

Mixed Use Development



Burundi - Mvugo
Urban Design Studio I (UDES501)
Fall 2021/2022

Sheet: Introduction

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Instructor: Prof. Dr. Sebnem Onel Hoskara

The full urban design project would include the following list:

- > Site analysis
- > Planning, designing strategies and conceptual drawings
- > Urban design scheme
- > 3D Models



1- **Site Analysis** Help understand overall site characteristics, environmentally, socially, and economically. To this end, wind directions, solar paths, topography and terrain, vegetation and landscape, infrastructure, contextual relationships, directional views, social, cultural and economic conditions are defined.



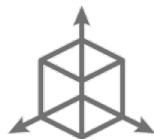
2- **Planning and design strategy development** aims at meeting user satisfaction, defining zoning, grouping of activities/spaces, understand the suitable building material, express the design objectives based on a vision and a scenario.



3- **Conceptual drawings** are used to describe an overview of the building. They are a rough sketch of the buildings and spaces on site and the nearby areas.

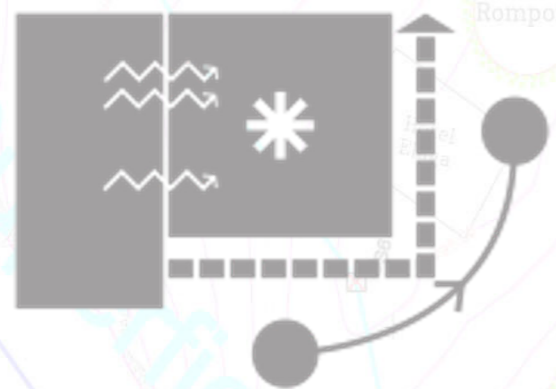


4- **Urban design scheme** helps identify the major and minor traffic ways with the accessibility to facilities, sounded area; public space network; solid-void balance; functional distribution on site; public space design



5- **3D Models** gives us an interactive representation that to understanding the site.

Site analysis



Summary

Burundi is a small landlock country

Having a Lake is a strong asset.

The high demography can be a serious threat to the environment

The national symbolism can be reflected in the design aesthetic or concept

ELAGA PROPERTY

Location in
Makamba Province (Population: 26,549)
Nyanza-lac Town/Mvugo village
Area= 499,200 m²
Site coordinates -4.300797, 29.574964

BURUNDI

Landlock country bordered by:
-North - Rwanda
- East - Tanzania
- South - Ovest - Congo(DR)

Political Capital - Gitega
Economic Capital - Bujumbura
Divided in 17 provinces

EAST AFRICA



East African Community
One People. One Destiny

East African Community	Area	Population (Million)
BURUNDI	27,830 KM	12,56
KENYA	580,367 KM	53,77
RWANDA	26,338 KM	12,95
SOUTH SUDAN	644,329 KM	11,19
TANZANIA	945,087 KM	59,73
UGANDA	241,037 KM	47,74

AFRICA

2nd largest continent
-Area 30,365,00 KM
-Population (1,386,776,800) 1,3 Billion
-54 countries make up the continent of Africa

NAMES Official: Burundi (Republic of)
Other nicknames: Heart of Africa
African Switzerland
Country of 1000 hills
Country of Milk and Honey

HISTORY

1500' s Kingdom of Burundi
1890' s incorporation to German East Africa becoming Rwanda -Urundi
1916 Belgium occupation
1962 Independence

LANGUAGES

Kirundi (official)
French (Official)
Swahili

RELIGION

Christians 75%
Ingenious beliefs 15%
Muslim 3.5%

PEOPLE

-Bantu origin
-3 Ethnic groups - Hutu, Tutsi and batwa (minority)
-Median age is 17
-87% Rural population
-78,3% Literacy rate

NATIONAL SYMBOLISM

Current flag



1962-1966



1966-1967



3 COLORS

Green- Hope
White- Peace
Red- Those who fell in the struggle for independence

3 STARS

National Motto
(also on the coat of Arms)



SPEARS

weapon and reign/power



KARYENDA

The sacred drum, with a semi- divine status

The monarchy was symbolized by the drum
"Ingoma y' uburundi"
"The drums of Burundi"

Used by the King as a means of communication

An Intangible heritage of humanity



RUKINZO

was a drum that accompanied the king everywhere

SORGHUM

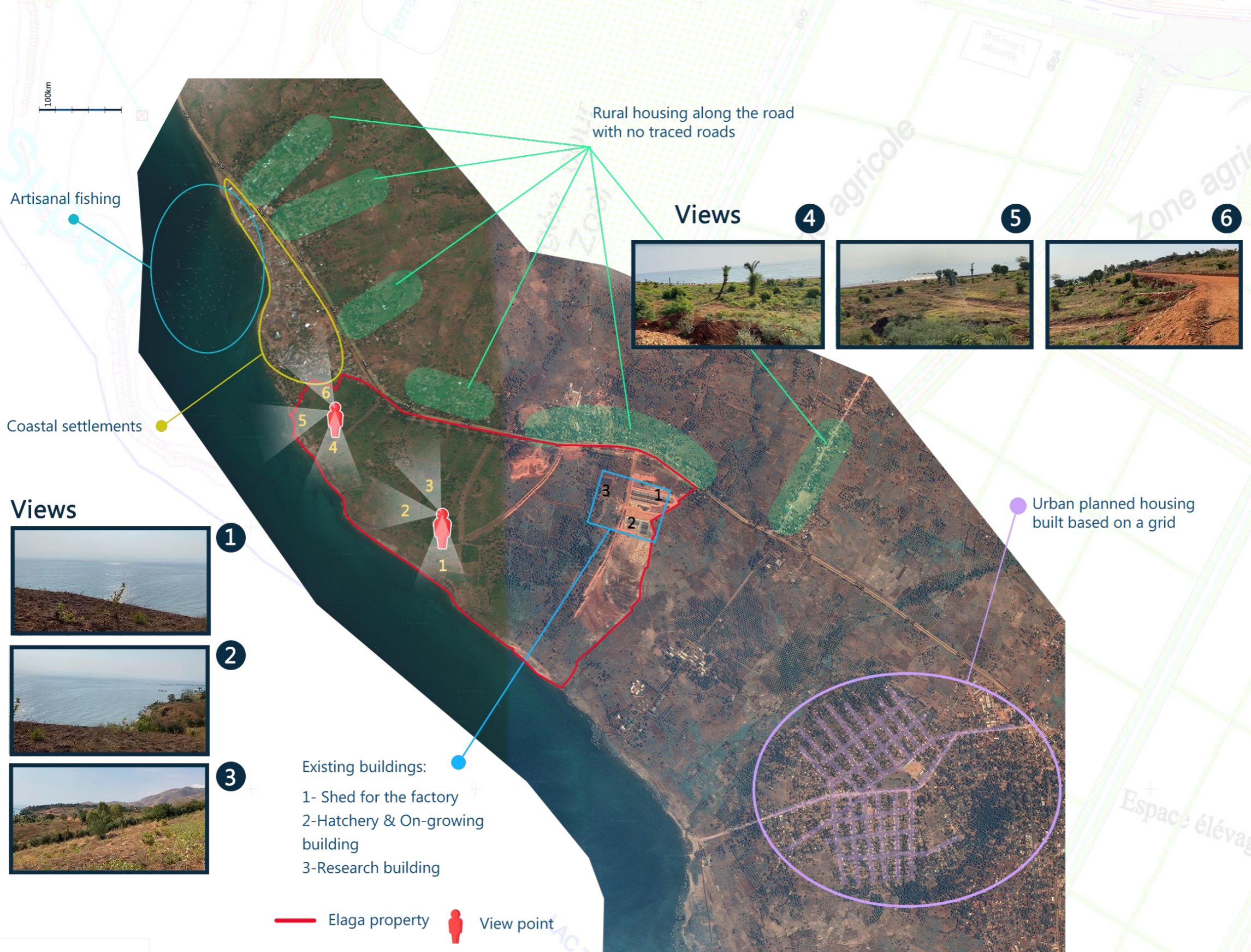
the UMUGANURO was an annual sorghum festival. Seed were planted to be harvested the next year.

It was marked in December with dances and rituals in the royal

Summary

The site is surrounded by different types of urban settlements (rural, coastal, and grid planned)

Existing 3 buildings in the site



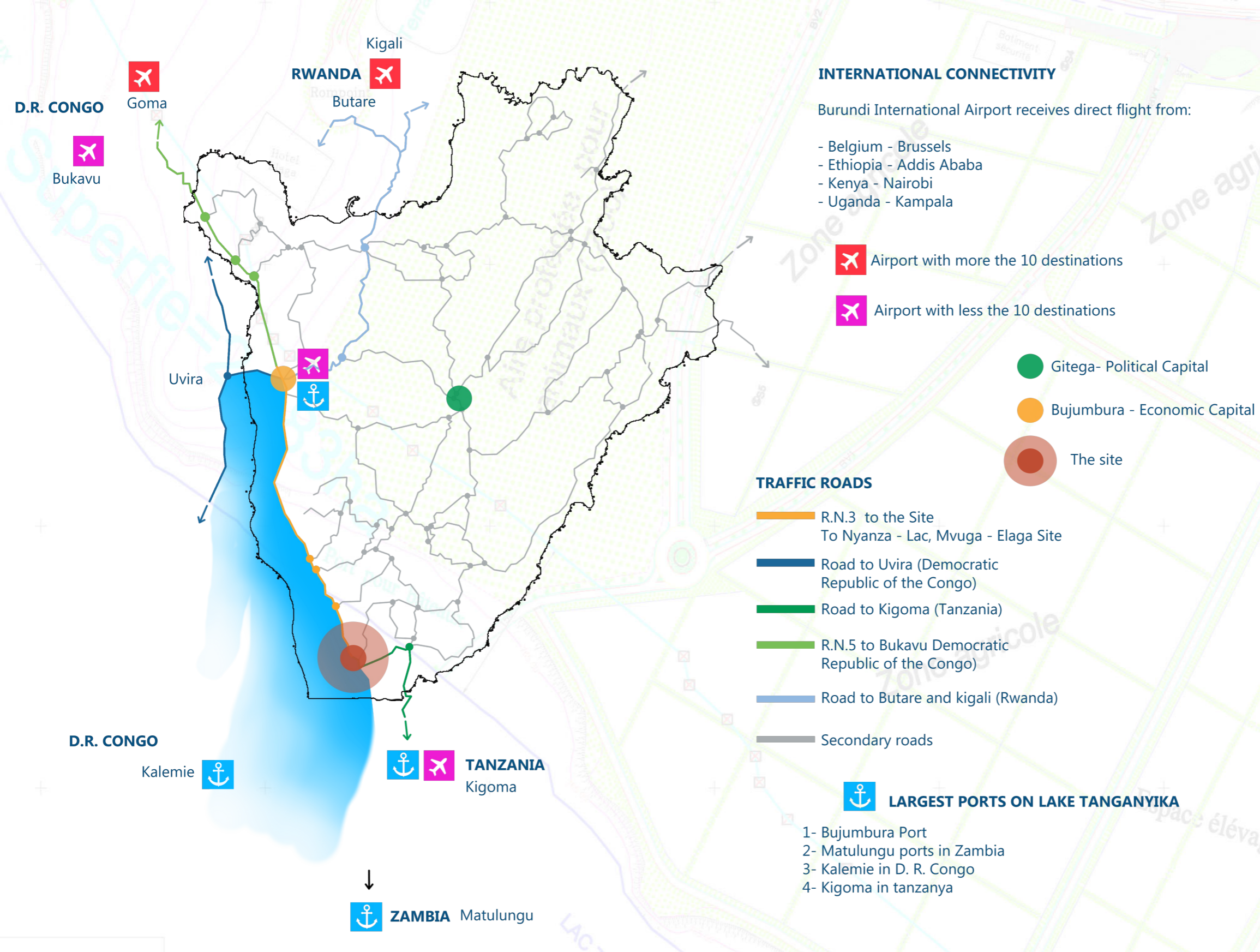
Summary

The lake is shared with 3 different countries.

Location of site is accessible by car from the bordered countries.

Location of site has a direct access to the economical capital which it has the international airport of Burundi.

Economical capital has a port that is connected to the shared lake bordered countries.



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Sheet: Accessibility

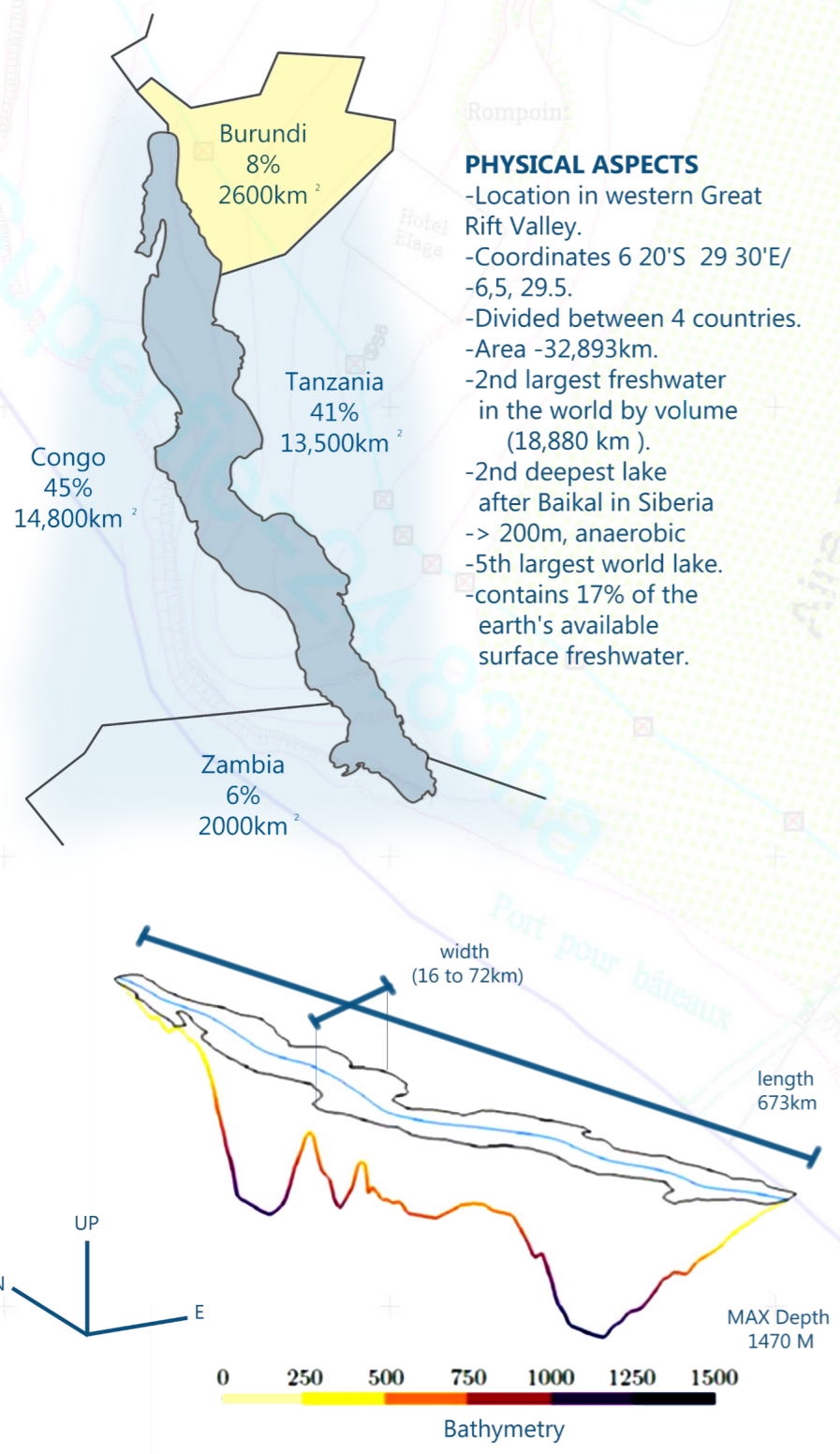
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Summary

The lake is ranked as one of the deepest lakes as well one of the largest freshwater in the world.

The lake contains rare fishes and dangerous animals in the world.



ECOSYSTEM

- Rainfall contribution 29 km 1 year.
- Rivers contribution 14km 1 year.
- Evaporation 50km 1 year.
- population density of the lack basin is between 13-250 persons/km.
- About 2000 species of fish, plants, crustaceans, and birds.
- About 500 of the species are not found anywhere on the earth, and 50% of those species are cichlid fishes.

DANGEROUS ANIMALS

- Nile crocodile - Gustave
5.5 M long, 907 kg, 100 years old
kills: 300 people/year
- Hippopotamuses toward generally in the north side of Tanganyika lake
kills: 500 people/year

ACTIVITIES

- Artisanal fishing
- Swimming
- Sailing
- Skiing

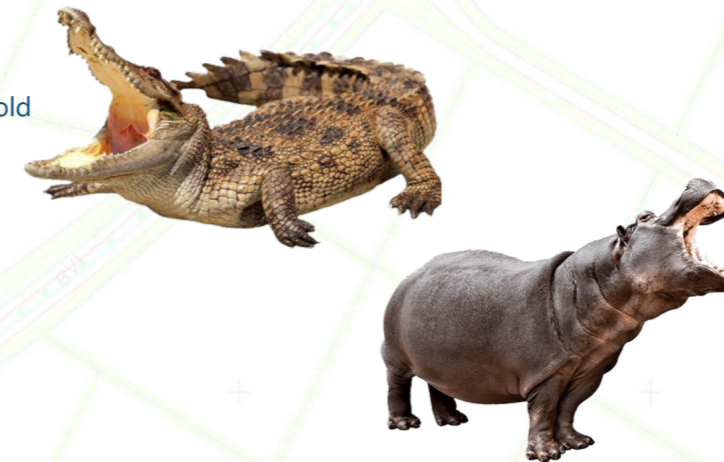


UNIQUE FISH

-Mukeke



-Indagala



Summary

Burundi has a hilly geography.

The lake area considered as the lowest and the mountain area considered as the highest.

During the rainy season the soil converts to mud and the water of the lake rises

TROPICAL EQUATORIAL CLIMATE






	Flood plain around 800m		Mountains above 2000m	
Temp. Celsius	Min 18,7	Max 29,6	Min 11,7	Max 20,4
precipitate (year)	835mm	90 days	1735mm	189 days

Lowest temp. (at night) are from June to August but it is the best time to visit Burundi

 Nyanza-lac (site area)
 Dry season starts May 22
 Rainy season Oct. 9
 Dry days - 140 days
 Rains - 800-1000 mm

TOPOGRAPHY

- Lowest point - lake Tanganyika 776m
- Highest point - Mount heha 2684m
- hilly geography

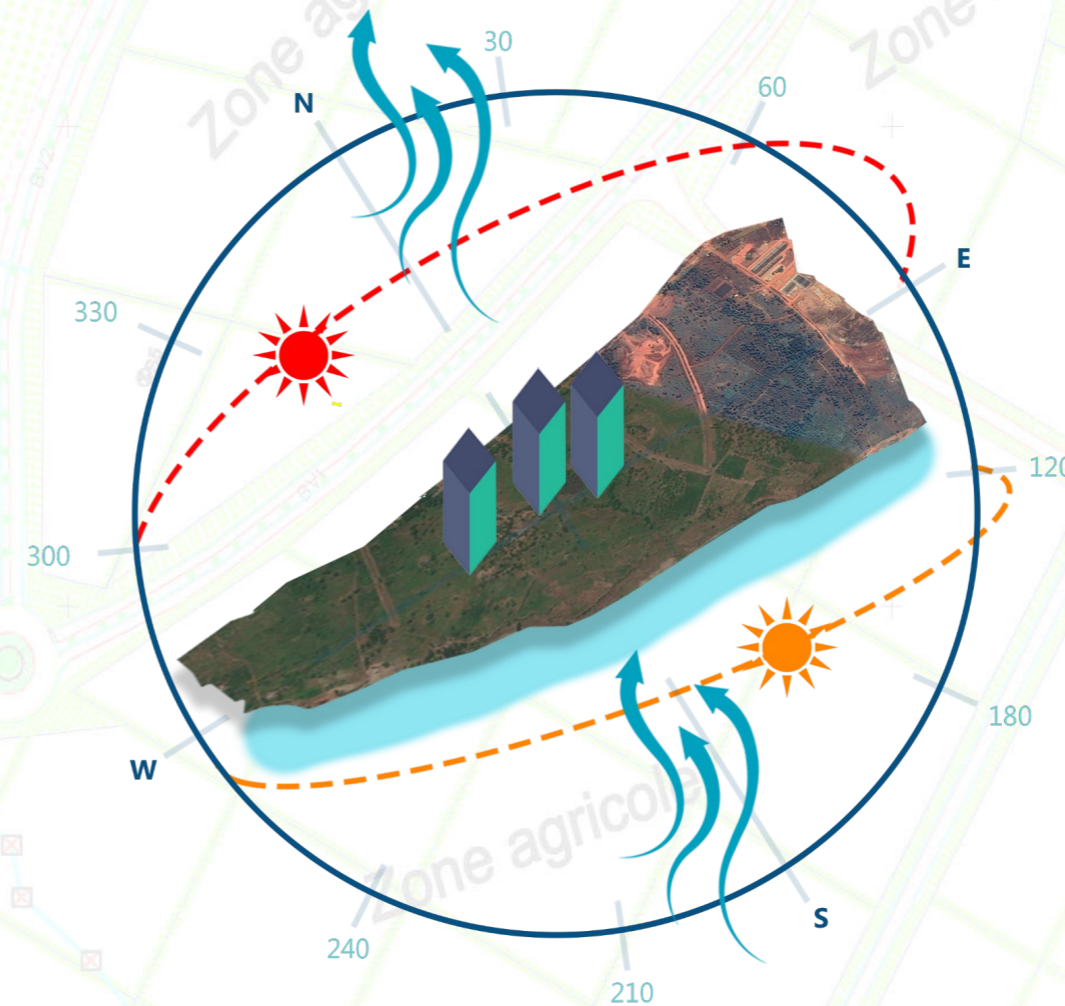
-  Flood plain
-  900 - 1250m
-  1250 - 1500m
-  1500 - 2000m
-  > 2000m



SOILS

- Alluvial soils
- Hard soil during dry season
- Mud during rainy season

SUNPATH



-  Summer Solstice - June
-  Winter Solstice - december
-  non existing building (for visual sun lighting)
-  Wind direction. Speed 0-7 kts (knots) ~ km/h

Types of trees



Oil Palm

Eucalyptus

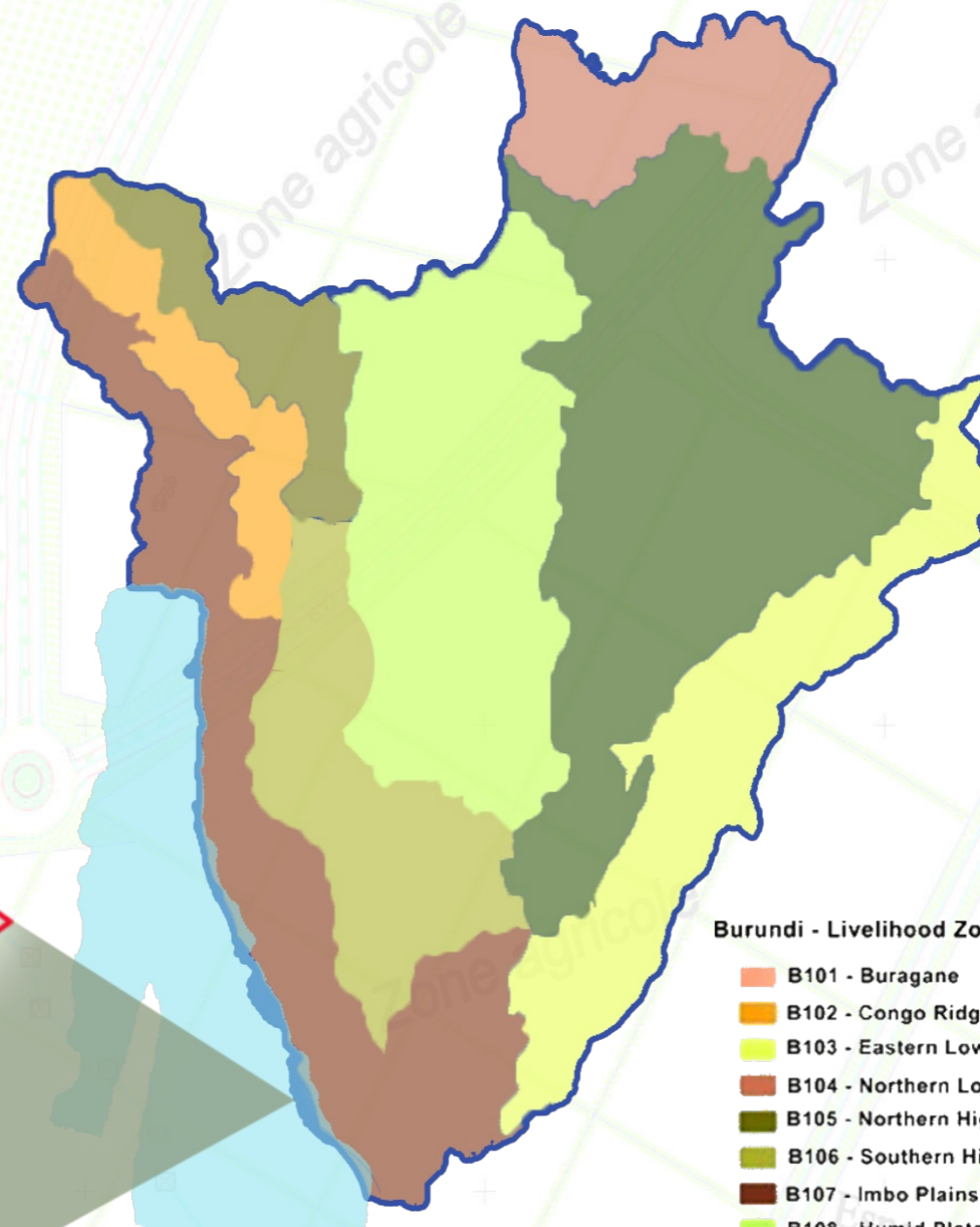
Fig

Acacia

Site vegetation map



Vegetation map



Burundi - Livelihood Zones

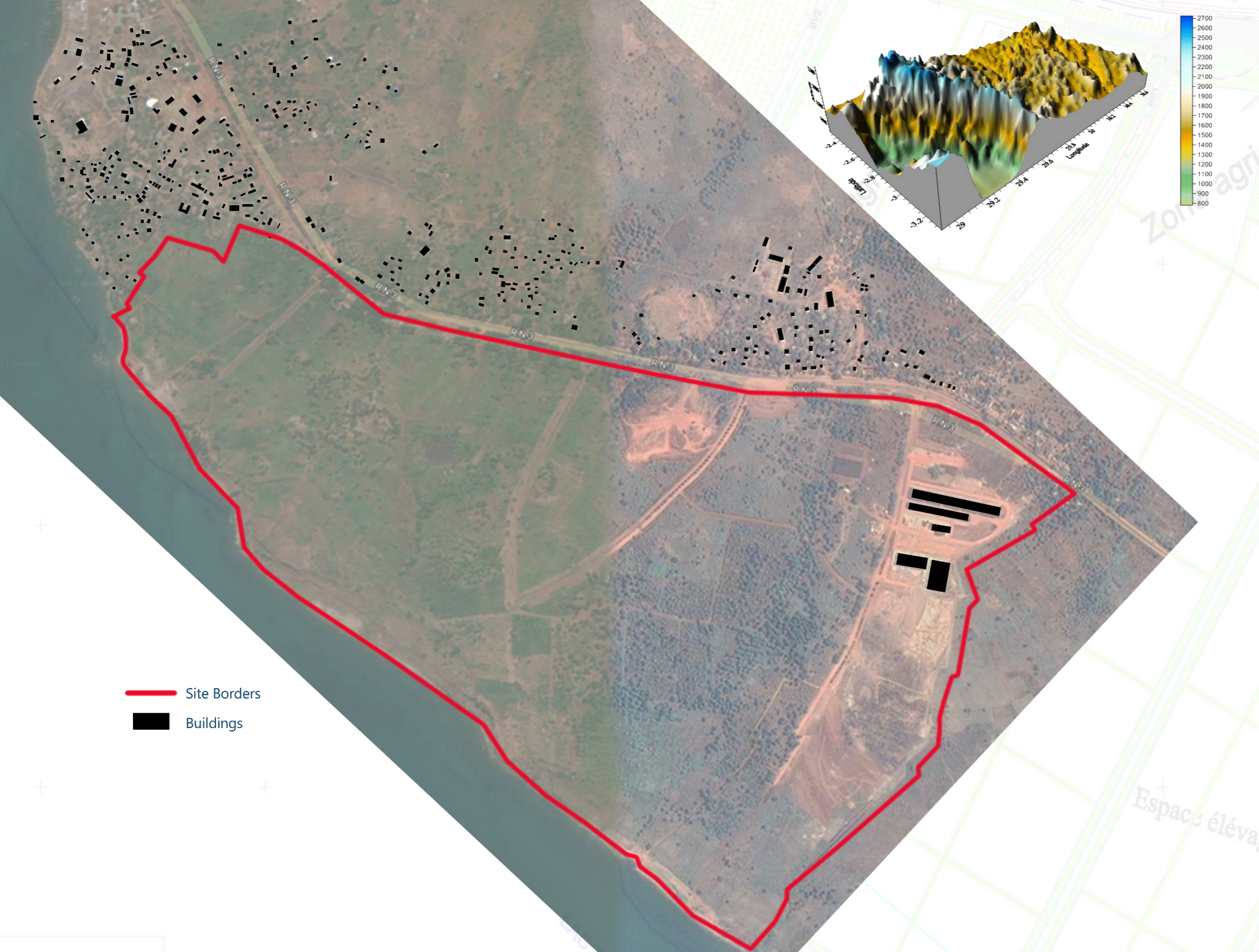
- B101 - Buragane
- B102 - Congo Ridge Millet
- B103 - Eastern Lowlands
- B104 - Northern Lowlands
- B105 - Northern Highlands
- B106 - Southern Highlands
- B107 - Imbo Plains
- B108 - Humid Plateaus
- B109 - East Arid Plateaus

Summary

Burundi has 4 types of trees one of them is the acacia which it's the most popular African tree

Summary

The buildings are irregular places they are scattered near by settlements.



Summary

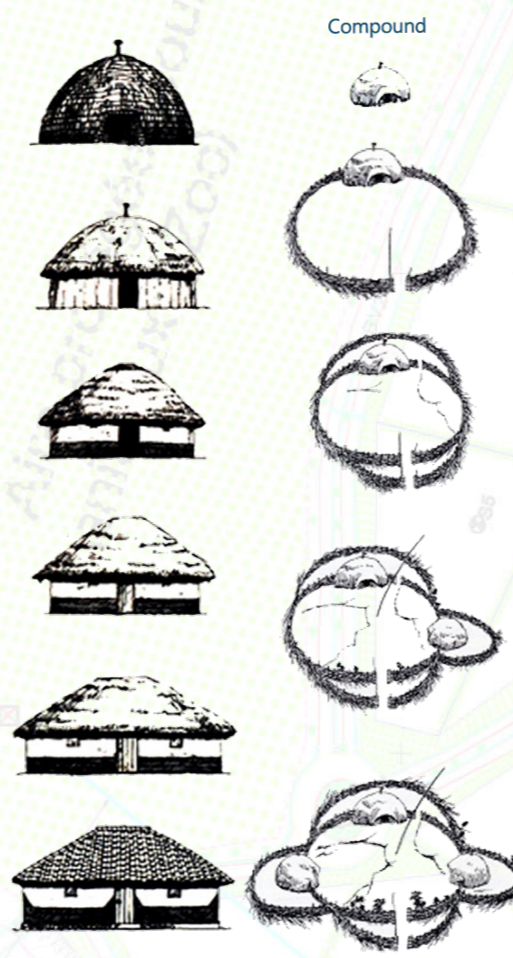
Buildings in Burundi have evolved in the same pattern (traditional pattern).

Lack of modern evolution.

VERNACULAR HOUSE TYPOLOGIE

The hilly nature of the country did not encourage the formation of villages

EVOLVEMENT



MODERN ARCHITECTURE

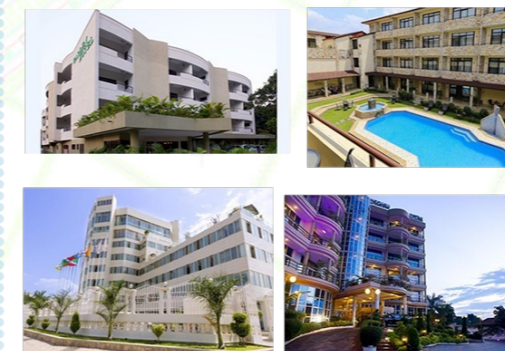
Library



Church



Hotels



Residential



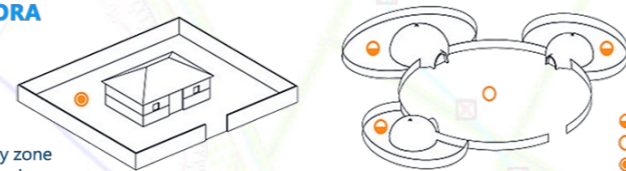
LEGEND

- Farmers „Rugo”, enclosure, round huts (adobe), conical roof (thatch), rectangular huts, roof with 4 inclinations
- „Rugo” in the Crest, enclosure, round huts (bamboo), conical roof (plantain leaves)
- „Rugo” in Jenda, enclosure, round huts (adobe), conical roof (thatch)
- grouped farmer huts, with or without enclosure, rectangular (adobe, mud), roof with 4 inclinations (thatch or plantain leaves)
- Roof with 4 inclinations (Roman tiles)
- Ungrouped farmer huts
- „Rugo” without enclosure in Migwe, round and rectangular huts (adobe), roof with 2 or 4 inclinations
- Villages on the shores of Lake tanganyika
- Rectangular, roof with 2 or 4 inclinations (adobe). „Swahili” houses (mud, adobe), roof with several inclinations
- Savanna „Rugo”, enclosure, Hemispheric huts with material fully plants

KING'S ENCLOSURE IN GISHORA



- Security zone
- Frontyard
- King's yard
- Sacred precinct
- Prince's yard
- King's zone
- Livestock
- Prince's huts
- Granary
- King's cook huts



- Semi-open
- Open
- Closed

Summary

The use of natural materials for different kinds of art, musical instruments, cooking materials and food saving. Verity in dancing moves.

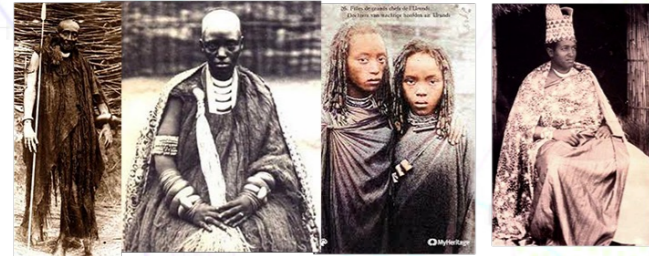
ATTIRE

Intore - Kings Army, dancers & warriors



1850's King, Queen & Princes

1970 King Charles V



Modernized Traditions



ART

Dry banana leaves art



Modern Pottery



Seed grinder -Isekuro carved from wood



Basket weaving



Inkoko - used to keep meals



Seed grinder -urusyo made from stone



USTENSILES

Ritual potteries used by soothsayers or healers in Burundi - made by the Batwa



Making of a pot for sorghum beer



Drinking Sorghum beer - Impeke during celebrations



MUSICAL INSTRUMENTS

Inanga



Ikinyege



Ikembe



DANCES

Agasimbo



Umuyebe



Amayaya



Abatimbo



Intore



Seperating fat from milk



Summary

Burundi does not conform to international standards.

High rate of poverty and employment.

Burundi has a variety of landscape potentials.

The country is rich in terms of tangible heritage which contributes with parks with tourism.

ECONOMY

148TH Investment environment

124TH Natural environment

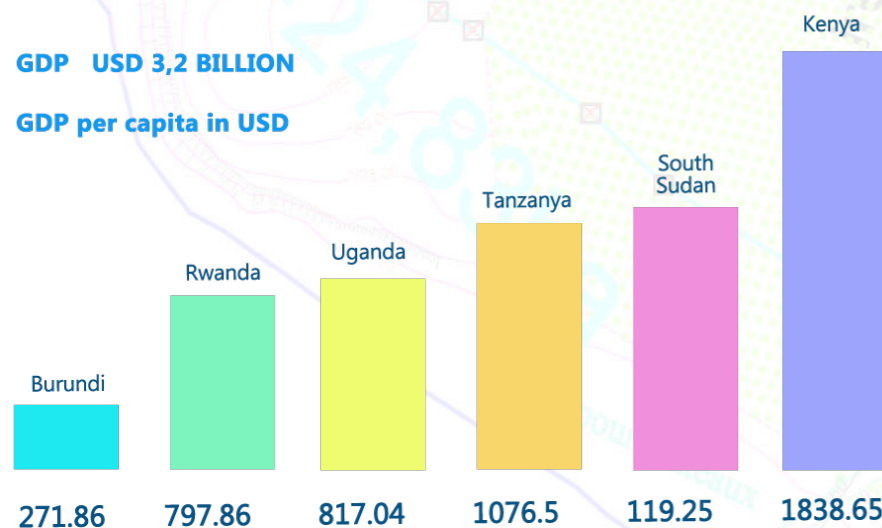
90% of the population rely on subsistence agriculture and informal employment

78% Employment rate in 2020 (for age of 15+)

70% Living under poverty

GDP USD 3,2 BILLION

GDP per capita in USD



TOURISM PRODUCTS

Tourism contributed to 3,5% of the GDP in 2019

(In 2011) Available statistics

Origin

Africa 70.3%
 Europe 16%
 America 1.9%
 Eurasia 4.9%
 Other 6.9%

Purpose

Personal 65%
 - Holiday and Leisure 33
 - Business 32
 Other 35%

Mode of Transportation

Air 25%
 water 20%
 Road 55%

Facilities

Most hotels in Bujumbura and the few establishments outside the capital are small and do not conform to international standards.

Landscape potentials

Lake Tanganyika

Karera Falls

Nyakazu/ German Fall

Kayove Cave

Muhweza Hot Springs

Teza tea plantation

Ruvubu National Park

Mwaro Falls

Livingstone - Stanley Monument

Kibira National Park

Rusizi National Park

Ruvubu National Park

Lake Rwigyira - known as a Lake of Birds

Type of possible tourism

Eco-Tourism

Business Tourism

Adventure tourism

Community based Tourism



Planning & design strategy development

S.W.O.T. Analysis

INTERNAL DYNAMICS

Directly associated to the site location

EXTERNAL DYNAMICS

General to the Country and Region

+ STRENGTHS

- WEAKNESSES

+ OPPORTUNITIES

- THREATS

Environmental
(Natural & Built)

- Location by the Lake
- Climate
- Existing vegetation
- Presence of rocky landscape (only area near the lake)

- Located away from urban centers
- Soil allowing limited types of agricultures
- Poor accessibility

- Existing road network
- Presence of unique animal in the area
- Existance of natural attraction points
- Freshwater from the lake

- Possibility of flooding and rising water level
- Overdose fishing in the Lake
- Presence of dangerous predators in the lake

Social-Cultural

- limited availability/quality of essential services

- nearby settlements and communities
- intangible cultural heritage (drummers, dancers & cuisine)

- Lack of proper public transportation

Economic

- Poor Financial services

- Non-existence of similar project in the country
- Existence of factories nearby

- Poverty

Located away from urban centers



Soil allowing limited types of agricultures



Existing vegetation



Presence of rocky landscape



Location by the Lake



VISION

To be recognized as one of East African region hospitality sites and known for delivering genuine guest experience, and provide recreation, entertainment, cultural and accommodation environment that serves for a diverse, universal and variety of people.

We also aim to integrate the UN Sustainable Development Goals (SDGs) into the project in order to ensure international sustainable design standards and to ensure the sustainability of the site with its newly designed environment.



OBJECTIVES

- **Context and character:** to promote character in townscape and landscape by responding to and reinforcing locally distinctive patterns of development, landscape and culture.
- **Continuity and enclosure:** to define new street networks both for pedestrians, cycling and other motor vehicles.
- **Accessibility and easy movement:** to promote accessibility and local permeability by making places that connect with each other and are easy to move through, putting people before traffic and integrating land uses and transport.
- **Public space network & quality of green areas:** to design public open spaces and routes that are attractive, safe, uncluttered and work effectively for all in society, including disabled and elderly people.
- **Diversity and variety:** to promote diversity and choice through a mix of compatible developments and uses that work together to create viable places that respond to both local and global needs.



SUSTAINABLE DESIGN

Energy efficiency:

- Creating green roofs and facades.
- Setting up solar energy absorption system.
- Using the energy saving light bulbs in rooms.
- Providing energy infrastructure
- Reuse and recycle waste energy and materials

Green spaces:

- Protecting the existing greenery.
- Building green parks for heather environment.

ECOLOGICAL DESIGN

Integrated system with nature and environmental optimization:

- Considering the landscape patterns in such the configuration and compositions of the units.
- Considering the material of man made and nature

waste reduction:

- Solid waste separation at source.
- Creation of waste disposal locations.
- Cooperation with recycling firms.

11 SUSTAINABLE CITIES AND COMMUNITIES



7 AFFORDABLE AND CLEAN ENERGY



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



13 CLIMATE ACTION



15 LIFE ON LAND



3 GOOD HEALTH AND WELL-BEING





SOCIAL JUSTICE

- Achieving Equity by designing an environment that reduces any kind of discriminations in both local services and guests.
- Achieving Democracy by considering peoples opinions and suggestions.
- Achieving Diversity by welcoming a variety of racial, sexual, gender, class, religious, ethnic, abled, and other social identities

UNIVERSAL DESIGN

- Creating assessable pedestrian pathways
- Providing safety measures for kids.
- Setting a Tactile Paving For Blind people .
- Providing ramps for disabled people and service staff.

5 GENDER EQUALITY



10 REDUCED INEQUALITIES



16 PEACE AND JUSTICE STRONG INSTITUTIONS





PUBLICNESS

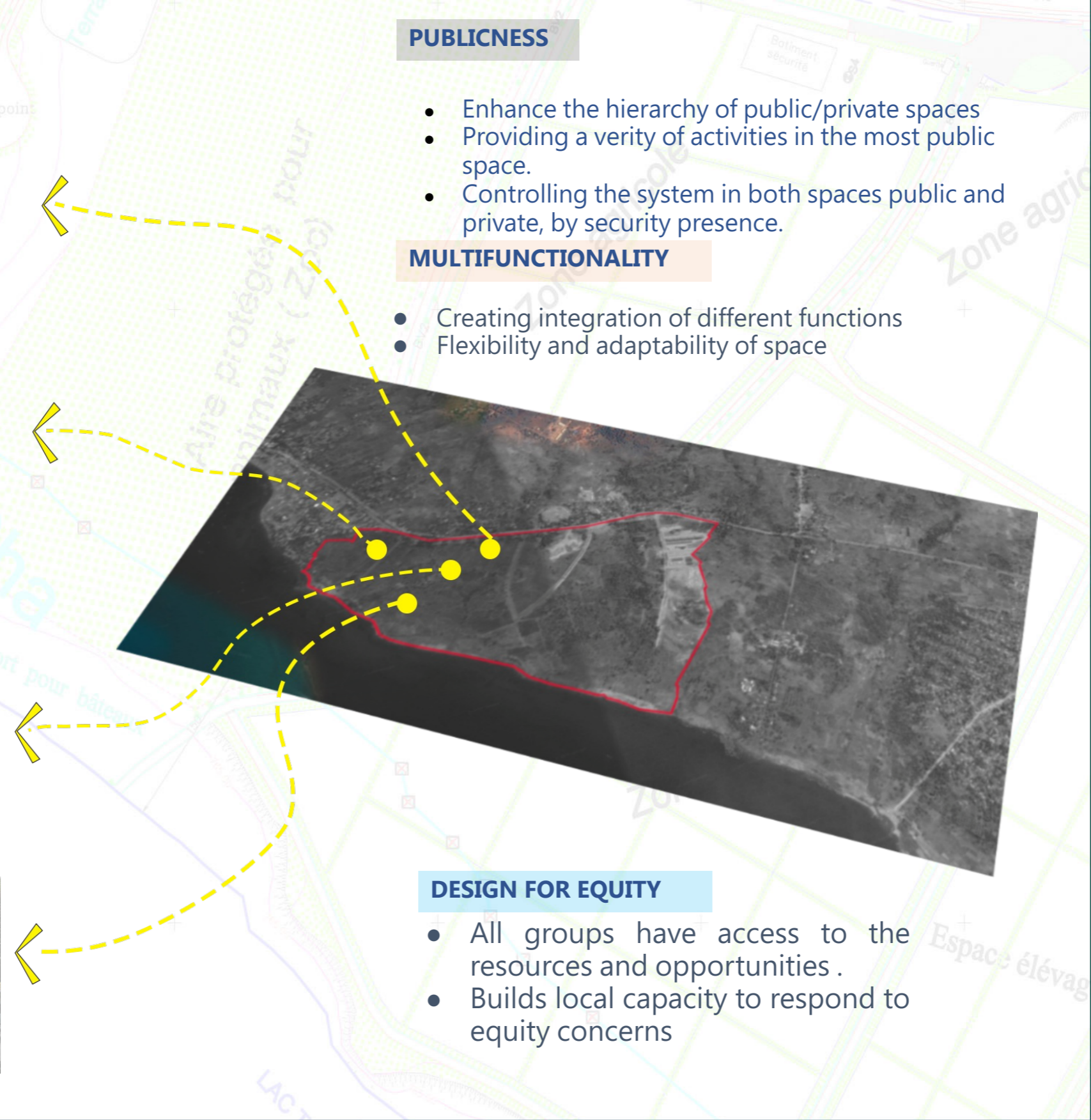
- Enhance the hierarchy of public/private spaces
- Providing a variety of activities in the most public space.
- Controlling the system in both spaces public and private, by security presence.

MULTIFUNCTIONALITY

- Creating integration of different functions
- Flexibility and adaptability of space

DESIGN FOR EQUITY

- All groups have access to the resources and opportunities .
- Builds local capacity to respond to equity concerns



1 NO POVERTY



3 GOOD HEALTH AND WELL-BEING



8 DECENT WORK AND ECONOMIC GROWTH

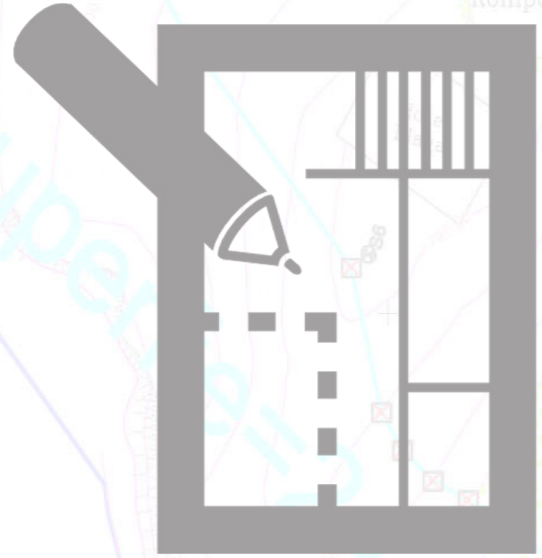


11 SUSTAINABLE CITIES AND COMMUNITIES



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Conceptual Design



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The King's Enclosure

Size: 45 m long and 24 m wide



Hut 1 "Ingoro"



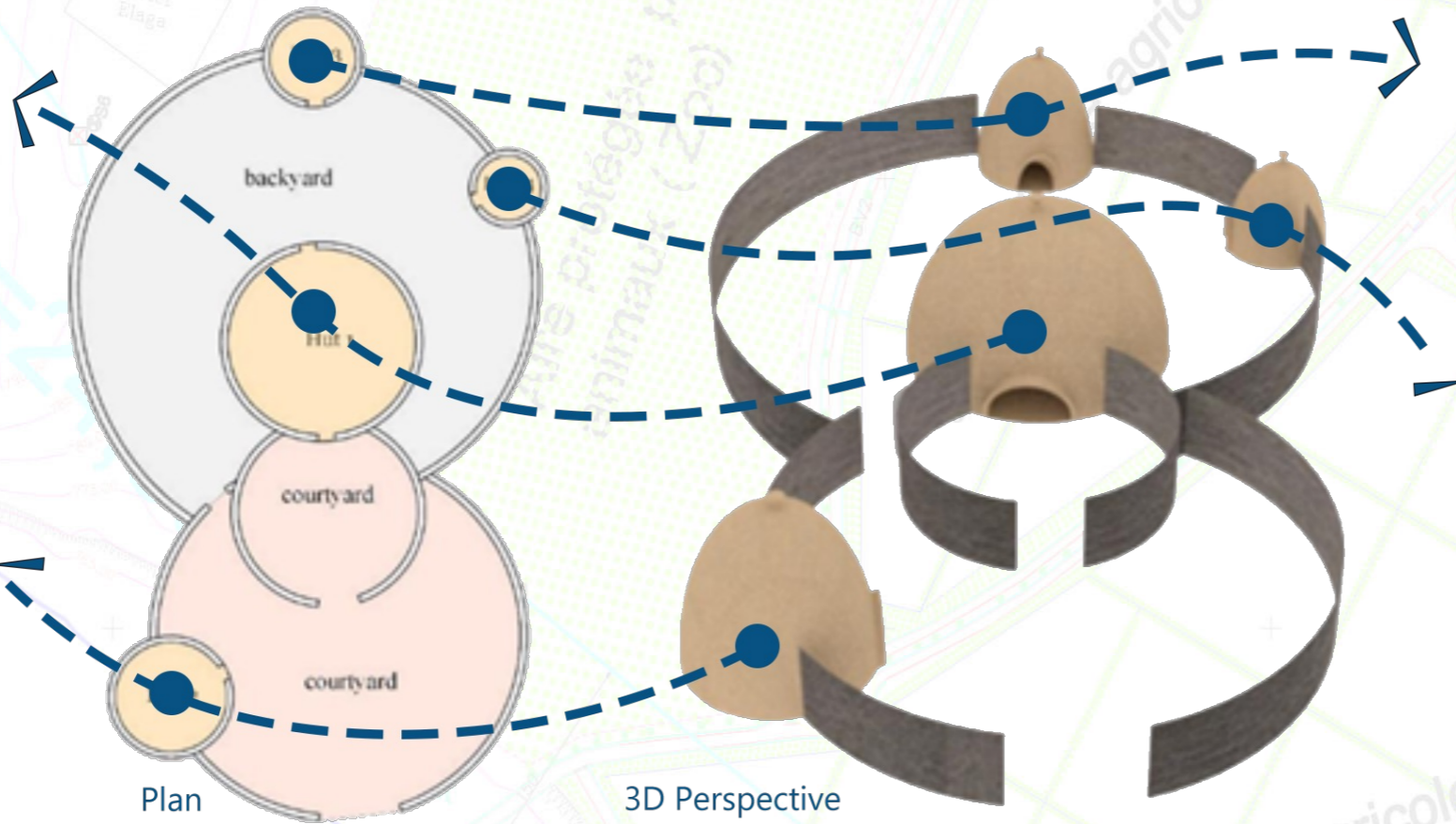
Hut 2 The King's Drums



Hut 3 Cooks Of The King



Hut 4 The King's witch "Shaman" in charge of the ritual cults

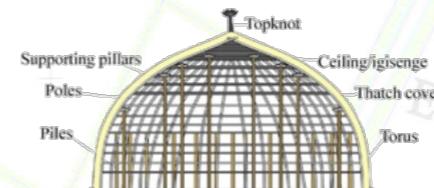
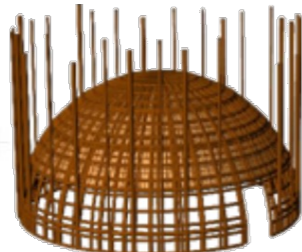


Plan

3D Perspective

Materials

Pillars, Poles, Piles, Thatch, and Torus



<h2>Private</h2>	<ul style="list-style-type: none"> • Long term, mid-term and short-term accommodations: holiday village presenting local characteristics, 5-star convention hotel, housing units for workers. • Administration unit- security department, finance department, accounting department, maintenance department, personnel department, etc.
<h2>Semi Public</h2>	<ul style="list-style-type: none"> • Wellness center including spa, beauty salon massage, sauna, open and close swimming pools • Commercial units for daily needs, pharmacy, local shops, supermarket, stationary. • Interactive Museum • Arts and Crafts workshops • Convention center: meeting rooms, concert hall, close and open-air amphitheater
<h2>Public</h2>	<ul style="list-style-type: none"> • Recreational amusement park using the facilities of the lake and nature. • Sporting facilities: Open air sports, volleyball, basketball, street ball fields, tennis, closed sports hall • Kids playing activities: playgrounds, educational open-air facilities • Natural part and animal site seeing areas. • Social event gardens • Restaurants, cafes, clubs • Market-place and other public open spaces and green areas



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Urban Design Scheme



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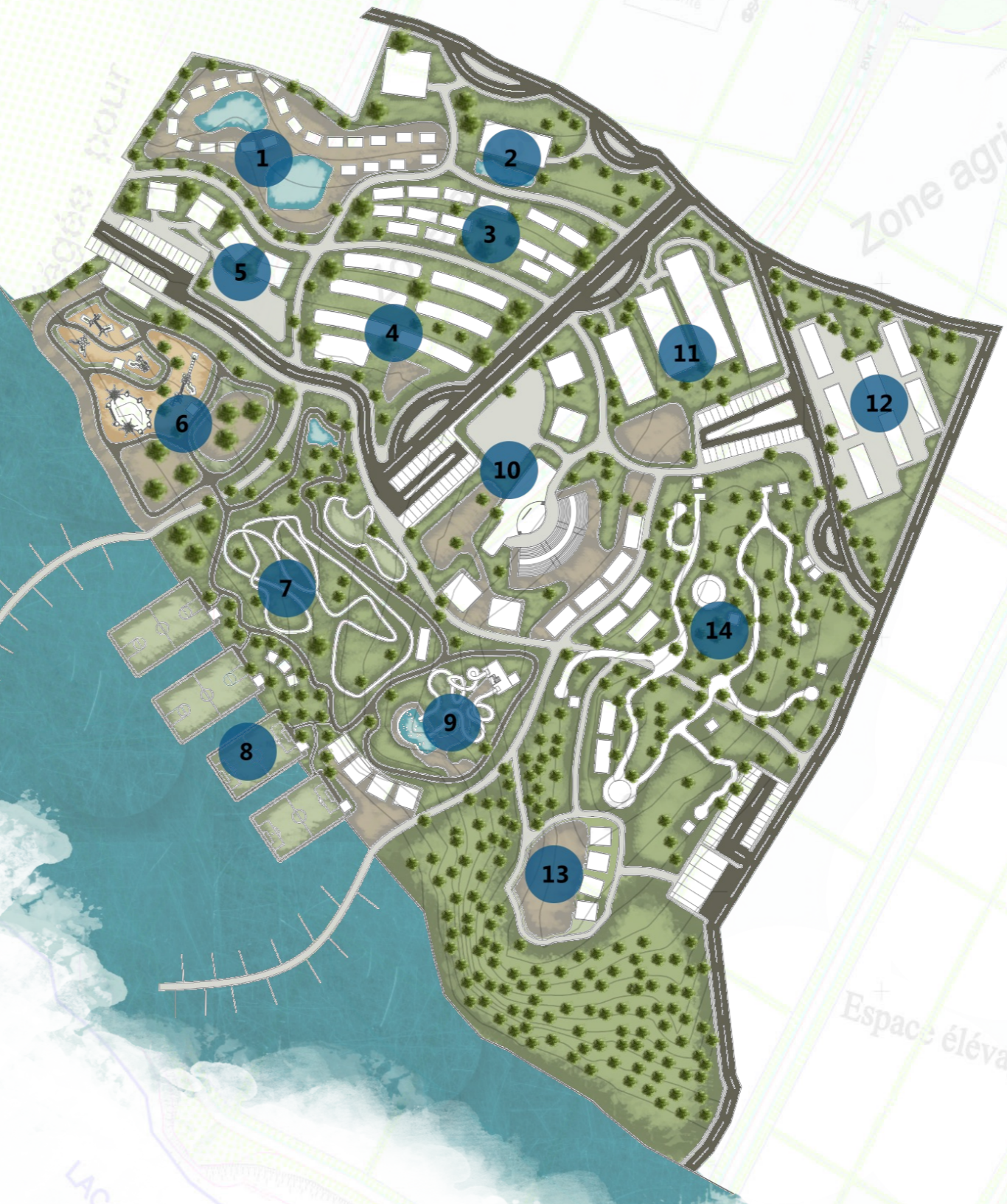
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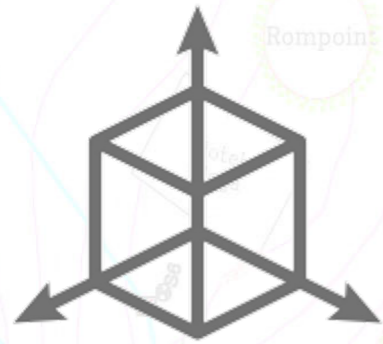
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LEGEND

- 1-holiday village
- 2-5 star convention hotel
- 3-Long term, mid-term and short-term accommodations
- 4- Arts and Crafts workshops
- 5- Wellness center including spa, beauty salon massage, sauna
- 6- Kids playing activities: playgrounds, educational open-air facilities
- 7- Recreational amusement park using the facilities of the lake and nature.
- 8- Sporting facilities: Open air sports, basketball, football.
- 9- Aquapark
- 10- Convention center: meeting rooms, concert hall, close and open-air amphitheater.
- 11- Administration units
- 12- housing units for workers.
- 13- Restaurants, cafes, clubs.
- 14- Natural part site seeing, and Social event garden.



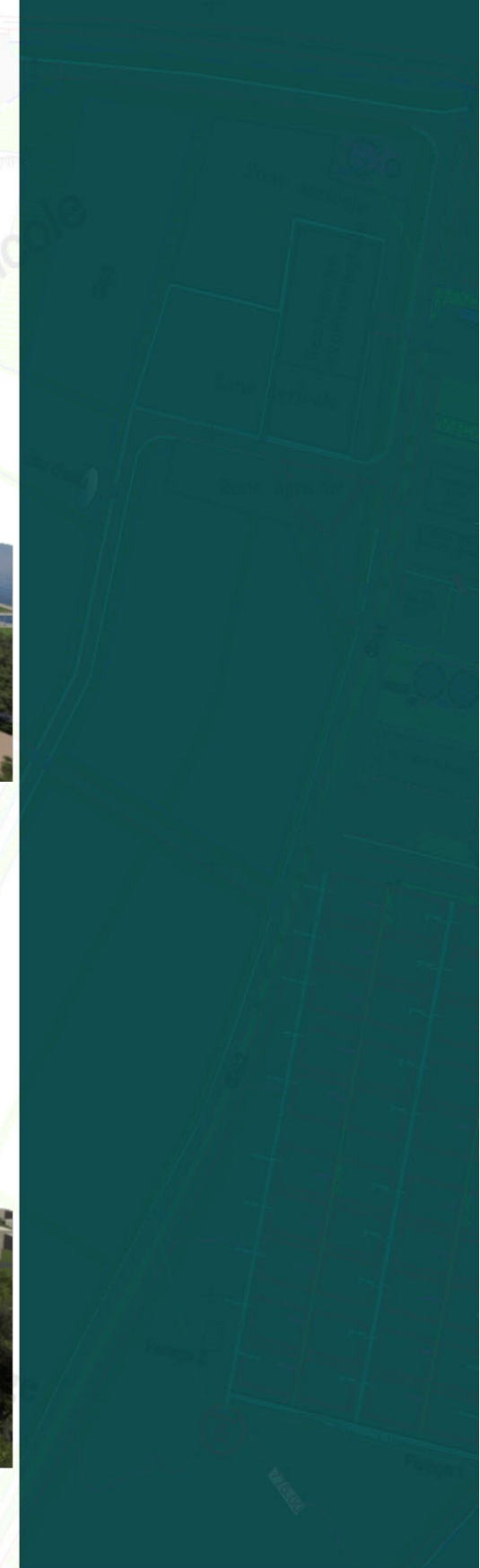
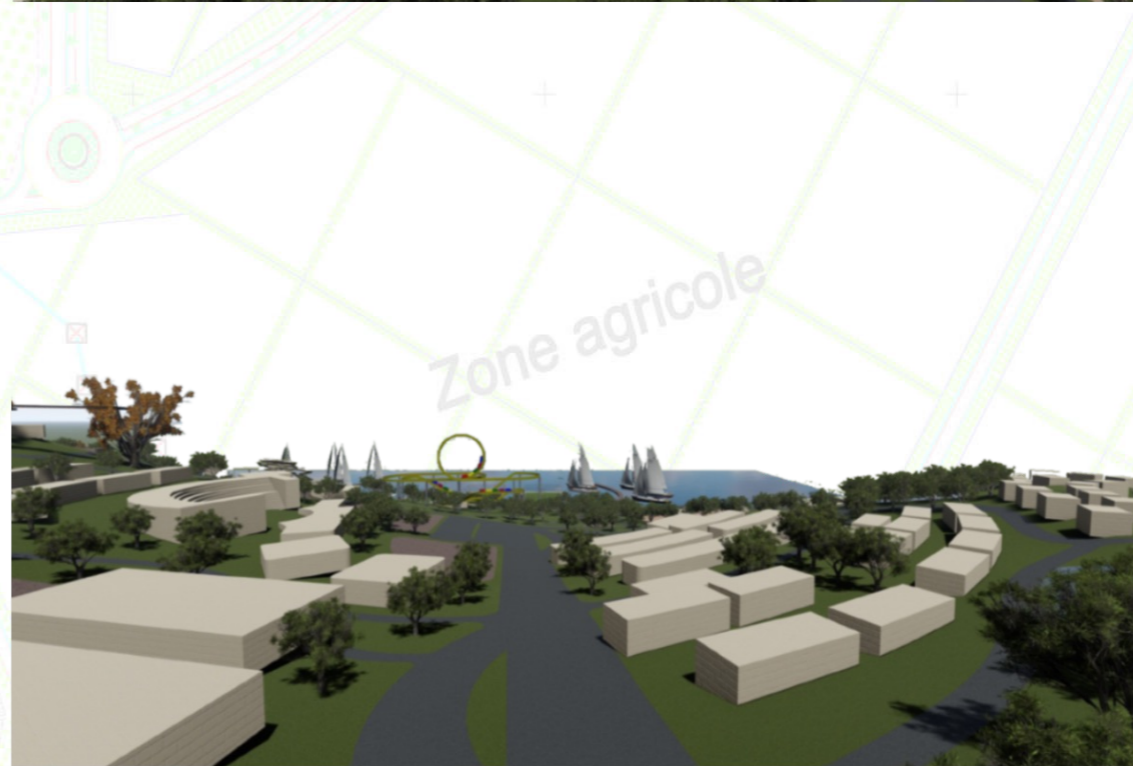
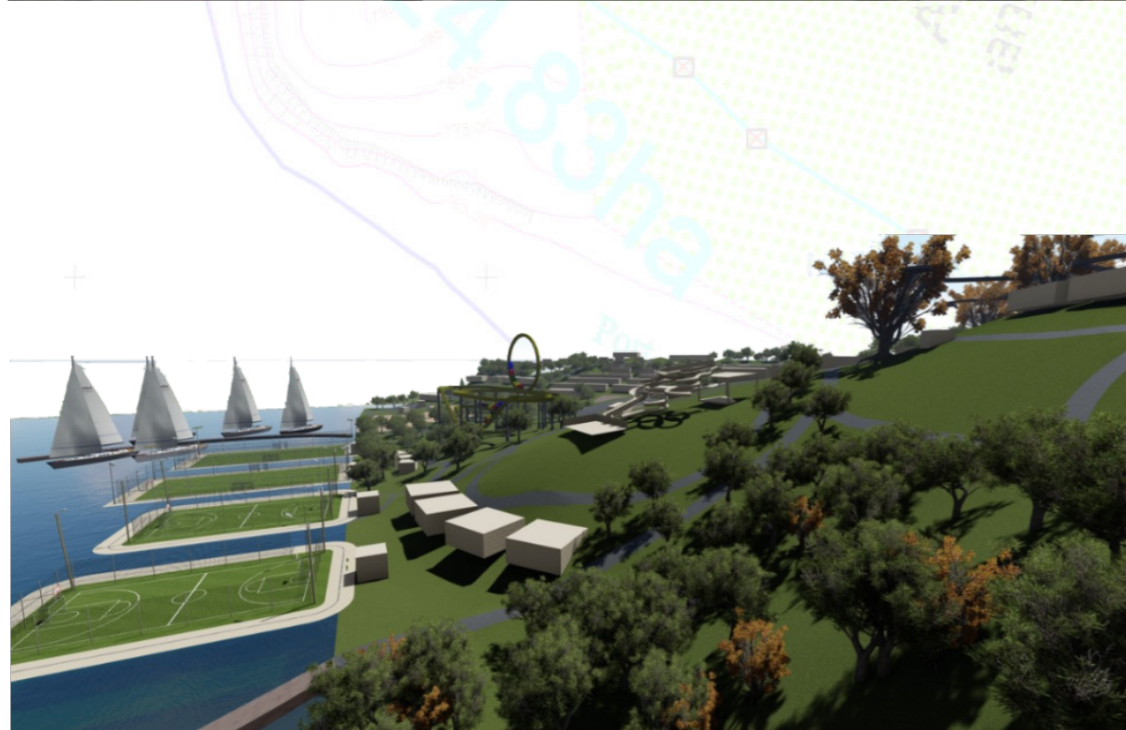
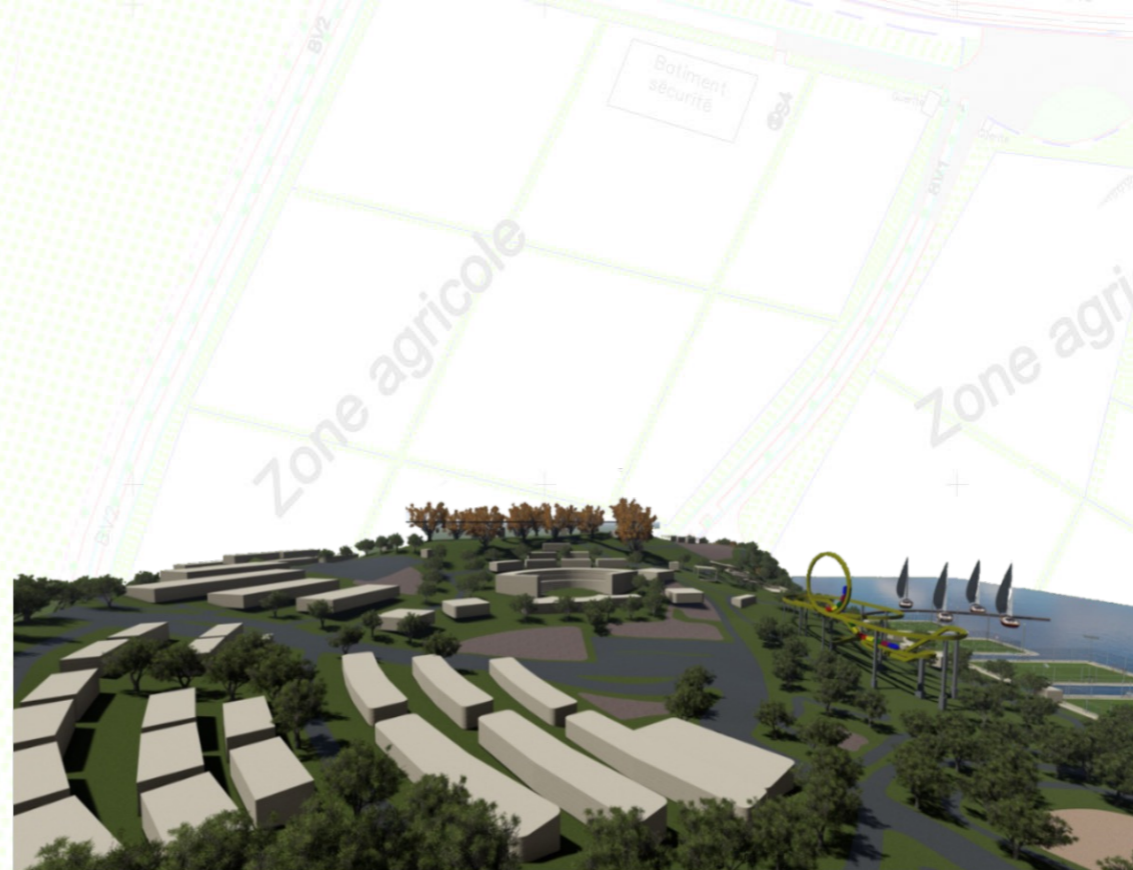
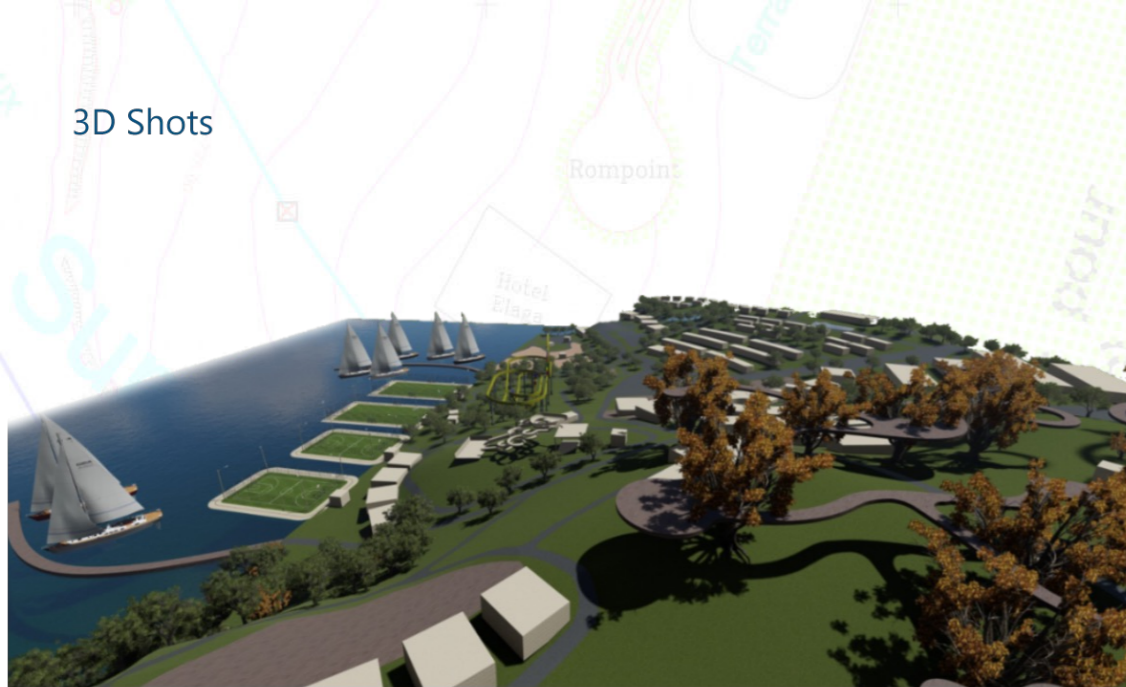
- The landscape is designed in a harmony way with the countering lines of the topography, representing the characteristics of the site.
- New main roads were designed to give accessibility to most of the facilities, with parking.
- pedestrian roads are provided all around the site for accessibility.
- Main public open spaces are designed in the core of the site, designed with universal design characteristics for all users.
- Publicness of spaces are designed in a hierarchy, providing a verity of activities in all levels that services both local and global needs



3D Models



3D Shots



Burundi - Mvugo

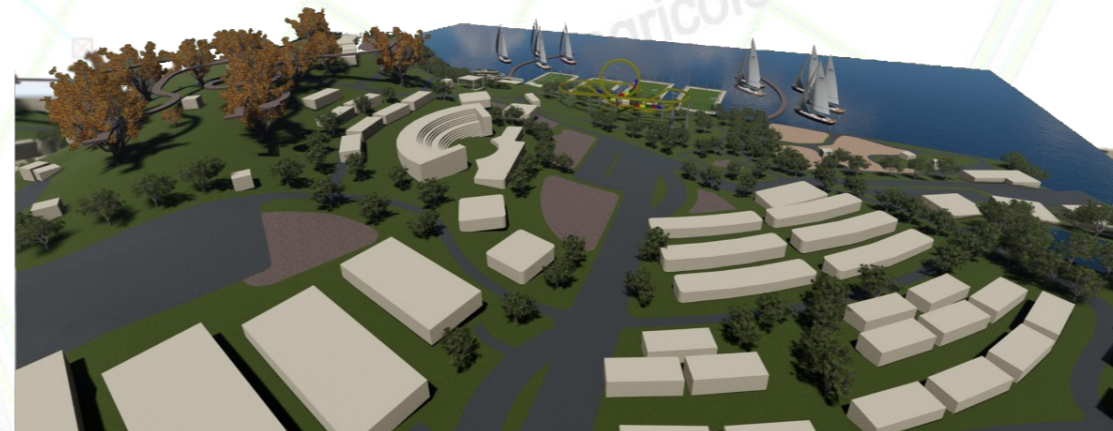
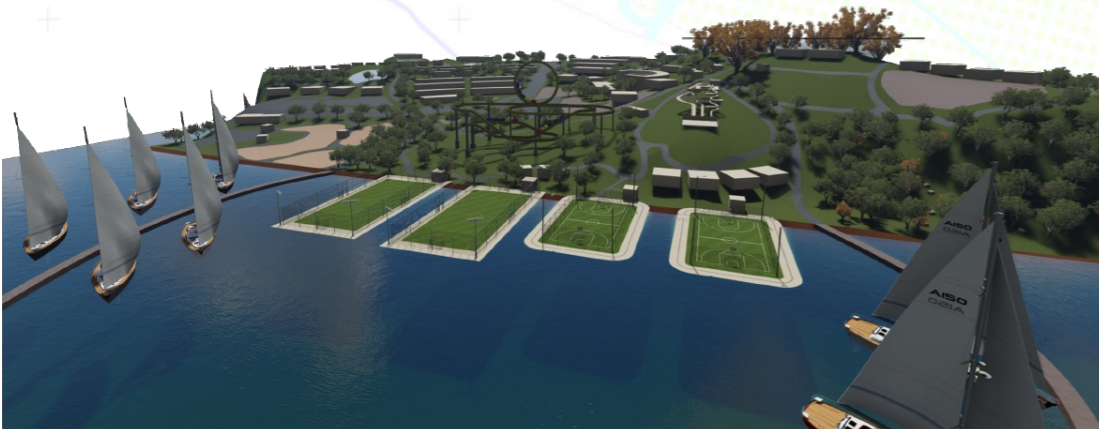
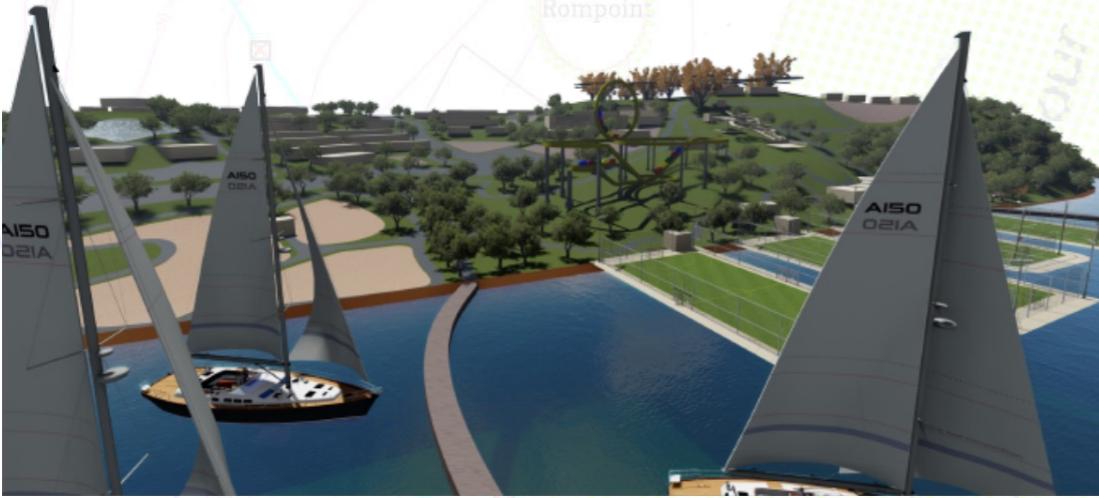
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Thank you for
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Q & A ?

