

HARRAR

INFRASTRUCTURE

Water in harar

- Jugal is placed to the nearest proximity of five rivers in the five Gates and in the hill to easily discharge the rain water using topographical position .



- Until the beginning
20th century (dry city)
contamination




water is only allowed for
Drinking
cooking
washing dishes
in order to avoid

- ◉ Until the 2nd half of
20th century
relation with



The city have close
agriculturer

- **Hundred years ago**  b\c Increasing demand for water
Adji Bomba diverted the spring of
to sofi rasmegala to a reservoirs

- **At Italian invasion of 1936**  Introduction to other 2 reservoirs

- **In 1960s**  Lake alemaya starts to be used

Drainage

EARLY

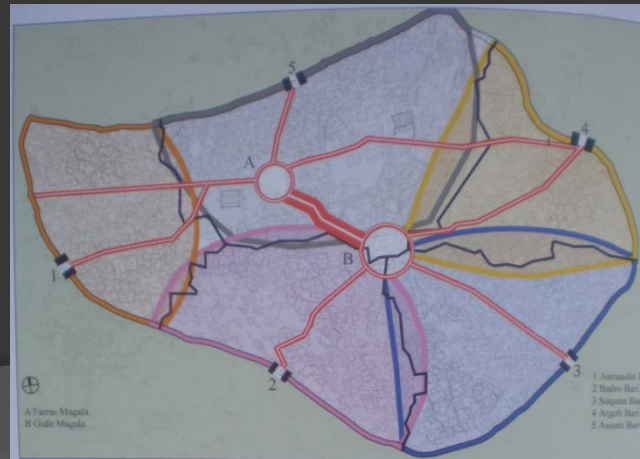
- The jugal city drainage system is only working for rain water :
using

Topography

- Slopy site from the center
To the the wall



Street pattern



NOW

The need for urbanization



Introduction of water to the city

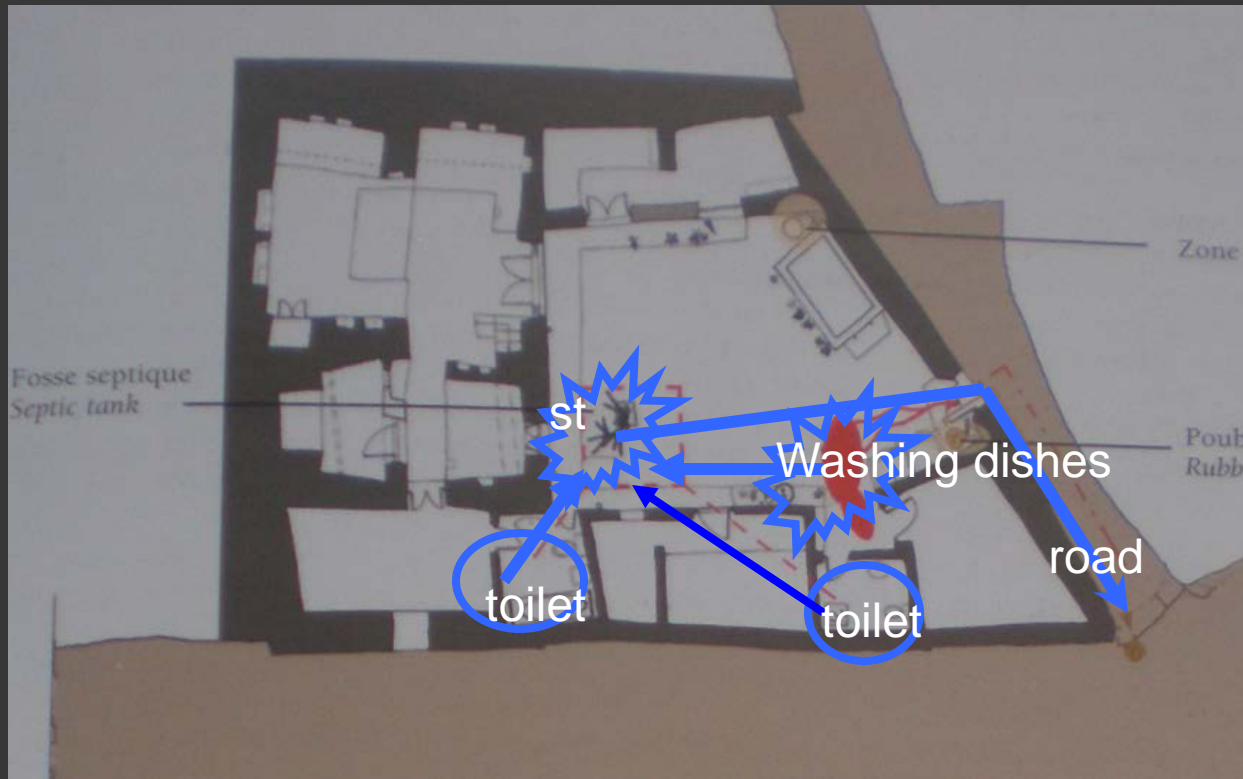


Sewage problem



- To solve the sewage problem new system of drainage is introduced by the municipality.

- Court yard
- The waste water collected at court yard level and released to the road.



◎ Sewage lines on the road

This sewage lines found around the road which are connected to court yards.

- Some of them are open .
- The others are man holes.



- # Gutters around the wall

- This swear lines are found around the wall , accepting the drainage from the guteers around the road.
- They are open



- Two rivers found around the wall

The drainage from around the wall to this rivera are dischrqed with out any tretment.



Murs du centre historique / Walls of the historical center

Failure of this system

- Because not all court yards drainage system are not connected to the gutters around the road, most of the roads are getting contaminated.



The rivers are contaminated , because the waste water which is realised from the city is not tratend.

PROSAL

- The accessory roads within jugal can not let vehicles inside. So that providing a pit for sanitation become difficult for cleaning.
- Because of this the discharge of sanitation within the jugal should have to be connected with sewage lines

sanitation from each court yard

sewer lines  across the road

sewer lines  around the wall

sewer lines  away from the river

sewer lines  to sewage treatment plant

- To make this proposal work each sewer lines should have to be connected each other properly.

Cycle of waste

EARLY

- days when agriculture was abundant in the city

Sagarda in
every
house hold



Gudjuf in
every
gate



Farm land
around
Jugal



NOW

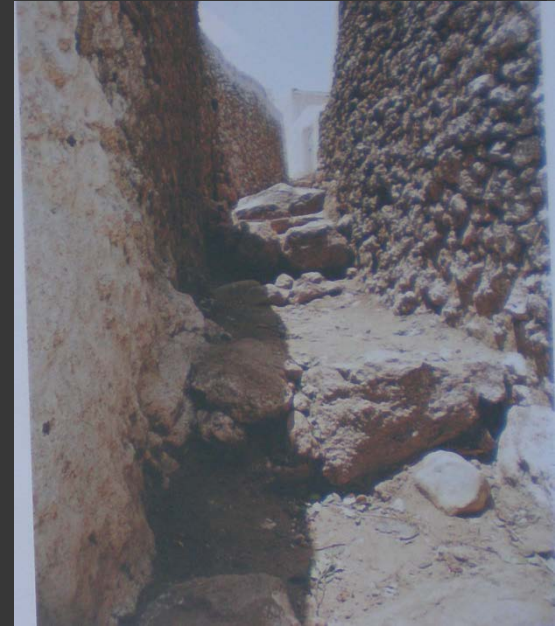
- Agriculture is not abundant so the above recycling stopped because there is no need for fertilizer.
- The municipality solution is;
- donkey collection from each court yard.



Stored to containers around the Wall.

The problem of today's system

- some of the places are not accessible because of the road
 - 1, narrowness
 - 2, distance
 - 3, paving condition

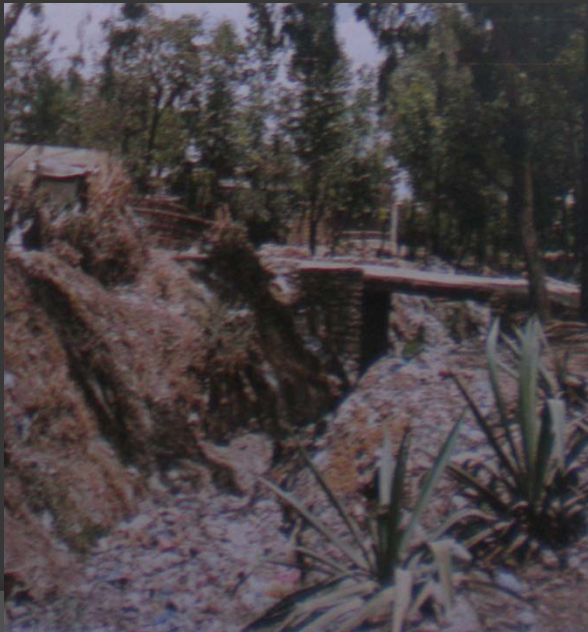


Some of the wastes are not degradable

- Because of the scarcity of containers wastes are disposed in

1, roads

2, dead ends



3, natural places

4, market places



Proposal

- Harari peoples already have an experience of waste management.
- So the first solution for the solid waste management is recycling.
- This recycling should have to start from house hold level to city level .which is:
 - 1, Separating each waste based on their character from house hold level.
 - 2, Because the road within gugal are not comfortable to use big cars for collection of wastes from each house hold:
 - continue collection by using donkeys
 - by improving the road condition to use carts and small veacheles

3, providing enough containers for different wastes and placing them in accessible places.

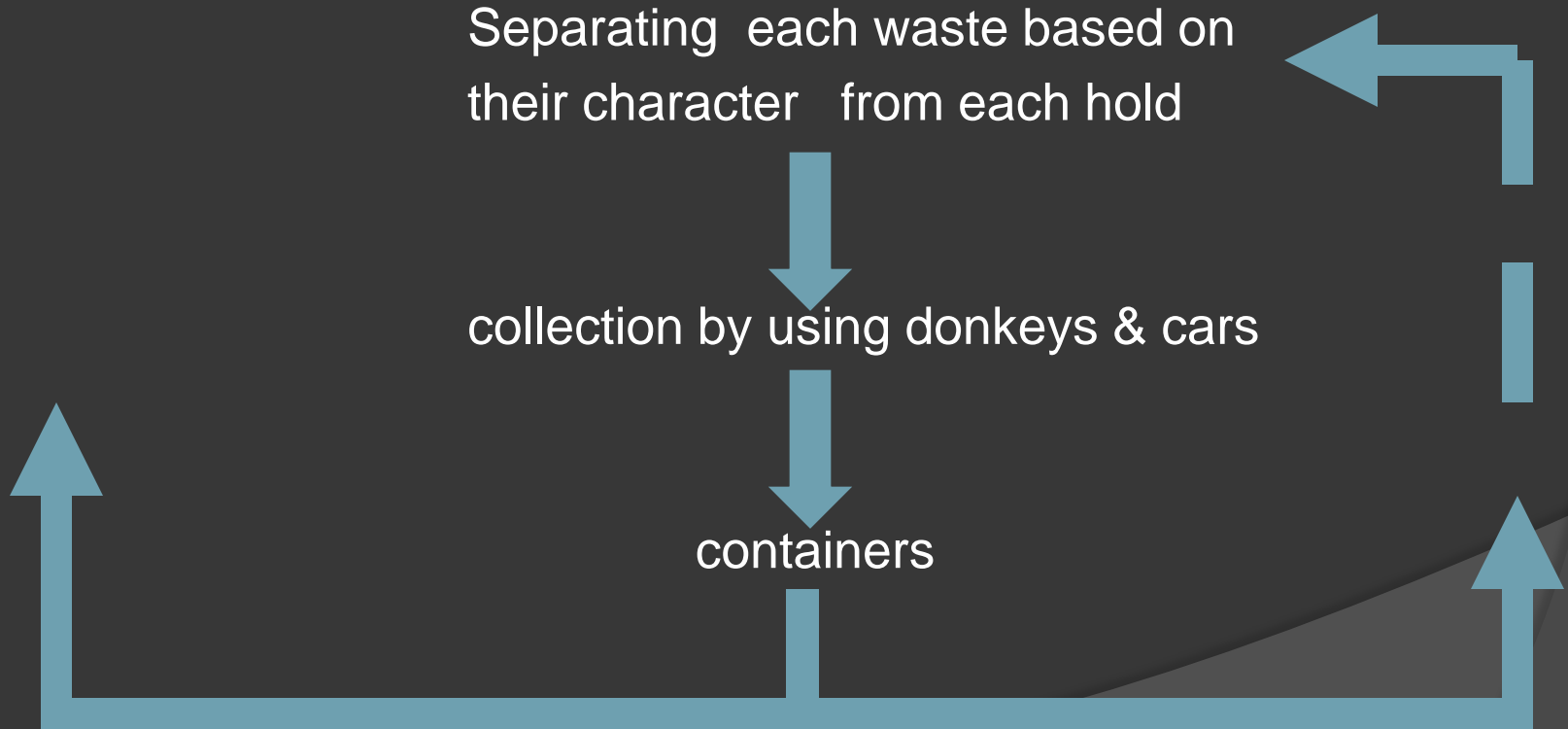
4, Wastes which can not decompose let them recycle.

Wastes which can decompose let them decompose and use it as a fertilizer for the green cover around jugal before area.

Separating each waste based on their character from each hold

collection by using donkeys & cars

containers



Rampart and gate

- The construction of the rampart wall in masonry get their character since 16th century . Which was surely like a second birth of the city and the beginning of the harari emirate that come to an end in 1887.
- The 6th gate (harar ber) created by emperor minilik in 1938.

Wall

- The walls were built for
 - 1, The safety of the city .
 - 2, Limit of the city for value of its purity clean lines and health .That oppose it to the dirty value of the near out skirt .



Problem of the wall

- Construction of some poor conditioned houses on the wall



- Discharge of waste



- Very dead parts



Proposal

- Avoiding all structures build on the wall which are going to damage the wall and eliminate the view.
- Planting greeneries between the wall and the road
 - In order to avoid direct contact with the wall.
 - In order to create clean and attractive surrounding which have direct contact with the surrounding.
- Making the rivers attractive and clean , to create active and entertaining areas around the wall area .



GATE

- The gates were

1, the connection of the city to outside.

2, Exclusion of – water

-dead

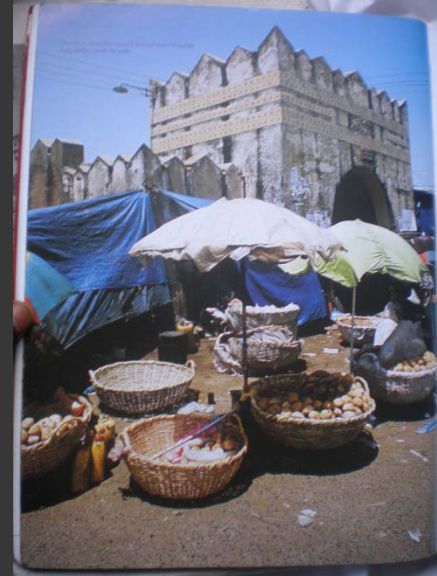
-rubbish

- exerta

3, Wooden doors

THIS GATES ARE

- Asmadin beri (Eastern gate)



Badro beri(Southern gate)



- Suqutat beri (South western gate)



Argo beri (western gate)

- Assumi beri(northern gate)



- Dug beri(harer ber)



NOW

- Except for Assumi beri and badro beri the other original doors are closed and new gates are opened for vehicular access.
- The newly proposed gates are **suqatat beri**



- Assumi beri



- Problem of the proposed gates are
Exaggerated in size
Very different from the original

PROPOSAL

- ⦿ The new gate proposed by considering of the two needs
 - To not change the character of the heritage
 - To fulfill the current need of vehicular access and high traffic movement
- We propose
 - using the same material as the old gate
 - Increasing their size in which it can have a pedestrian and facular movement.