects.

The focus group discussion and interviewers also agreed that current development condition is not good for the areas transformation. Local tourists also agreed that the town would have been much benefited from the riverside land allocation and investment attraction to the area, in which most of tourists prefer to visit places with water bodies, they should harness this opportunity. Most of the riverside area is filled with irrigation farmers and farmers has blocked the way access to the river side area denying equity of each community members from accessing towards the river, walkway along the natural resource.

The local administration is not well-equipped in both structural human resource and economical ability to admin the town to provide adequate infrastructures, attraction investments, creating job opportunities to the young community members.

As a researcher, I propose to develop and explore a design solution that overcomes the current challenges and hinders future threats that could occur to the neighborhood and the river edge area by taking into consideration to harness the opportunity of creating comfortable living neighborhood, commercial and recreational riverside services.

CHAPTER FIVE

5. Conclusion, Recommendations and Design proposal

5.1. Conclusion

The town of Awash Melkasa is surrounded with natural resources to enable the overall rapid growth of the town. One of major natural resource is the Awash River crossing in the middle of the town that is being used as an Artificial Lake for Awash Hydroelectric Power Plant II and Sodore resort hotel along this river are major functions at the current time; but, based on analysis and findings of the study, the adjacent riverside neighborhood is not at the level of good condition to satisfy a comfortable living neighborhood and vibrant business activity. The current land use practice shows the absence of local development planning and guideline to utilize the opportunity to create a comfortable riverside neighborhood. The local administration is not well-equipped in terms of educated and experienced man power to handle and lead the riverside neighborhood development on the right path.

The river edge is all occupied with farming activities, in addition; the access towards the river is blocked due to farming and land grabbing and the local government is in a weak condition to implement rules and regulation to keep the buffer distance from the river, local roads are below the standard width, even though there are plenty of bare lands in the study area, there is no developed public space

In general the study area needs an overall revitalization in planning and designing the riverside neighborhood area to overcome the current challenges and change the way of life of social structure of the society, to redevelop the physical infrastructures and environmental conditions, to bring economic growth of the study area by taking economic measures to eradicate unemployment and poverty and finally create a comfortable living neighborhood and vibrant business area.

5.2. Recommendations

The result of the research shows that the current Awash Melkasa town riverside neighborhood development is condition is not properly being managed by the local administration due to absence of local development plan and guidelines to attain a comfortable living and vibrant business neighborhood that incorporates a riverside recreational public spaces and tourist destination developments.

To overcome the problems mentioned in the conclusion part, the study outlined the following recommendations.

It is recommended for town and zonal administration to prepare a detail local development plan immediately before allowing any further developments on the riverside area and the local administration should be well equipped with educated man power on the land use planning and implementation sectors.

A proper participation of stakeholders should be given emphasize, so as to create understanding and cooperation between all parts of the community including local residents or their representatives about the importance of upgrading land use practice of the riverside area for the intended purpose.

The public spaces and greeneries allocation should be increased to the standard level in which only about 40% of the study area is covered with built up structures.

The river front area should be utilized as recreation and free public space without any boundary for all parts of the neighborhood community. This in turn will provide a huge chance to create a job opportunity for the youth of the neighborhood by running businesses related to the public space, water pars, boats, fish farming etc.

The urban farming practice that have been taking place on the riverside area should be promoted to continue in more scientific way with keeping the necessary buffer distance from the river edge area, and the local administration should collaborate with the farmers to convince them to open the blocked access roads to the river and keep the buffer zone regulations. This will help to achieve equitability of the natural resource for all parts of the community of the neighborhood.

Investors and developers should be invited to invest on developing hotels and lodges on the commercial blocks as shown on the proposed design. This will help to transform the economic activity of the area in to more vibrant business and comfortable neighborhood.

5.3. Design Proposals

The researcher proposed a design based on analysis made in this study. The concept behind this design proposal is to overcome the current challenges of the Awash Melkasa town riverside neighborhood and create a comfortable living neighborhood and economically vibrant and sustainable urban environment.

5.3.1. SWOT ANALYSIS

5.3.1.1. Strengths

The strengths of the study area is that it is easily accessible from the city center and it is surrounded by existing transportation infrastructures beside the proposed road, It is waterfront project and good land form for landscaping design, the existence of social vacant farmlands, which decreases the number of dislocation of residents in the study or action and planning area, suitability of the land for planting any kind of vegetation, Presence of the river along the action area helps a lot to create water front public space and less cost for demolishing existing structures since most of the action area is surrounded by vacant farmlands.

5.3.1.2. Weaknesses

The weaknesses of the study area is Under standard and undeveloped neighborhood area, Very low development of commercial centers in the action area, Under standard decayed residences developments, Isolation of the river from public recreation, Less considerations for Public space developments, though there are adequate spaces for public space development, less consideration of pedestrian and non-motorized transportations like bicycle, street and public parking problems, Road hierarchies, lack of adequate round about and street scape design problems and there are dead end roads, Inadequate storm water drainage lines etc.

5.3.1.3 Opportunities

The opportunities of the study area includes that the study area is easily accessible from the city center also it is found at the adjacent of the Asella-Adama arterial street, It is

waterfront project , a very small number of residents to be displaced from their original residential spots, though they will be re-accommodated on the same site, this helps a lot to minimize the crisis of social and cultural life stability of Ethiopian families and the area is suitable for urban farming practices.

5.3.1.4. Threats

The threats in the action area are, the administrative commitment for implementation of the project, farmers will be displaced from their farmlands though there will be adequate compensation.

5.3.2. Type of Intervention Selected

The type of intervention selected is for the study area is renewal and upgrading interventions, in which some existing road networks are upgraded keeping the existing network and layout in, and incorporating the river in urban planning as an element of planning, in order to harmonize the study area with adjacent planning area. So, the urban riverside revitalization intervention is selected.

5.3.2.1. Vision of proposed design

The vision of the riverside urban revitalization is stated as follows.

“To create a quality and sustainable riverside living neighborhood integrated with the riverside recreational and public spaces and economically vibrant streets.”

5.3.2.2. Objective of proposed design

5.3.2.2.1. General Objectives

The general objectives of the proposed design is to revitalize the study area based on the analysis of spatial, social, economic and environmental development options.

5.3.2.2.2. Specific Objectives

The specific objectives include the following:

- To transform the study areas to a more attractive, livable residential and economically vibrant riverside neighborhood.

- To create comfortable public accessibility to the river to make water front public spaces.
- To improve the land use practice of the study area by Increasing density (vertical development) allowing for diversified land use and improved quality of housing
- To improve connectivity within the study area and adjacent neighborhoods by improving the road network, drainage network and waste disposal systems.
- Providing Urban landscape design to create places where people want to live, work and socialize, from the street corner to the brand new settlement.

The design proposal discusses various aspects of the study environment and the community and it is described as follows.

5.3.2.3. Aspects of design proposals.

5.3.2.3.1. Socio-Economic Proposals

Projection on the future requirements of housing and services depends on the size of the population which the Action Area is expected to accommodate. In case of Structure Plan, future requirements of housing and social services are made based on population projection. The population projection approach to be followed takes the following points into account.

The size of land (out of the total area occupied by the Action Area) which will be allocated for residential function, the Built up Area Ratio (the total area out of the total land allocated for residential function which is usually about 80%); and,

The density of the action area can be described as the number of people in the study area is 506 people, future population is calculated using the formula (present population $\times (1 + \text{growth rate})^{\text{years}}$), through which considering the growth rate is to be 4% in fifteen years,

The Population projection in the next 15 years using the formula above calculated to be $(506(1+0.04)^{15} = 911)$. This shows that the study area can accommodate additional 405 residents in the next 5 years. Thus, sites required to address the demand (for housing and social services) of existing as well as additional population have to be reserved in the study Area.

5.3.2.3.1.1. Future Requirements of Social Services

Schools: as mentioned above the study area can accommodate about 911 populations in the next 15 years and there is an existing primary school in the study and secondary school is also located in the adjacent neighborhoods. Instead of providing additional school, upgrading the existing school is crucial.



Figure 43 proposed school and administration buildings

Source: - own proposed design, 2020

Health care Services: Currently, there is one health center in the Planning adjacent Area which is providing health service to the residents of the study area as well. Since a health center is designed to serve 25,000 populations, the existing health service would be adequate for the residents in the Action Area.

Religious Institutions

Currently, there are both Islamic and Christianity faith institutions in the planning area and it is not necessary to propose a land for the religious institutions.

5.3.2.3.1.2. Future Requirements of Housing

Housing: The number of housing units to be constructed in the Action Area is estimated based on the additional housing units in the study area can accommodate, housing units to be relocated as a result of implementation of the project and contingency.

All housing units relocated from their existing position will be re-accommodated on the study area and additional housing units required for the projected population is presented as follows.

S.N	Description	Number
1	Additional HH	66 Housing units
2	Relocation existing hh	85 Housing units
3	Contingency (10%)	15 Housing units
Total Demand		166 Housing units

Table 12 Number of proposed household units

Source: - own computation, 2020

Additional Households: 85 households in the survey conducted. As a result of densification of the Action Area, the area is expected to accommodate 66 additional (see table 13).

Relocation: As a result of implementation of the Local Development Plan, all housing units will have to be demolished and re-accommodated again on the site without displacement of the residents.

Contingency: The total demand based on backlog, additional households and relocation Existing housing units (85), forecasted housing units (66) adds up to be 151 housing units. Based on this figure the contingency (10%) has been estimated to be about 15 housing units.

Total Housing Units: The total demand for housing units has been estimated to be about 166 taking in to account the additional households, relocation and 10% contingency.

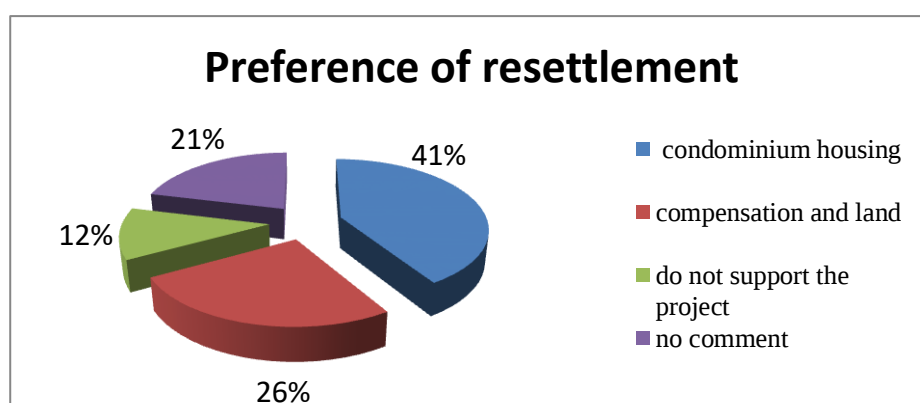


Figure 44 preference of resettlement of the respondents.

Source: - own survey, 2020

A pure residence block has been assigned in the proposed design for those who chose to acquire land and compensation and build their own residence in separate compound.



Figure 45 pure residence villas

Source: - own proposed design, 2020

A communal multistory residence has been proposed for those who chose to be accommodated in apartments.



Figure 46 proposed communal residential buildings

Source: - own proposed design, 2020

5.3.2.3.2. Economic Proposals

With respect to economic and economic related proposals, the following have been proposed/suggested: In order to address the problems related to unemployment it would be crucial to promote the development of MSEs and reserve plot for MSEs in the Local Development Plan, special attention need to be given to youth and women in creating job opportunity. The informal sector need to be formalized by providing trainings, loan, plots of land, etc. So that it would be possible to collect taxes from the formalized business establishments.

To improve the monthly income of families, housewives who constitute about 53% of the study area population should be involved in income generating activities. Moreover, employees who are working in government or nongovernmental organizations should create additional means of income. Young community should be encouraged to participate in riverside development, since the place comfortable for such activities like fishing, swimming, hotels and lodges, small range boat services etc. creating awareness about the importance of saving. Moreover, the existing effort being exerted to promote MSEs should also be strengthened since those who are organized under MSEs are obliged to save.

The planning area contains urban farming activities that produce cash crops using pumped water from the river; urban farming can be used as a creation of job opportunity for the jobless.

5.3.2.3.3. Proposed Spatial Development

Based on observation of existing physical condition the study area, spatial development of the neighborhood has been proposed. Conceptual development for the formulation of proposals takes into account about Integration of the site with its surrounding riverside area and the neighborhood, Preference of the residents, Environmental consideration, and Existing land use Standard and Population density and catchment area, Creating a habitable residential environment with impartial distribution of social services with a minimum cost and relocation.

In this respect, an attempt has been made to increase the public recreational spaces along the riverside to accommodate more advanced and comfortable green public spaces that can transform the area totally and creating a more vibrant economic activity, to incorporate various employment generating activities so as to address unemployment, to increase accessibility of the river and to increase the coverage of services including recreational areas.

Creating walk able surroundings with esplanades on the riverside peripheries as well as Stretching commercial activities and public spaces of waterfront area, street corridors towards the study area in order to change the dormant activities and increase public comforts and Enhancing the development by giving respect to the existing characters of the area.

5.3.3. Land Use Proposals

5.3.3.1. Pure and Mixed Residence

In this proposal significant changes in Residence use have been made. This is done based on the land use requirements of each component.. Most of the study area is covered with undeveloped bare lands and farming lands. The built up settlement area on the existing land use was 1.22 ha or 9.27 % of the total study area.

The residential land use types are in two forms in which for the respondents who wanted to be re-accommodated in their own living compound without sharing their compound with others, a pure residential land use type is proposed. For the respondents who wanted to be re-accommodated in condominiums or high density mixed residential types, mixed residential land use has been proposed.

No	Existing Land use type	Area (ha)	Percent
1	Green forest and bare land	7.92	60.1
2	Mixed mainly commercial	0.30	2.3
3	pure and mixed residence	0.54	4.1
4	Service, Administration	0.34	2.6
5	commercial	0.04	0.3
6	Road, walk way & undeveloped open area	4.03	30.6
Total		13.17	100.0

Table 13 Existing land use by type and area

Source: - own survey, 2020

No	Proposed Land use type	Area (ha)	Percent
1	Green and public spaces	2.29	17.4
2	Mixed mainly commercial	2.03	15.4
3	pure and mixed residence	1.96	14.9
4	Service, Administration	1.19	9.1
5	commercial	1.42	10.8
6	Road, walk way & open area	4.25	32.3
Total		13.14	100.0

Table 14 proposed land use type and area

Source: - own proposal, 2020

5.3.3.2. Commercial Activities

The proposed commercial land use category constituted 1.42 ha or 10.8 % of the total land coverage. Blocks adjacent to major roads, have been proposed to serve as mixed commercial uses as far as the conditions allow. as it is clearly shown on the two charts above the mixed use and commercial land use areas have been increased from the existing one, because the existing land use categorization was based on substandard small shops at a corner of a residence.

The mixed use land use also increased in a remarkable way in 2.03 ha or 15.4 % of the study area is proposed.

5.3.3.3. Green and Recreation Areas

There is no public open space that serves the residents of the study area and its surroundings. The total area proposed for this function is about 2.29 ha or about 17.4 % of the total area, which is an enormous increase from the existing coverage of 0.0% of total area in terms of developed public spaces. The proposed land use map is shown below.

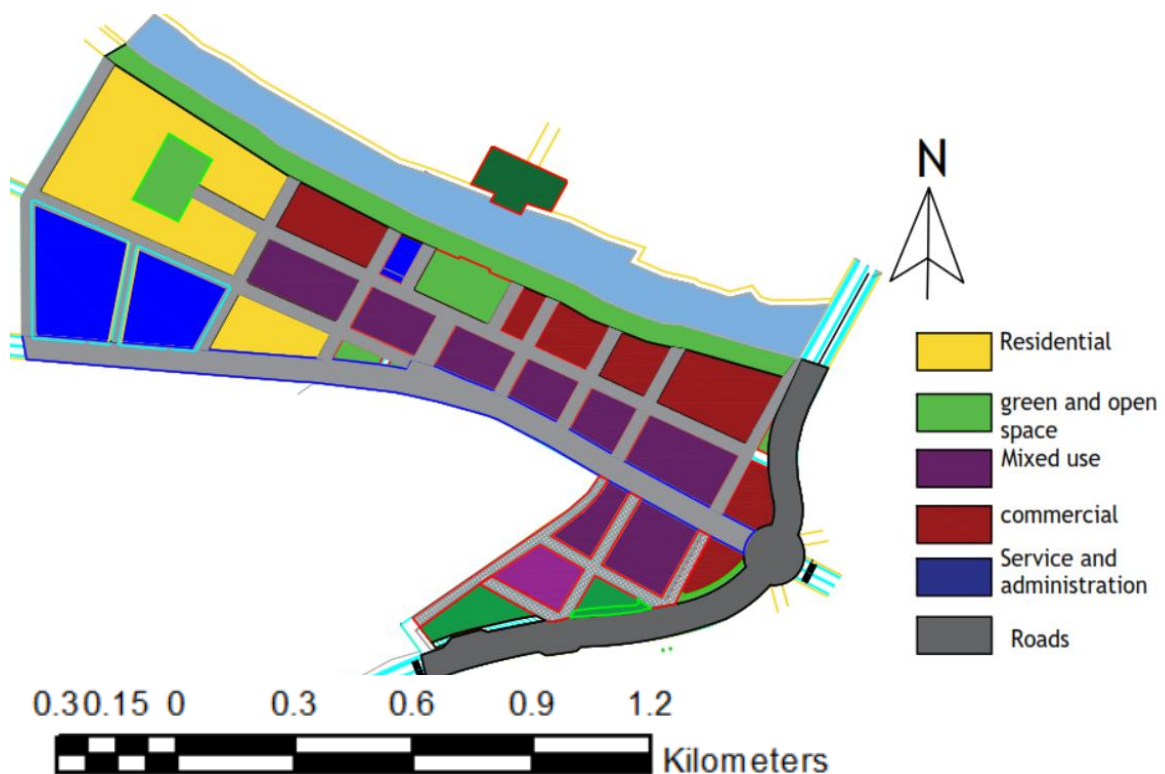


Figure 47 Proposed land use map

Source: - own proposal, 2020

No	Existing and Use Classification		Area (Hectare)	%age		
1	Pure Commerce	BAR (Solid)	0.04	0.3	9.3	
2	Residence & Mixed Use		0.84	6.4		
3	Social Service		0.34	2.6		
4	Bare land, Greene forest and farming		Void	9.99	75.9	90.7
5	Transport (Road Network)			1.96	14.9	
TOTAL			13.17	100	100	

Table 15 Existing land use solid and void ratio

Source: - own survey, 2020

This land use proposal increases the recreational activity of the area and enables to accommodate the annual religious and public holydays

No	Proposed land Use Classification		Area (Hectare)	%age		
1	Pure Commerce	BAR (Solid)	1.42	10.8	50.2	
2	Residence & Mixed Use		3.99	30.4		
3	Social Service		1.19	9.1		
4	Open Space, Greenery and Parking		Void	2.29	17.4	49.8
5	Transport (Road Network)			4.25	32.3	
TOTAL			13.14	100	100	

Table 16 proposed land use solid and void ratio.

Source: - own proposal, 2020

5.3.3.4. Social Services

There are some adequate services being given around the action area in the planning area territory at a very considerably near position, which are schools, health centers and grave yards and religious faith institutions at a walking distance from the action or study area. As a result the action area consideration was mainly improving the standard of the primary school and other service sectors like administration which were originally existed on the area.

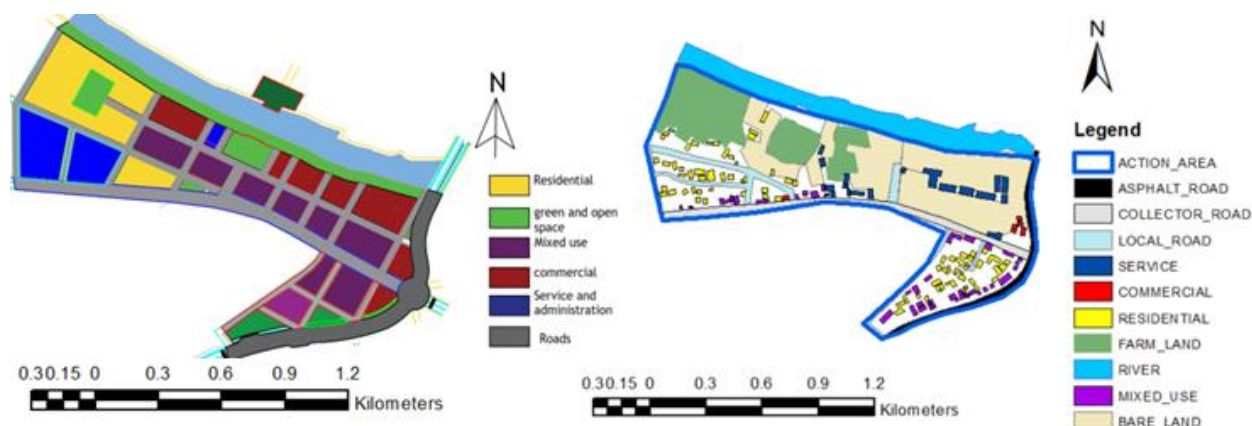


Figure 48 comparison of existing and proposed land use maps.

Source:-own survey and proposal

5.4. Proposed Road networks

In the proposed design of roads, due attention has been paid to the quality of roads in order to improve accessibility and level of transportation. Hence, hierarchy and width of roads, drainage channels and surfacing materials of roads has been carefully taken into account.

The following points are carefully considered in the proposal.

Issues considered in proposing road network are

Linkage, Traffic Flow, Linear Expansion, Topography, Densification Of Uses And Activities, Traffic Flow From Nearby Kebeles, Through Traffic, Permeability and Accessibility Junctions, Parking Facilities and Hierarchal Integration.

Approaches Used

Both new Provision and Up grading approaches are utilized. New road provision includes bicycle Lanes, collector streets which adjust street hierarchy, Parking (off street Parking (both on ground and vertical parking) and basement Parking). Upgrading includes surface material treatment, realignment of Width and Spacing, improving utility Lines, on street Parking, pedestrian Walk way and street Plantation along Pedestrian Walk way.

5.4.1. Hierarchy of proposed road networks

As it has been discussed in the existing situation analysis, the road does not follow hierarchy. Hence, as part of overcoming the problem, in the road network proposal, new roads are proposed and the existing roads are modified to adjust the hierarchy.

5.4.2.. Width of proposed road networks

In the existing analysis, the road covers 14.9 % or 1.96 ha of the land use. It is not only inadequate distribution, but also its width is not as per the hierarchy. Below standard and inaccessible roads are adjusted so as to meet the minimum standard condition of road.

The first major step taken is widening of roads, which are below standard (2-6m) keeping a minimum of 10m. Collector road width was maintained to be 20m and the Principal asphalt road is maintained to be 30m wide. So, the Widths in the proposal are adjusted as per the requirement of the standard.

proposed design Road network area and percentage of the study area					
	width (m)	area (ha)	%	standard	remark
local road	10	1.76	13.36	30 % of total area	sufficient amount of road network
collector road	20	1.23	9.35		
asphalt road	30	1.26	9.53		
total		4.25	32.24		

Table 17 proposed design of road network with and percentage

Source: - own survey, 2020

Existing Road network area and percentage the study area					
	width	area (ha)	%	standard	remark
local road	2 to 6m	0.76	5.75	30 % of total area	insufficient amount road network
collector road	15m	0.74	5.61		
asphalt road	12m	0.47	3.54		
total		1.96	14.90		

Table 18 Existing road width and percentage

Source: - own proposal, 2020

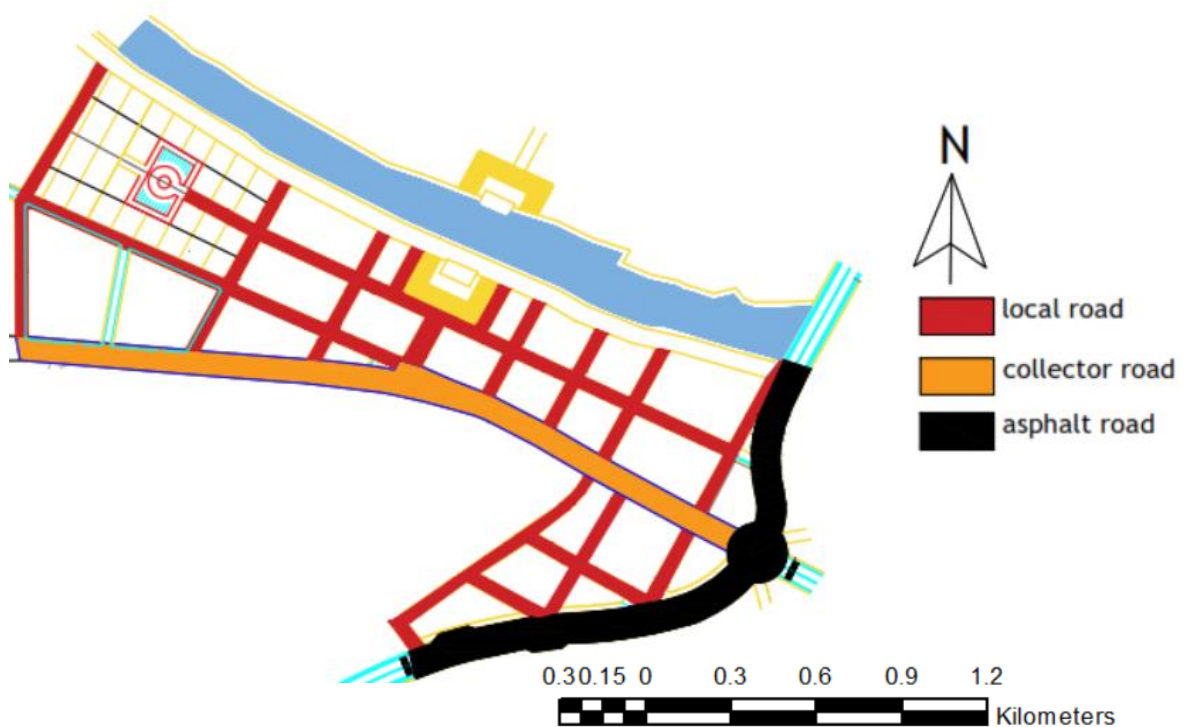


Figure 49 proposed road network map

Source: - own proposal, 2020

Based on new urbanism concept to bring a smart growth, more emphasis is given for circulation. Totally 4.25 ha or 32.24 % road was proposed in both up grading and newly provided roads. In addition, access roads are provided between the building blocks to increase through accessibility and permeability.

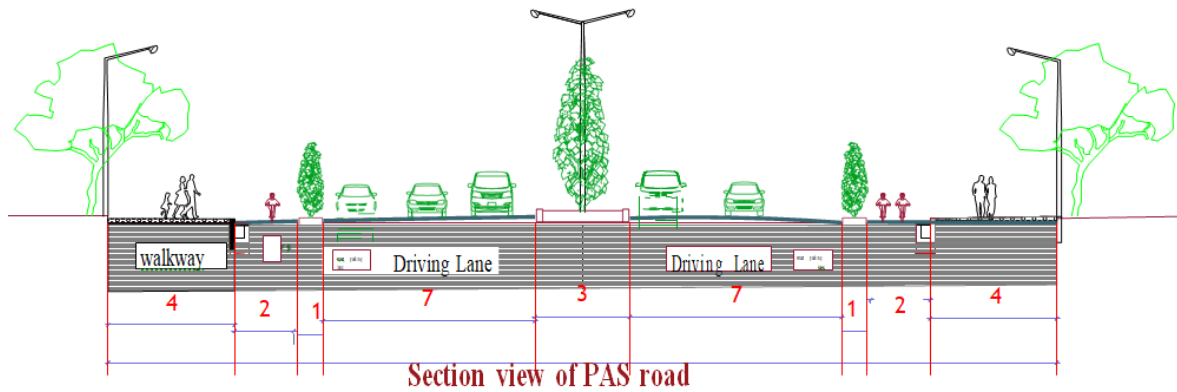


Figure 50 section view of PAS road

Source: - own proposal, 2020

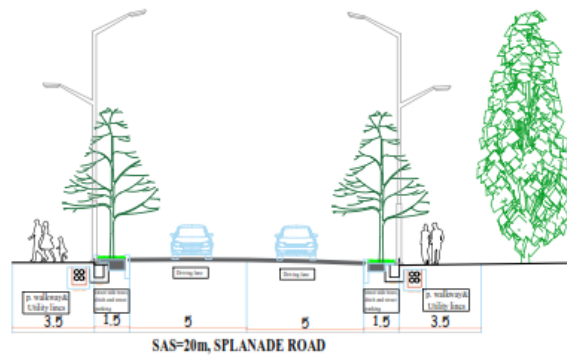


Figure 51 proposed road section of collector road

Source: - own proposal, 2020

5.4.3. Proposed surfacing material of proposed road networks

The existing access asphalt road will be upgraded with better standard materials and wider width. The collector road which is surfaced by earthen material is proposed to be paved by asphalt, while the local streets are proposed to be paved by cobblestone.

The esplanades (river side walkways) is proposed be paved with synthetic material so as to create a comfortable walkway and running spot for all age group of the community in the neighborhood.

5.4.4. Drainage Channels

During the survey, it was discovered that all of the roads except the existing primary arterial asphalt road did not have drainage channel. However, the proposed design of the

study area has included the necessary infrastructures like drainage channels, street lights and street amenities like benches and corner phones etc.

The storm water disposal drainage channel is different with liquid waste water that is collected from house hold toilets and other similar facilities.

The storm water or the runoff from the area is collected and ultimately disposed into the river to join the hydrologic cycle, while waste water is drained in to a treatment plant to join a further cleaning process before re using it.

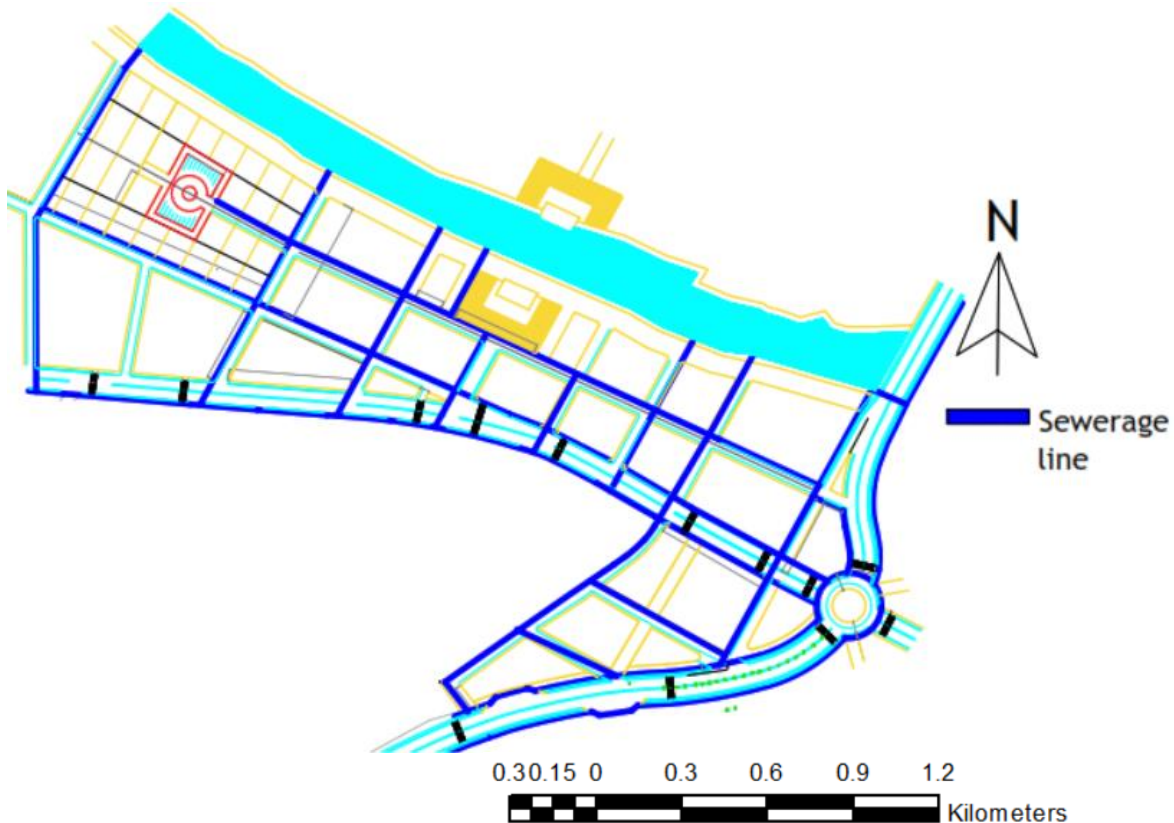


Figure 52 proposed sewerage line

Source: - own proposal, 2020

The proposed drainage lines are well designed in order to prevent the road networks from being eroded by storm water. The following map shows the difference clearly.

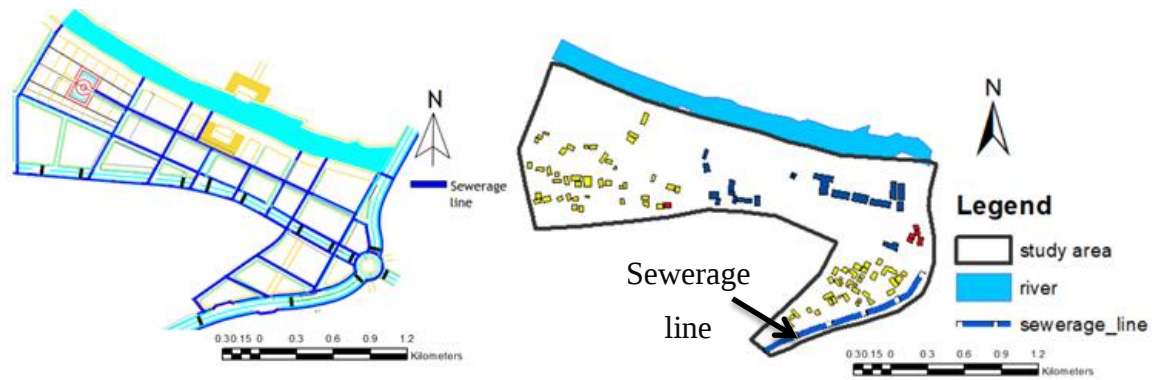


Figure 53 Comparison of existing and proposed drainage line networks

Source: - own proposal, 2020

5.4.5. Electric Power Utility Line

The existing electric line is not well connected through the neighborhood blocks, since it follows the existing block arrangements to supply power utility to the households.

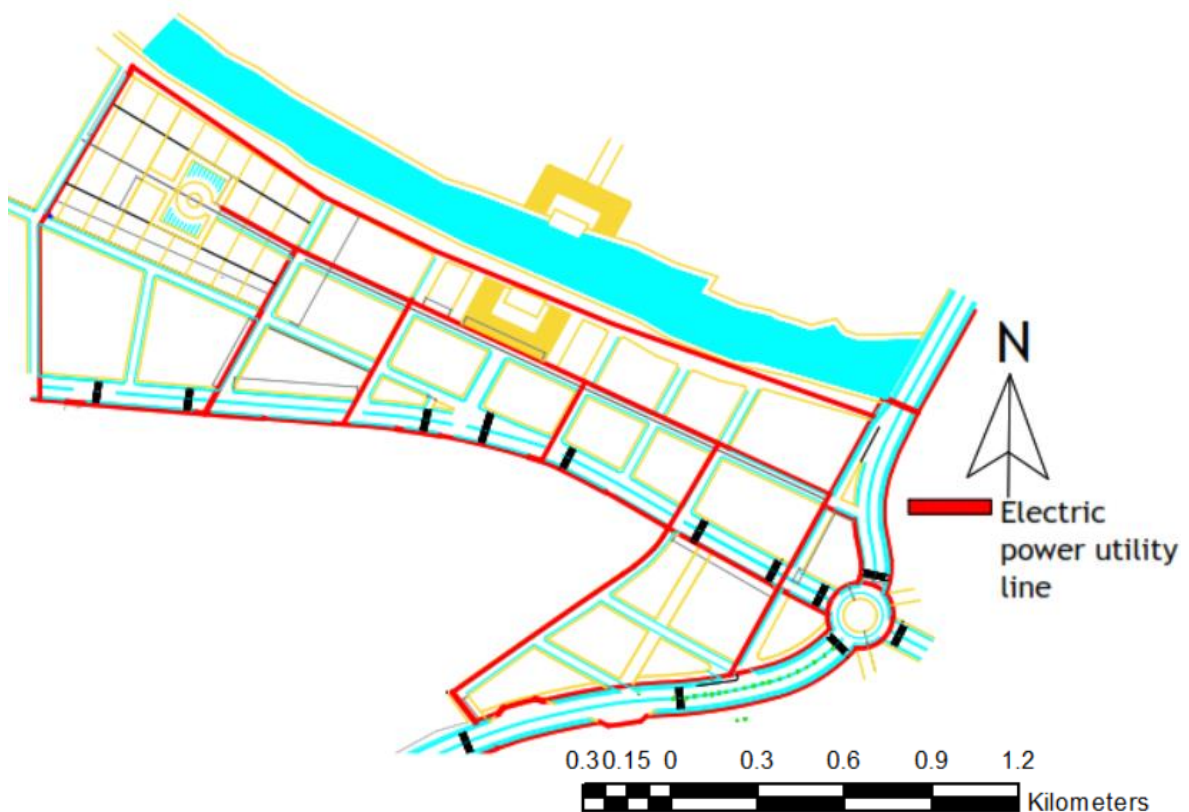


Figure 54 Proposed Electric power line map

Source: - own proposal, 2020

The newly proposed power utility line network is arranged following the well-arranged neighborhood blocks. Besides upgrading the existing utility line, new power lines are proposed along the riverside block to enable the visitors of the public place along the riverside area to visit without time boundary day or night time.

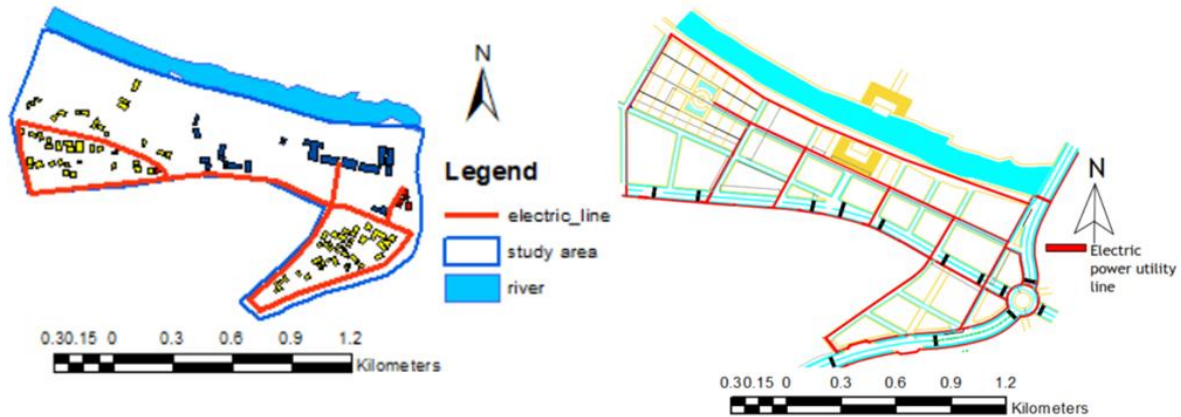


Figure 55 Comparison of existing and proposed power utility line maps

Source: - own proposal, 2020

5.5. Building Height Regulation, Setbacks and Proposed Block Arrangement

5.5.1. Building Height Regulation

The regulation is implemented by focusing on street width rather than distance between buildings across a street. It also focused only on the height of a building for which building permit is requested rather than the height of the building opposite to it on the other side of the street.

Building Height Considerations

The height of a building considers factors like seismicity, soil type and topography, Existing Building Height of the surrounding area, Existing development trend of the town, Financial capacity and Interest of developers, Type of the land use, Demand pressure for land, Functional considerations

FAR: - is the relation between the total floor area expressed in square meter and the total plot area.

BAR: known as the Built up Area Ratio, BAR expresses the relation between the area occupied by the building and the total plot. About 80% BAR means the building is occupying that percent of the total plot area. Regarding this proposed plan for Awash

Melkasa River front revitalization project, the BAR should not be more than 75% of the plot area. Most the area will be reserved for recreation, transport and public spaces.

er. No	Land use	New BH (Stories)	New max FAR	Remark
1	On 30m Road Width	G+8-G+12	1:4	This includes among others residential areas that are located along major streets.
2	On 25m Road Width	G+6-G+8	1:4	
3	On 20m Road Width	G+6-G+8	1:4	
4	On 15m Road Width	G+6	1:4	
5	On 10m Road Width	G+4-G+8	1:4	

Table 19 building height regulation along major streets

No	Building height	Minimum building frontage	Maximum building depth
1	G+0-G+4	7	10
2	G+2-G+4	7	10
3	G+4-G+7	10	14

Table 20 Minimum Building frontage and maximum building depth

N.B. minimum building frontage for residential plots is 7m and for commercial plots is 10m.

Advantages of height zoning

Height zoning contains advantages like helping to prevent height disparity, encouraging efficient use of urban land and infrastructure, it increases the density of the city by reversing horizontal development, attract and promote local investors, Improve land value and Encourages compact development.

Based on the above principles the building height of the proposed neighborhood design is adjusted to be a minimum of G+1 and a maximum of G+15 based on the road width and building depth distance from the road edge.

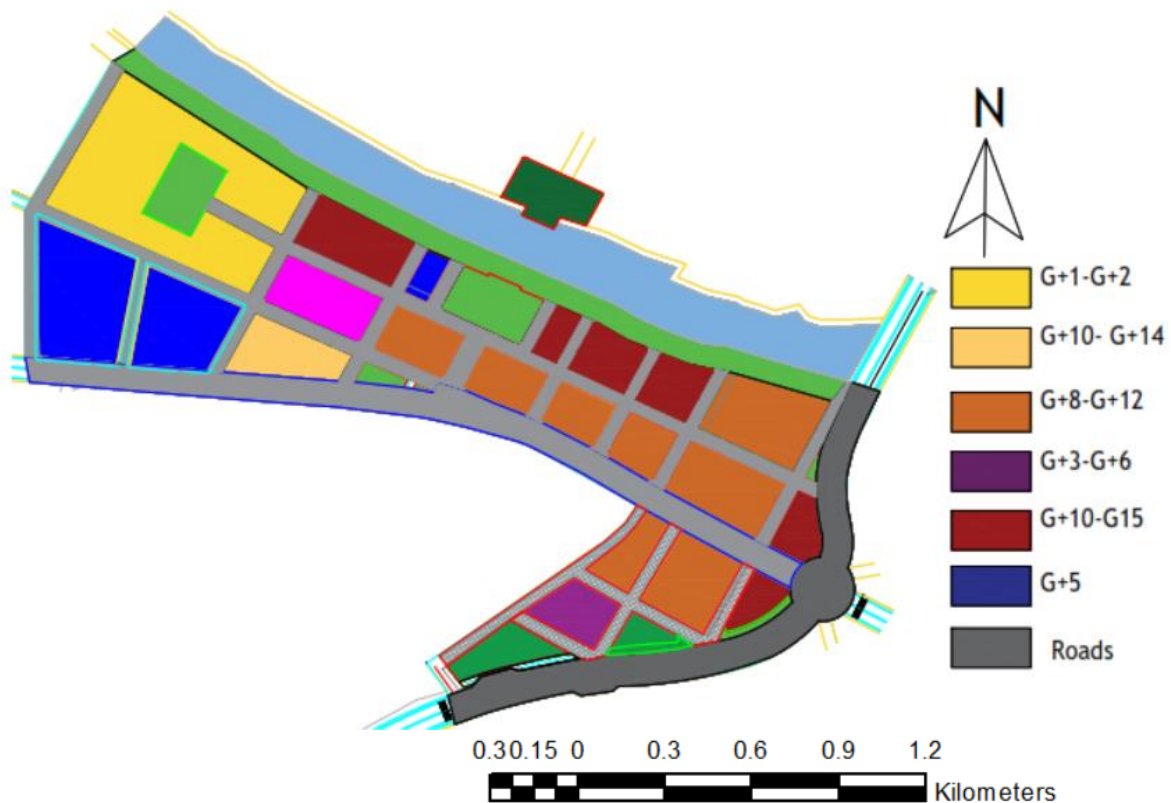


Figure 56 proposed building height map

Source: - own proposal, 2020

5.5.2. Setbacks

1. Set Back (Blue Line and Red Line) Regulation

The blue line on the morphological layout indicates the freedom of increasing the buildable area found within the red and blue lines, the blue line being the limit of expansion and also indicates set back. Accordingly the red line represents the property right line where it is not allowed to build up to that line and indicates the end of pedestrian walk way. These rules and regulations, clearly indicates which area is buildable and unbuildable and guide the future development of the area.

2. Front Setback

Depending on the type of the road and building type, the front setback is determined. For residential buildings, there must be a minimum setback of 2m while for commercial activities a minimum of 5m set back is required.

3. Left, Right and Rear Setbacks

If there is an opening in the left, right and rear side there will be a setback. Along commercial centers there will be a BAR of 80% and similarly for proposed mixed the BAR should be 80%.

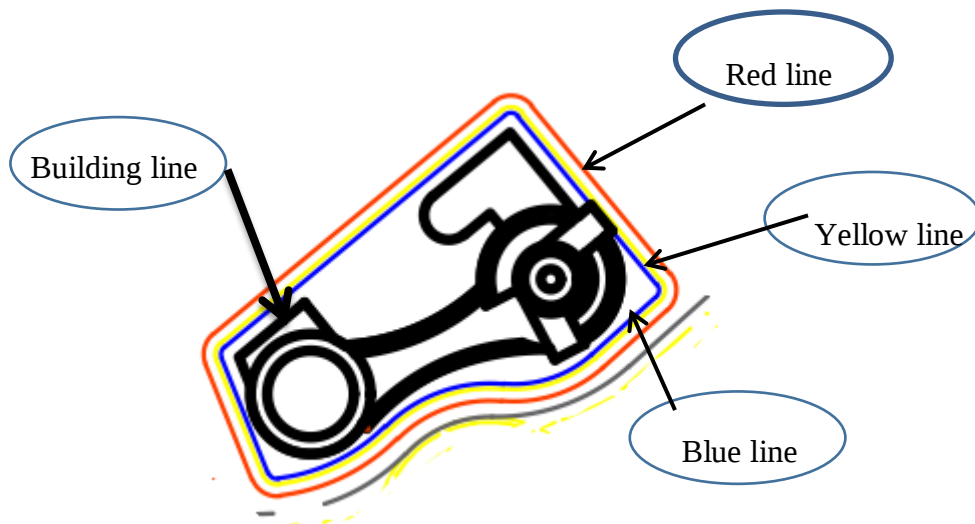


Figure 57 commercial building in the proposed design

Source: - own proposal, 2020

5.5.3. Proposed block arrangement

The major considerations in the proposed block arrangement are Height zoning in which Building height determination are streets and open spaces land use functions. G+15 is the maximum building height in the site and Parking should be accommodated in the every plot. New proposed social services including neighborhood parks, public parks and open spaces

In the proposal appropriate setbacks according to the standard are provided at public fronts and interior spaces in perimeter blocking are provided to create appropriate circulation space, open space, parking, and greenery with proper landscaping. The blocking clearly creates spaces at the frontage of buildings, and at the back of buildings.

Since, the ultimate goal of the project is to bring a competent, sustainable economically and environmentally active urban corridor. To meet this aim, both fine grain and coarse grain building blocks are proposed. This is a fine grain building for communal buildings

(condominium) and coarse grain buildings for shopping malls, commerce with Apartments and commerce with hotel to prevent crime through design by permeability.

5.6. Morphological Characteristics of the Proposed design.

The morphology of the study area is proposed to bring a proportional built up area with solid void ratio (50.2% and 49.8) and characterized by comfortable and visually permeable geometry of blocks by creating enclosure space in the inner part of buildings and cul-de-sac for the pure residential block. The morphological map and height regulation map is discussed on the building height regulation section and figure 66.

5.7. Open space and Greenery

Green and open spaces network has become increasingly important as the effects of climate change take hold and urban areas suffer temperature increase. Its role and its cover in cooling the urban heat island effect will be vital to make settlements attractive places to live. Thus, the proposal has established a network of green areas to infuse through the site within walking or biking distance from homes.



Figure 58 open space and greenery

Source: - own proposal, 2020

5.7.1. Parking

Regarding parking both on street and off street parking which is ground basement parking also proposed. Especially more emphasis is given for off street and basement parking. Off street parking is proposed at the back of the building blocks under the shade of proposed trees. Basement parking also proposed in all pure commercial buildings and in some shopping malls. In addition to this space for community areas have been reserved in addition to parking space proposed at the sides PAS street.



Figure 59 proposed off street parking

Source: - own proposal, 2020

5.7.2 Greenery

The site investigation shows that almost there is no well design open space and greenery in the study area. Open space and greenery are proposed in a every interior part of blocks but also at the frontage of every building blocks. Street plantation along in both side pedestrian walkway and median are planted by selecting appropriate plant species in their ornamental, foliage, shade and Aesthetic value but also by keeping standard spacing between plants.

5.7.3. Proposed Plant Species

1. The common Names of this plant species is Senegal Date Palm while scientific name is called *Phoenix reclinata*, widely distributed in Africa, its habitats are Swamps, and river banks, usually close to the coast. It is described by a large, clumping palm, to about 10m tall, it is too large for most gardens, but very good for parks. The proper weather conditions are Sunny, and moist position.

Likes lots of water, (it doesn't mind wet feet. It can be used as ornamental and also good for shading in small sized street. Suitable for street planting and in small sized.



Species name	Months	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Phoenix reclinata	Flowers												
	Leaves												

Figure 60 proposed palm tree speciesce

Source: - Adopted from (Daniel Lirebo, 2006)

2. The Scientific Name of the plant species is Prunus Africana, in common name it is called White ash, its height could rise to 80 feet with evergreen foliage, it's features are resistance to storm damage and can grow on poorly drained soil, it can sustain in all areas of climates, used for ornamental and shading purposes.



Plant species	Months	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Prunus Africana	Flowers			.						.			
	Leaves												

Figure 61 proposed plant species (prunus Africana)

Source: - Adopted from (Daniel Lirebo, 2006)

3. The scientific name of this plant is *Acacia Saligna*, while the common name is known to be *Cyanophylla*, its height could rise in between 6.00-9.20 meters, the type of the plant is large multi-trunked shrub, Bluish-green leaves are 152-254 mm long, semi-evergreen, Blooms clusters of orange ball-shaped flower, its primary color is Blue green, it can spread between 4.60-6.00 meters and can be used for shading and screening purposes.

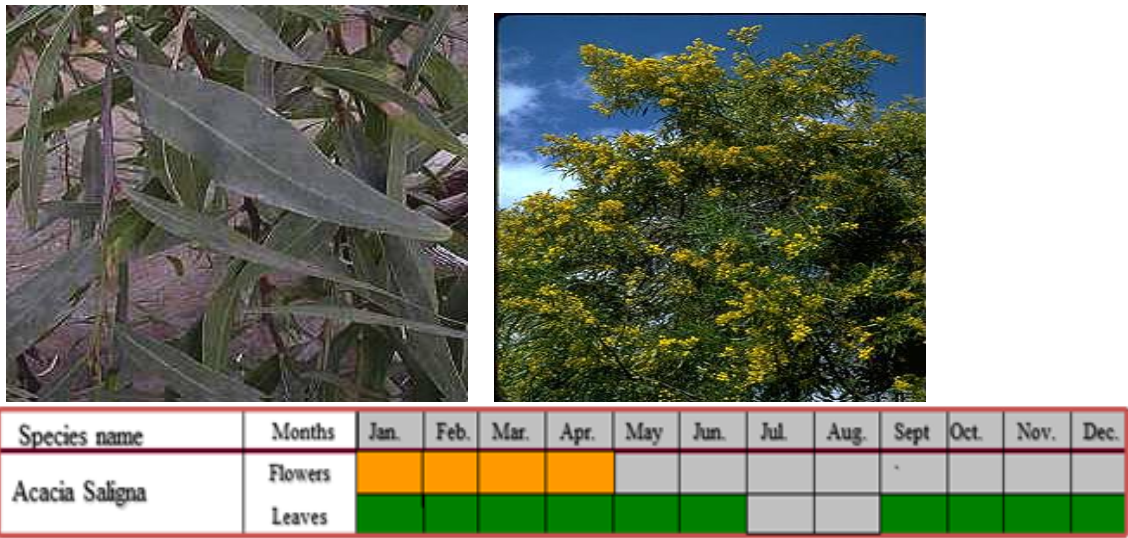


Figure 62 proposed plant species (*Acacia saligna*)

Source: - Adopted from (Daniel Lirebo, 2006)

4. The Scientific name of this plant species ***Delonix regia***, while the common name is known to be Flame tree, categorized in Tree habitat., its leaves are Feathery fern like leaves, deciduous

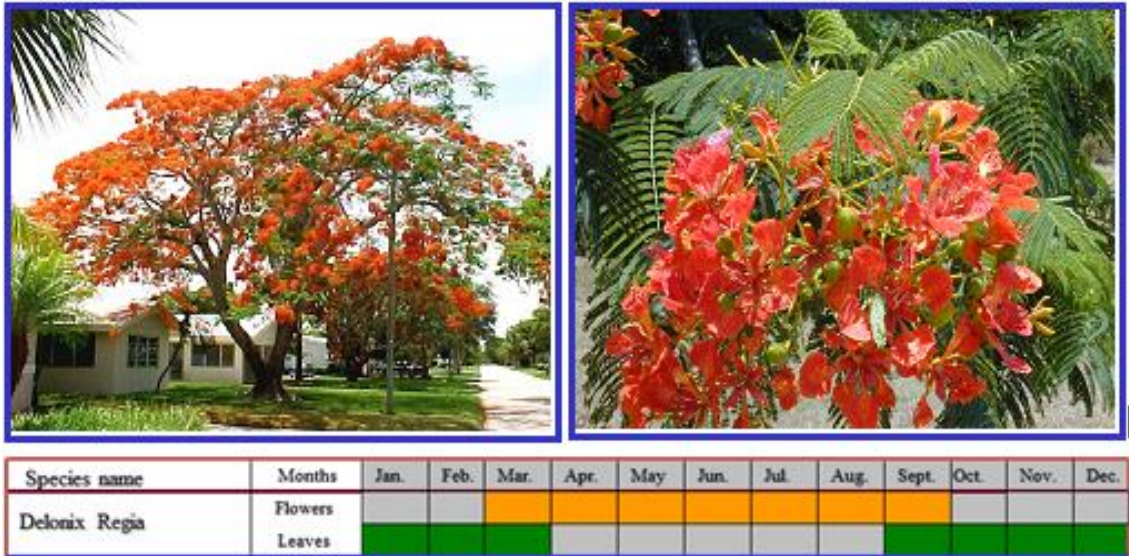


Figure 63 *Delonix regia* (proposed plant)

Source: - Adopted from (Daniel Lirebo, 2006)

It

drops all its leaves once a year. its flowers are characterized by Red colored flowers, pods are dark brown when they mature, its barks are gray with smooth texture, rough when mature. Its forms are single trunk, spread branches. The height could rise more than 15 meters long and it can spread more than its height as well. It can grow in tropical and sub-tropical regions and can be used for ornamental in gardens, public parks and Suitable for streets and car parking areas

5.The scientific name of the following plant is Jacaranda Mimosifolia, the family name is known to be Bignoniaceous- Bignonia, a tree type of plant, its height could rise between 5-15m tall, its leaves are bipinnately compound with 13-31 pinnae, each with 13-41 sessile these 0.3-1.2 cm long, 0.1-0.4 cm wide, glorious or slightly purulent along the midrib and margin. The flowers are In open, terminal panicles and can be used for ornamental and shading purposes.

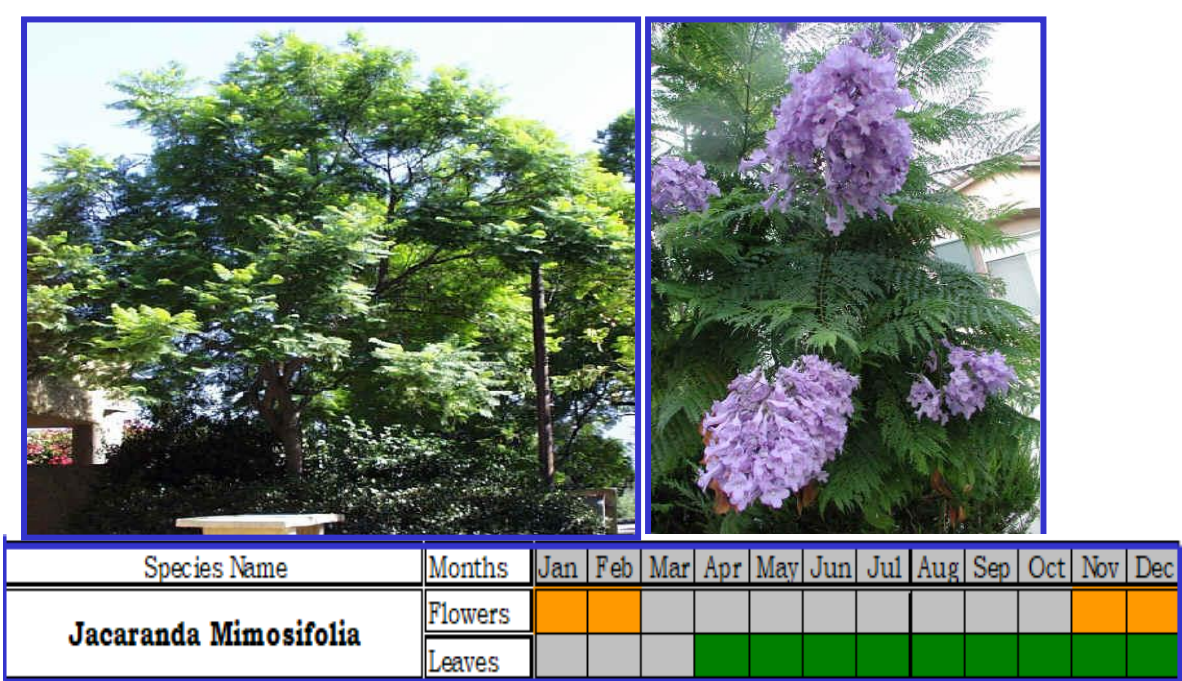


Figure 64 Jacaranda Mimosifolia
Source: - Adopted from (Daniel Lirebo, 2006)

1.6.1. Landscape Design

The character and appearance of land, including its shape, form, ecology natural features, colors and elements and the way these components combine. Landscape character can be expressed through landscape appraisal, and maps or plans. In the proposal the three

infrastructures are designed by using landscape elements and principles. Especially soft landscapes which is selection of appropriate plant species and putting them according to principles and elements along the streets and block edges.



Figure 65 proposed landscape 3D views

Source: - own proposed design, 2020

5.7.4. Street Furniture

Structures in and adjacent to the main streets, which contribute to the street scene, such as taxi lay by shade, dust bins, seating chairs under shades, lighting, zebra and different signs are proposed according to the standard.



Figure 66 proposed street furniture 3D views

Source: - own proposal, 2020

5.8. Three Dimensional Views of the Proposed LDP Site

The three dimensional view of the site is depicted in the figure 32 having three different figures.



Figure 67 proposed design 3D top view

Source: - own proposal, 2020



Figure 68 3D view of proposed design

Source: - own proposal, 2020

5.9. IMPLEMENTATION STRATEGY

5.9.1. Identification of Stakeholders and Roles and Responsibilities

Identification of stakeholders along with their respective roles and responsibilities has of paramount importance for the effective realization of the local development plan in the study area. Accordingly, the major stakeholders and their respective roles in which Administration and project office should work in providing ownership title deed to investors and developers, construction permits, awareness creation, compensation calculation and payment, controlling illegal land use etc.

5.9.2. Development cost:

The capital needed for the implementation process have computed in detail. The general tendencies of involving the private sector in the development activities give emphasis to marketing the enabling opportunities so as to attract private developers as much as possible. Special attention has nevertheless given to public undertakings/projects- how to use the limited resources of the public sector, where shall it be invested for best performance- addressed clearly.

S.N	Activities		Unit	Quantity	Estimated Unit cost	Estimated Total cost
1	Site Clearing		m ²	131,370	120 Birr/m ²	15.764 millions
1	Road	Asphalt	Km	5	10mil/km	11.385 millions
		Cobblestone	m ²	46918	550birr/m ²	21.12 millions
2	Cooperative/public housing construction		m ²	28-villas 46-T1 23-T2 23-T3	4.5 mill/villa 1.5mill/ hh 1.0mill/hh 0.65mill/hh	2.3295 billions
3	Compensation for private households		No	85	350,000birr/HH	29.75 millions
4	Open and green spaces development		ha	2.29	7,500,000	171.75 millions
5	deck construction		No	1	20,500, 0000birr	20.5 millions
6	SUM					2.66 billion ETB

Table 21 implementation plan

Source: - own proposal, 2020

5.9.3. Phase of implementation

The implementation of the major activities in the planning period is categorized in the following three phases:

5.9.3.1 Phase -1, 2013-2014 E.C

Phase 1 of implementation plan contains Compensation, Relocation in the alternative shelter site, Clearing the site, Construction of major infrastructures like roads, utilities and esplanade, Finally selling the land or leasing, Developing Micro & Small scale Enterprises on the area

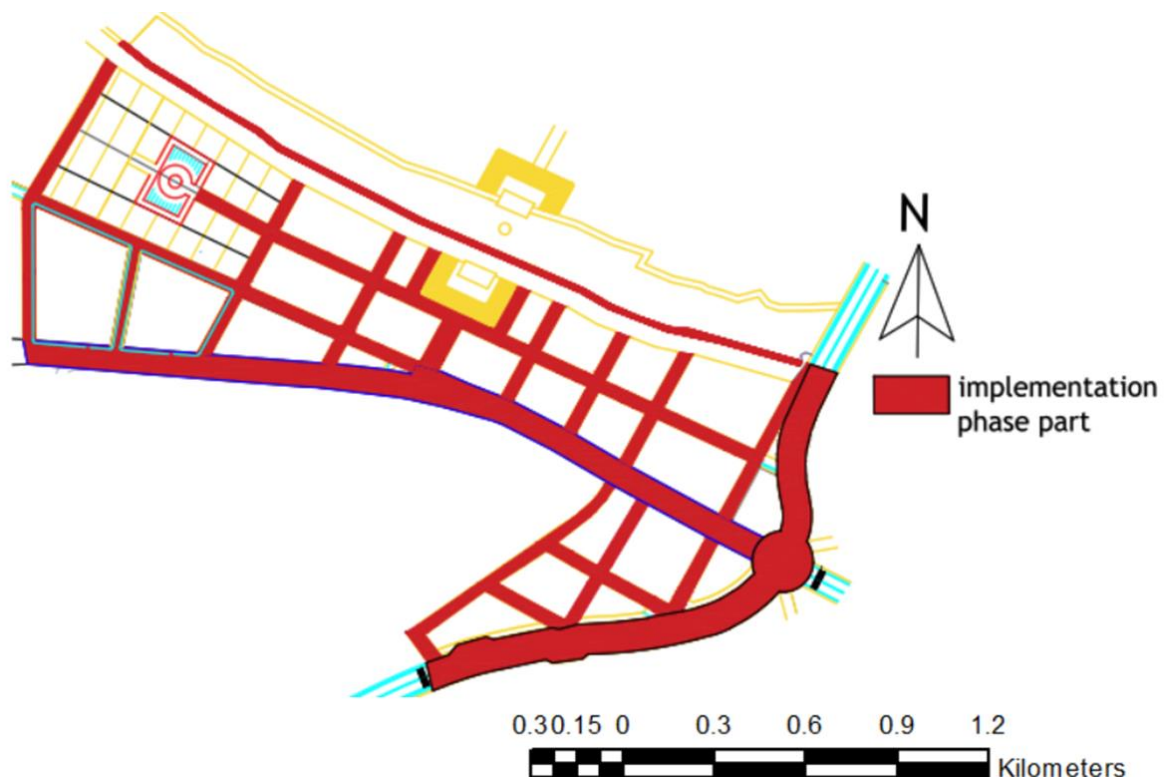


Figure 69 implementation phase 1

Source: - own proposal, 2020

5.9.3.2.Phase -2, 2014-2015 EC.

Phase 2 of implementation plan contains building of social service infrastructures, housing, Construction of private buildings and facilities

5.9.3.3.Phase -3, 2015-2016 EC

Phase 3 of implementation plan contains Construction of open area and playing grounds, Providing street amenities and utility line systems like telecommunication, water etc. Roads ,appropriate sewer system, upgrading of local streets and other components

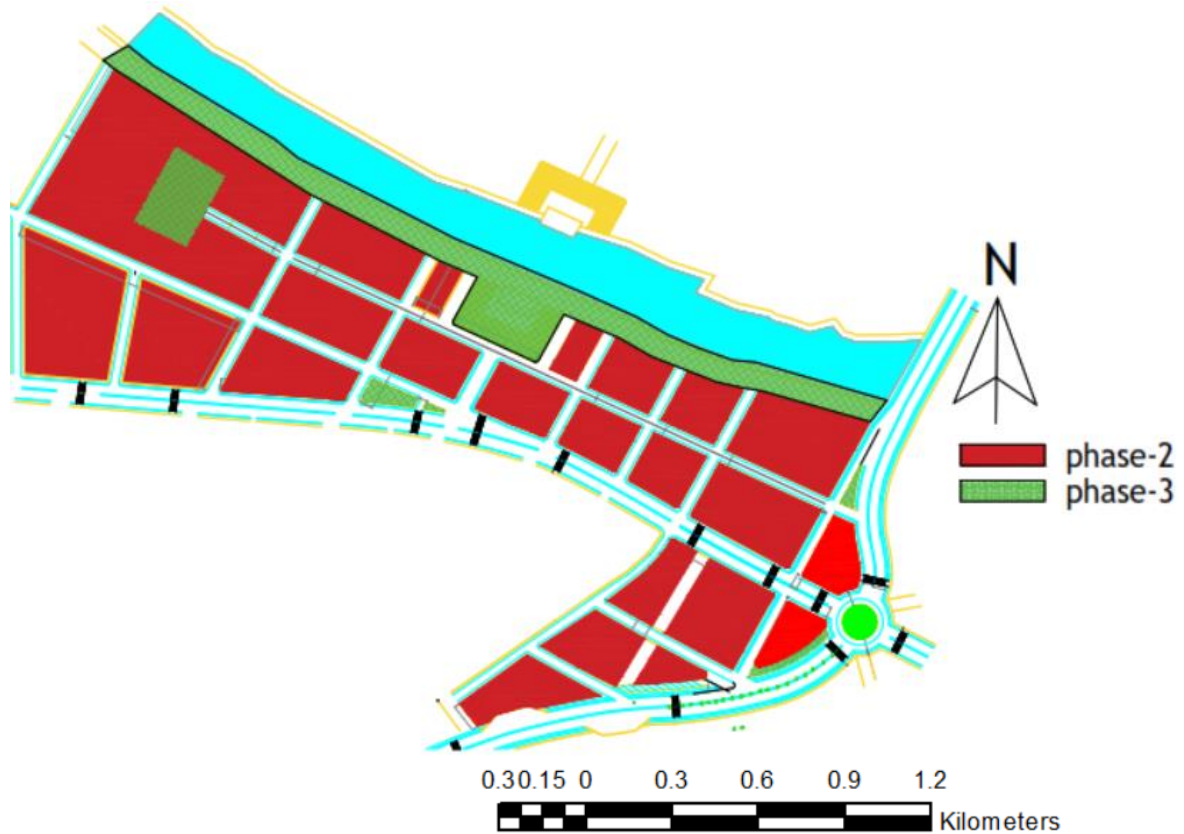


Figure 70 implementation phase 2&3

Source: - own proposal, 2020

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Appendices



ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY

SCHOOL OF CIVIL ENGINEERING AND ARCHITECTURE

DEPARTEMENT OF ARCHITECTURE

Questioners for Households

Questioner ID_____

The purpose of this questionnaire is to obtain data for a research project entitled “urban river side revitalization: the case of Awash Melkasa town”, in partial fulfillment of the requirements for the award of an MSc Degree. The aim of the questionnaire is to collect information related to the current challenges of the riverside development and for suggesting solution that overcome the current challenge in Awash Melkasa Town. I would like to promise you that the whole information given by the respondent is used for academic purpose only. Hence, considering the purpose of the questioner respondents are kindly requested to cooperate with the researcher in giving the necessary information. I would like to thanks you for your cooperation.

Thank you!

Instruction

Please put (X) on the box for the answers you choose or fill your answer on space provided or fill your answer on space provided.

Part I. Background Information

1. Age A. 20-30 ☐ B. 31-40 ☐ C. 41-50 ☐ D. 51-60 ☐ E. above 60 ☐
2. Sex A. Male ☐ B. Female ☐
3. Educational status A. Illiterate ☐ B. Elementary ☐ C. Secondary ☐
D. College diploma ☐ F. Degree & above ☐
4. Marital statuses A. Married ☐ B. Unmarried ☐ C. Widowed ☐ D. Divorced ☐

5. Ethnicity A. Oromo ☐ B. Amara ☐ C. Tigre ☐ D. wolayita ☐ F. other ☐
6. Family size of the households? A. 1-4 ☐ B. 5- 8 ☐ C. 9-10 ☐ D. above 10 ☐
7. 8. Monthly income in birr A. <1000 ☐ B.1001-2500 ☐ C. 2501-40000 ☐ C. 4001-5500 ☐ D. above 5500 ☐
8. Types of job. A. Private ☐ B. Government ☐ C. Unemployed ☐ D. Farmers ☐

Part II. Information related socio economic condition of communities living around the riverside and existing condition of the riverside

1. How long have you been living in this neighborhood? _____
 - a. Do you enjoy living along the Awash riverside? **Yes/no** why _____
 - b. Ownership type of the house; **A) private B) government C) rental D) others:**
 - c. Area of the house/plot: _____
 - d. Do you have outside space: **Yes No..... A) Private B) communal**
2. For what purpose do you use the house? **A) Residential B) commercial C) mixed use**
3. Material used to build the house /housing condition: [picture no.____
 - a. Walls: **A) stone B) concrete C) chicka D) plastic E) wood F) others**
 - b. Inside flooring: **A) stone B) concrete C) earth D) others**
 - c. Roofing: **A) corrugated iron B) plastic C) others**
 - d. Choice of construction material: **A) cheaper B) available C) affordable**
 - e. Housing condition observation **A) Good B) fair C) bad**
4. Types of housing settlements? **A) G+0 residential B) G+0 commercial C) G+0 mixed D) G+1 & G+2 mixed E) social services**
5. Do you have access to clean water? Yes/No **A) Private B) communal C) buying**
6. Do you have access to solid waste disposal area: **yes/no if yes where? A) Garbage tanks B) sewerage lines C) open spaces D) on the river**
7. Are you happy with the location of your house being on riverside? **Yes/No** why?

8. What do you like about the neighborhood? **A) The people B) proximity to social service C) proximity to the river D) proximity to work**
9. Is this neighborhood being managed correctly by local administrators? **Yes/No how?**

10. What do you miss in the neighborhood/what activities do you like to improve on the river side: _____
-
11. Where do the children play: A) **public playground** B) **private playground** C) **any open spaces including roads**
12. What is your view and preference of resettlement towards the revitalization program of the neighborhood?
A) To be accommodated in condominium housing B) **compensation and land to build own dwelling** C) **do not support the project** D) **no comment**
13. Are you comfortable with the idea of creating residential neighborhood, public and commercial recreational spaces along the riverside? **Yes/No**
14. How often do you go to the river?
A) Once a day B) **once a week** C) **2-3 times a week** D) **once in a month** E) **once in a year** F) **not at all** G) **other**
15. 4 What is your perception about the current river side development or investment?
A) Good B) **Not Good**
 Why? _____
16. Do you think the local government is correctly handling on the land use allocation along the river side? **A) Yes,** **B) No**
 Why? _____
17. Do you enjoy along the river side by walking or other? **a) Yes** **b) No**
 why? _____
18. What are the problems you noticed on the walk way or on the public recreation place along the river side? **A) the walkway is enough for walking** **B) the walkway is narrow** **C) The walkway is properly constructed according to the people** **D) Sanitation problem of the walkway side**
19. Who do you think are the most beneficiaries on the river side recreation area? **A) Youths** **B) elders** **C) investors** **D) Tourists** **E) the poor** **F) all**
20. What kind of development do you think is good to assure commercial and public recreational landscape along the lake side according to your perception?
A) Low rising buildings **B) high raising buildings** **C) cultural tukuls and lodges** **D) open space recreational centers**
21. Is there any well-developed riverside development around your area?

22. What are the main activities undertaken around the riverside?

23. Does the municipality manage the riverside properly?

24. Is there any benefit you obtained from being near the rivers side?

25. What are the main problems that currently the riverside faces?

26. What are the positive and negative impacts that the river found in your locality?

27. What measures should be taken by the government to overcome the current problems that the riverside faces?

28. Any other comment

Semi-structured Interview Questions for government officials

The purpose of this questionnaire is to obtain data for a research project entitled “urban **river side revitalization: the case of Awash Melkasa town**”, in partial fulfillment of the requirements for the award of an MSc Degree. The aim of the questionnaire is to collect information related to the current challenges of the riverside development and for suggesting solution that overcome the current challenge in Awash Melkasa Town. I would like to promise you that the whole information given by the respondent is used for academic purpose only. Hence, considering the purpose of the questioner respondents are kindly requested to cooperate with the researcher in giving the necessary information. I would like to thanks you for your cooperation.

Thank you!

1. Your work position?_____

2. Level of education? _____

3. What are the main activities undertaken around the riverside?

4. What is the current status of riverside in the town?

5. Describe distances of the river buffer in the structural plan?

6. Does structural plan delineate river buffer based on the standards? A. Yes [] B. No []

7. If you answer for question, number 6 is No, what are the major factors for not delineating buffer?

8. Does the river buffer delineated on the structural plan have properly implemented on the ground? A. Yes [] B. No []
9. If your answer for question number 8 is No, what are the major factors for not implementing the buffer of the riverside based on the plan?

10. How much distance of river buffer is implemented on the ground?

11. To what extent are the river buffer implemented on the ground? And what mechanisms are in places to ensure implementation of the buffer?

12. How do you evaluate the planning and the implementation of the river buffer in the town?

13. Does the municipality properly develop and manage the riverside? A. Yes [] B. No []
14. If your answer for question number 13 is No, what are the major factors for not properly developing and managing the riverside?

-
15. Does the local community participate in developing the riverside? A. Yes [] B. No []
How? _____
-
16. What are the main factors that lead to poor development of the riverside?

- Please give your general comment on how to properly manage and develop the riverside?

-
17. How is the riverside urban land allocated for investment and other activities?
A) Through lease B) through negotiations C) according to the type and dimension of the investment activities
18. Are there policies regarding the use of common good like the use of riverside area for commercial and public recreational activity? **A) Yes B) No**
19. Are there local development plan (LDP) prepared for riverside development?
A) Yes B) No
20. If yes, is there a mismatch between what is being done along the lakeside and the development plan of the town? **A) Yes B) No**
If yes, why?

21. Do you think that the riverside current development assured sustainability? A) Yes
B) no

If yes, how? Economically, socially, economically If no, Why?

22. Do residents discussed on the riverside development and reached to consensus if
there have been any developing plan?
