LESOTHO AFFORDABLE URBAN HOUSING



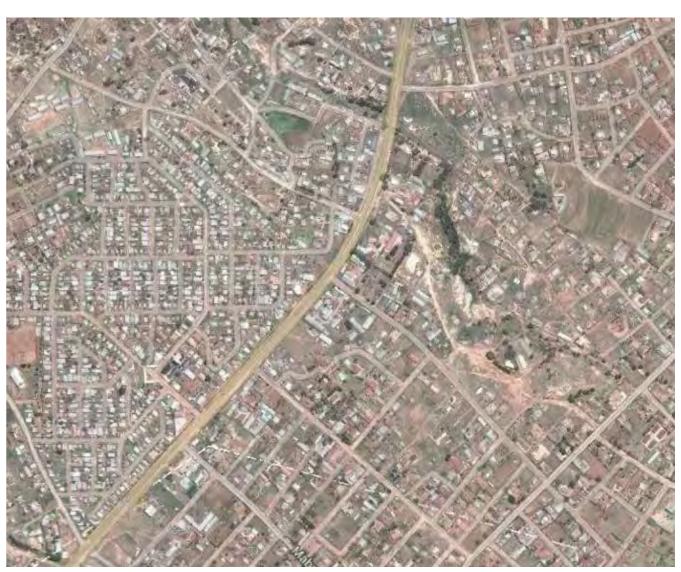










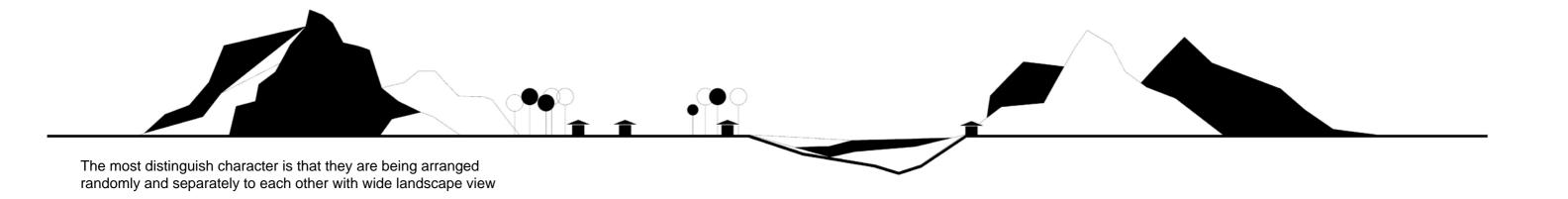


CONTEXT

small scale: unite and nieghborhood

large scale: city

There are seven common types of housing unit in Lesotho, which are: Malaene, Polata, Bungalow, Apartment building, Heisi, Rontabole, Optak Most of them have a rectangular shape, small size and a wide natural landscape view. Lesotho is a high-altitude country encircled by another country, like a space in space in architecture. being the highest independent state in the world has made it this context very unique. so, having green, mountainous landscape has been reflected in the way they build their environment, both in village and city.





Sandstone

Local Material



Burnt bricks



Cement blocks



Roofing sheets



Timber



Gypsum

Sand

Cement

Aggregates

Feasible Construction methods

Our idea in useing material is using local and available material in new sustainable ways such as, rammed earth or locking bricks which are cheap, energy efficient, maximize the use of unskilled labor, and can be used to build all types of building. The main construction system includes corrugated metal sheets or agricultural byproducts such as straw, textile panels and rammed earth walls made with local materials and skills.























---- Malaene: 41.4 %

these two rectangular singleroom or two rooms house forms provide almost **80%** of all urban

---- **■ Polata**: 38.0%

Polata + Polata = Malaene



Optak: 6.0%

Bungalow: 7.8%



Rontabole:1.5%

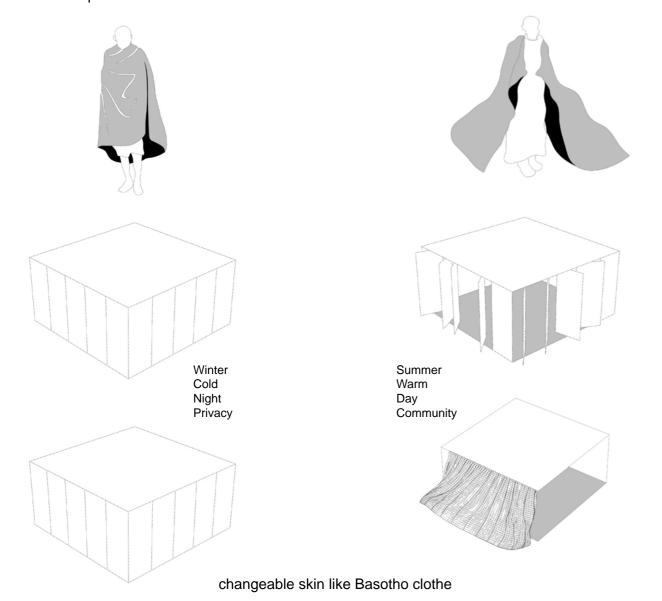
П



Heisi: 0.8%



Maseru, despite its small size, is a diverse place that offers unique experiences that are both removed from and intertwined with other cultures from around the world. The Basotho Blankets (Seana Marena) are a good example of how a foreign concept was adapted by Basotho .Despite being introduced by foreigners, the blankets illustrate the country's historical development and lifestyle as well as traditions with its pattern and continued use.



what is a creative solution to have a house with a lot of contradictory features?

small in size, yet flexible in function- solid in material, but growable according future needscheap in costs, but rich in space- modern in shape, yet grounded in reginal culture- Introvert and Extrovert- Secluded, yet sociable- cold in summer, but warm in winter.

The main idea is how to design a prototype as a flexible platform in which allows residents can participate in completing design and change it through time according their needs. The home will be quiet and calm in `winter by closing moveable facades and very open and active in summer or spring





Lesotho's housing common features:

Shape: rectangular building

Material: concrete blocks or local bricks, and with a shallow single pitched corrugated iron roof, Sand

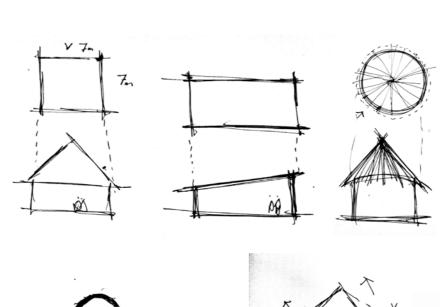
stone, rubble, burnt or mud bricks

Rooms: rows of single rooms or two-roomed suited

Facade: a door or one or two windows depending on the number of rooms

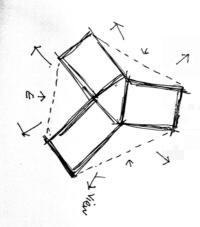
<u>Finishing:</u> in highly variable

Space arrangement: the norm is to combine living, cooking, eating and sleeping all in a single room



Vernacular Housing Typology

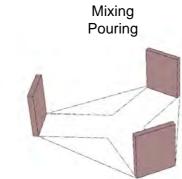




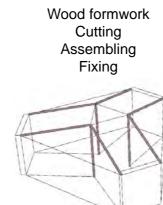
By composing rectangular and circular typology we can design a kind of triangular shape as an answer for both large- scale and small-scale housing projects

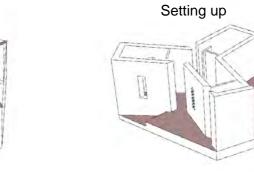
Construction process





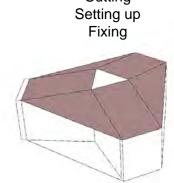
Foundation Formworks





Rammed earth or interlocking bricks Windows

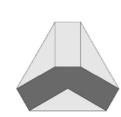
Interior shelves



Roofing Cutting

Year: NOW! Area: 48 sm

Site



Year: 2019 Area: 20 sm



Year: 2020

Area: 29 sm



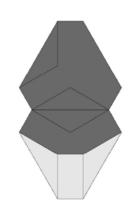
Year: 2021

Area: 35 sm

Year: 2022

Area: 42 sm

Year: 2023 Area: 48 sm



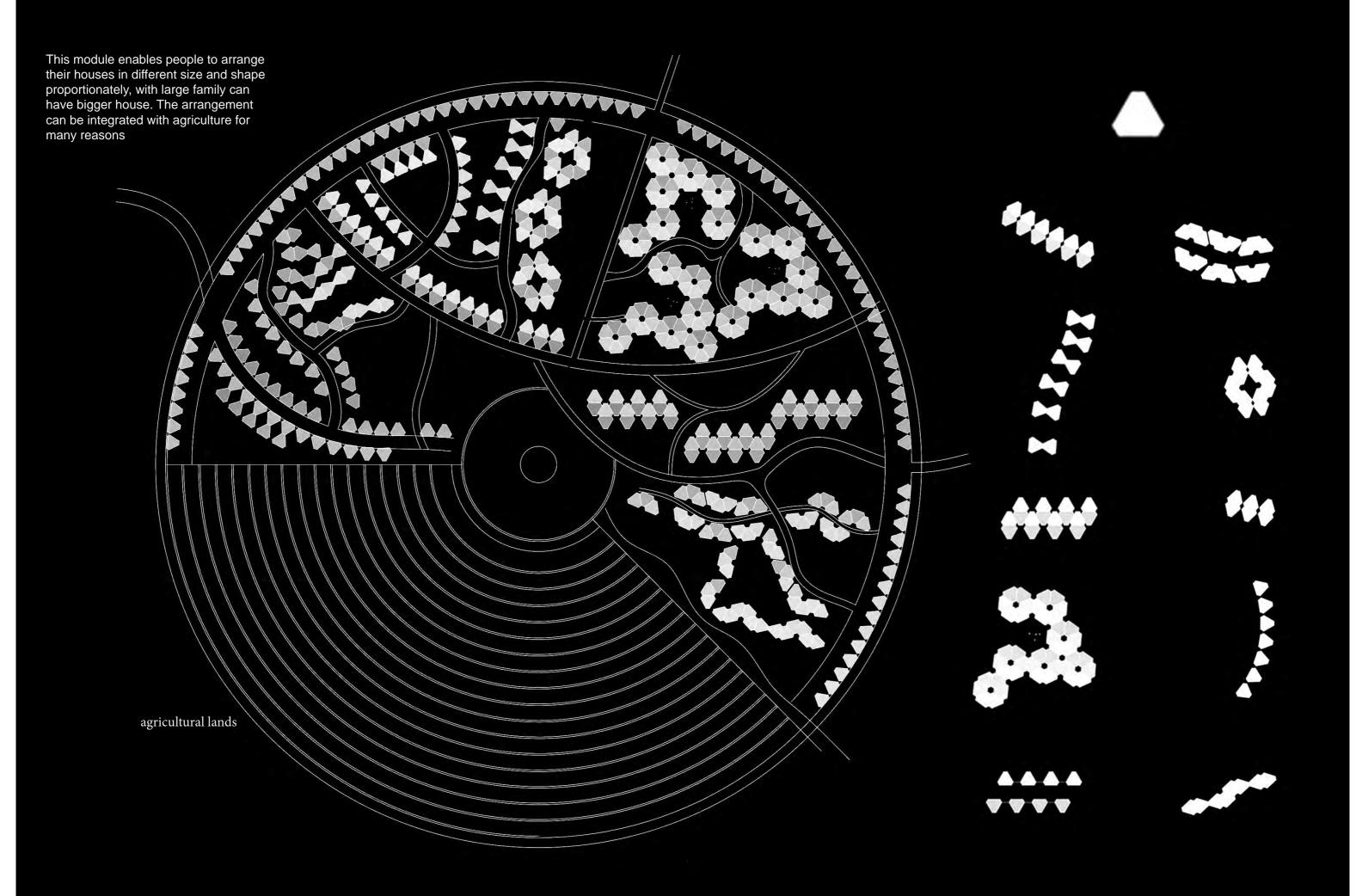
Future Extension



Growing the basic module through the time, or optional choice







100 word statement

What aspects should we take into account in order to achieve sustainable quality of life for low-income dwellings in Maseru? We came up with two scales that our idea should successfully respond to: unit quality and neighborhood quality (small and large scale) so, instead of proposing just one type of house of the same size and shape, this triangular plan can be built for even less than the allotted budget, can grow according to resident's need or the seasons and neighborhood arrangement. Small gardens are enjoyed privately, or shared to enrich community life, mixing areas with relationships between inside-outside living.

HOUSING PROFILE

Material	Туре	Unit	Cost (Maloti)
Cement	Ordinary Portland Cement 42.5	50kg	82.50
	White cement	5kg	51.50
Aluminium Corrugated Roofing sheets	0.4/33 x6metres	each	211.69
	0.27/0.610x 3metres		72.95
Crushed Stones	Hand crushed	6 cubic metre	
	Machine crushed		1850,00
Sand	Rough	6 cubic metre	800.00
	Smooth		800,00
Vawa (soft wood)	1"x10"	14 foot piece	
Timber	38x114 mm	6.6 metres	114.90
	50x76 mm		432.00
Steel rods	12x6000 mm	Each	68.00
	6x6000 mm		18.00
Plywood	18 x1220 x2440mm	Each	420.00
	20 x1220 x 2440mm		520.00
Ceramic Tiles	35x35 cm	Square metre	74.90
	20x30 cm		69.90
	43x43 cm		79.90
	50x50 cm		99,90
	60x60 cm		139.9
Paint	Emulsion	20 litre	217.95
	Enamel	20 litre	789.95
Plumbing	Water doset	each	700.00
	Shower pan		764.95
	Bath tub		789.00
	Kitchen sink		479.95
	Double sink		934.95
	110mm pvc pipe	6metre	160.00
	50mm pvc pipe	6metre	74,95
Electrical	Single switch	each	70.95
	Double switch		118,95
	AC circuit panel box (six breakers)		145.00
	Energy saving light bulb (11w)		19.90

10 percent of Rammed earth is cement and ested according to ASTM D698, it weighs 110 - 130 pounds per cubic ft.

- CEMENT : for 3 main walls : 3,460 Maloti

All interior walls by rammed earth: 5,000 Maloti

- CORRUGATED METALL: All roofing metals: 2,000 Maloti

if just one of the facade would be moveable:7,35 Maloti

Timber (38x114 mm): Roof: 60 meters is need which would be around: 114.90 Maloti

if just one of the facades would be moveable:1,035 Maloti

Crushed Stones: 3,500 Maloti

Plywood, soft wood, and ceramic tiles: for floor or interior design: 10,000 Maloti

Paint: 1,000 Maloti

TOTAL + 15% = 43,0000 up to 45,000 Maloti

