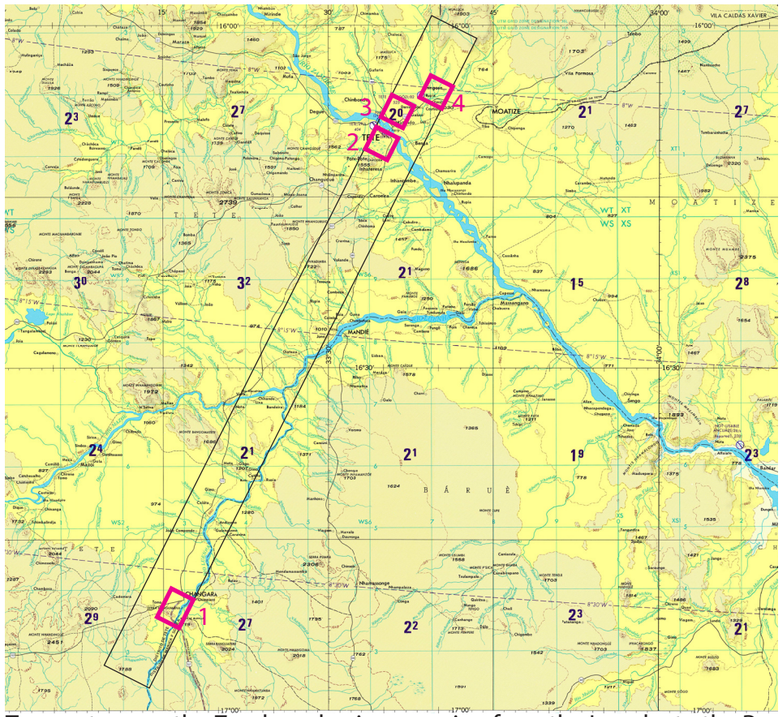

Transect across the Zambeze basin, spanning from the Luenha to the Revubue tributaries.

1 Current erosion near the Luenha

2 Monte Mangomana and changara district on the plateau

3 Nhartanda old river bed of the Zambeze

4 Caroera Mountain and rapid urban expansion on the plateau

Country / City Belgium / Leuven

University / School University of Leuven

Academic year 2017-2018

Title of the project Forest Urbanism, Tete, Zambeze River Basin, Mozambique

Authors E.Mavie, N.De Feyter, A.Antonio, D.Muiruri, T.Nguyen Thi, M. Al Abed, C.Medina García, M.Aerts, N.Nusrat, H.Ye, X.Xiao, X.Ordoñez Carpio, R.Al Ghareeb, V.Tradello, J.De Souza Campos Paiva

PERFORMATIVE NATURE

Barcelona International Landscape Architecture Biennial

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SCHOOL PRIZE

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Máster d'Arquitectura del Paisatge -DUOT - UPC
ETSAB- Escola Tècnica Superior
d'Arquitectura de Barcelona
Avenida Diagonal, 649 piso 5
08028 Barcelona-Spain

TECHNICAL DOSSIER

Title of the project	Forest Urbanism, Tete, Zambeze River Basin, Mozambique
Authors	MaHS / MaUSP students as indicated
Title of the course	Landscape Urbanism Studio: Climate Change & Urban Deltas
Academic year	2017-2018
Teaching Staff	Bruno De Meulder, Wim Wambecq, Eliana Barbosa
Department/Section/Program of belonging	Faculty of Engineering Science, Department of Architecture, Master of Human Settlements & Master of Urbanism and Strategic Planning
University/School	University of Leuven

Written statement, short description of the project in English, no more than 250 words

This landscape urbanism studio investigated a transect (140 X 10 km) of the Zambeze river basin between two of its main tributaries (Luenha and Revubue). The thinly forested savannah fastly arrives at a turning point due to the recent coal mining (in the twin-municipalities Tete and Moatize) that also catalyzed fast urbanization. Catastrophic deforestation, massive erosion, water pollution as well as shortage exhaust the self renewing capacity of the environment, while the local population is highly dependent on the resources embedded within the landscape. The design investigates strategies of leapfrogging the ongoing consumption and destruction of the landscape with new (and sometimes age-old) mechanisms of landscape and resource creation. Water is fundamental in this transformation: from a concentrated resource available during short periods of time and coming down the slopes with brutal force, washing away the soil, a series of interventions hold and spread the water over the landscape from the mountainous areas towards the rivers. The landscape is irrigated allowing self-reconstruction. Planting strategies fix eroded gorges and turn them into domesticated land. Along the gradient of wetness and slopes, different ecologies appear and economies can emerge. As such forms of living within the resourceful landscape are re-established that can counter the current unsustainable concentration of settlements on slopes next to rivers or the fragmentation of private domains on the infertile plateaus. The range of vegetation reinvigorates the lifestyle of living under the canopy of a variety of trees that offer a wide range of uses.

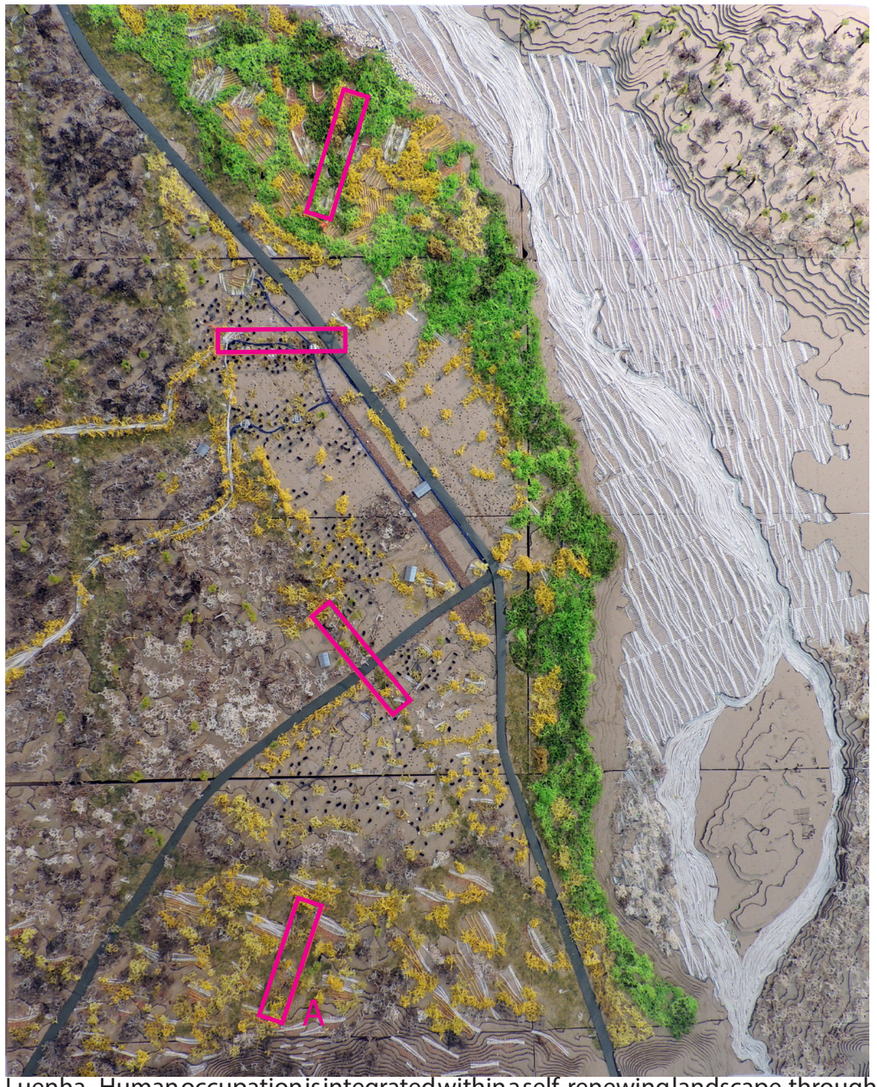
For further information
Máster d'Arquitectura del Paisatge -DUOT - UPC

T: + 34 93 401 64 11 / +34 93 552 0842
Contact via email at: biennal.paisatge@upc.edu
Consult the web page http://landscape.coac.net/

Transect Vision - A world of variation in between extremes

- Transect model, 140x10km, 1/20.000 (700x50cm)

3KM 9KM



Luenha - Human occupation is integrated within a self-renewing landscape, through planting and water strategies that are tailored to the environmental conditions

- Square models, 1x1.25km, 1/5.000 (100x125m)

0.5KM 1.5KM

1 Luenha

E.Mavie, D.Muiruri, X.Xiao, X.Ordoñez Carpio

The site ranges from the forested mountains, over the plateau where the dispersed settlement is reorganizing itself and the riverscape, 40 meters lower where riparian agriculture is practices in tune with the seasonal rhythms. The severe climate oscillates between long dry and short wet seasons. Massive deforestation and enormous erosion harden living conditions and leach the existing Miombo Woodland, the open savannah. Planting and water holding and spreading strategies rebuilt a resourceful landscape in which settlement can be embedded in a sustainable way.

2 Nhartanda

V.Tradello, H.Ye, M.Al Abed

A sequence of landscapes marks the south of Tete: 1. Nhartanda, a dead river branch of the Zambezi with a characteristic fertile soil, is simultaneously the geographical center of Tete and separating the colonial center and indigenous city, 2. the slope between river and plateau on which indigenous settlements nested, 3.the dry and infertile plateau that nowadays is quickly parcelled to accommodate urban growth (4%/year). 4. the mountain that escapes domestication till today

Nhartanda - tailored forestation as well as water strategies (harvesting and retention) generates a sustainable dwelling environments

- Square models, 1x1km, 1/5.000 (100x100cm)

0.5KM 1.5KM

1, Dry season mural - existing condition

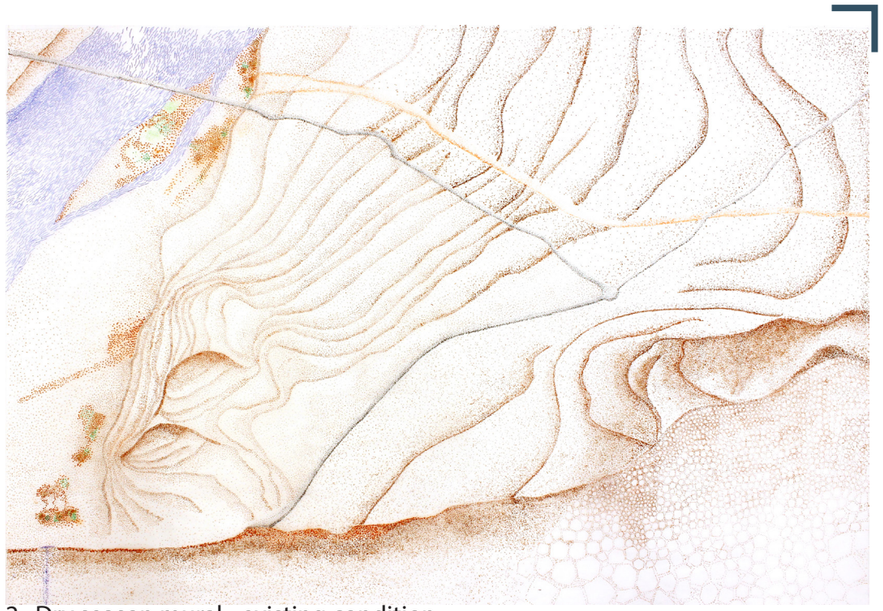
1 Luenha

E.Mavie, D.Muiruri, X.Xiao, X.Ordoñez Carpio

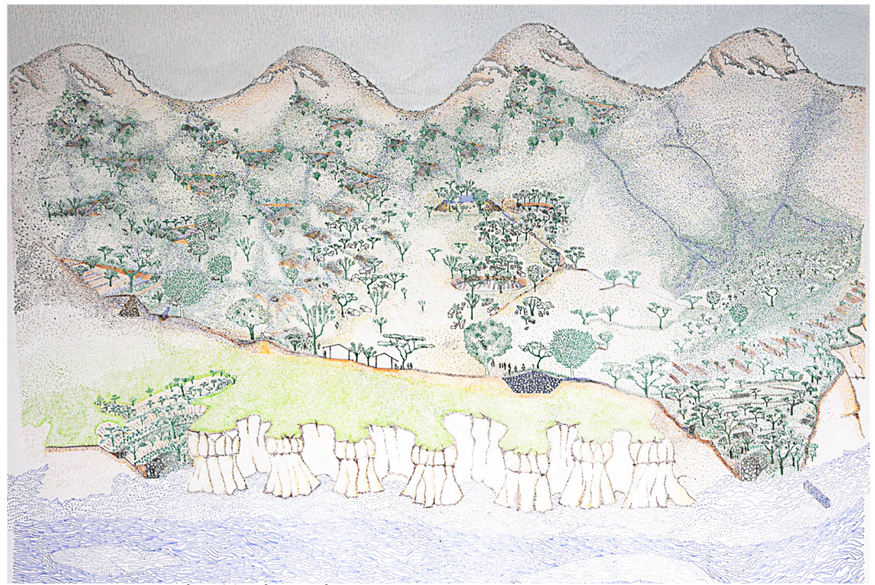
Re-embedding settlements
in a reinforced landscape

The project for Luenha links and crosses its different elements (mountain, plateau, cliff, riverscape). It builds a landscape that can bridges and mediates the extreme realities of dry and wet season.

From the mountains, rainwater harvesting strategies are explored. Infiltration systems that slow down the water and green the slopes are introduced to allow cultivation. A process of reconfiguration of the settlement on the plateau is induces by systems of water harvesting and optimization of water use. The resulting vegetation and landscape thereafter, gives direction to the redefinition of inhabitation in the harsh semi-arid environment. Erosion gullies are remediated and reconfigured as new productive patchworks, stitched with tree plantation schemes. As such rich passages between the riverscape and the plateau are organized.



2, Dry season mural - existing condition



1, Wet season - plan(t)ed condition

2 Nhartanda

V.Tradello, H.Ye, M.Al Abed

Forest Urbanism Tailored
to landscape cHaracteristics

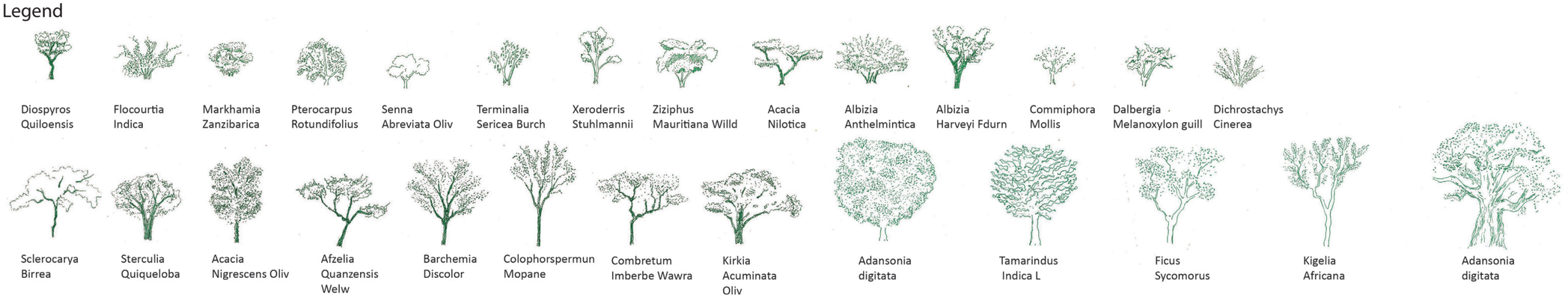
Forestation programs are tailored to the different components of the site (the Nhartanda, slopes, plateau, mountain slopes), while on the one hand water catchment, retention and distribution strategies and restoring natural drainage capacity where necessary on the other hand, regenerate a divers inhabitable landscape where densification goes hand in hand with intensification of green. . Trees are essential in view of climate change (micro-climate, water retention), as domestication measure, as productive elements and as means to fight erosion.

2, Wet season - plan(t)ed condition

- Hand drawing on tracing paper, 70x100cm

- Hand drawing on tracing paper, 70x100cm

Trees Legend



Project models, 750x150m, 1/500 (150x30cm)

A Building infiltration

The project slows down, guides, spreads and thereafter uses water. This way it allows for a new natural environment to emerge that allows human occupation within it.

High Land

Sedimentation capture through water flows from the mountain

Dispersed water flows and consecutive sedimentation make soils fertile and humid. Afforestation is anchored on this spatial device.

The infiltration system builds a micro-environment, including:

-vegetation mound which guides the water
-farming land before the mound where the soil will be more humid
-canopy and grazing land on more dry soils
-tree strip on the edge, orientated to wind direction

The infiltration system adapts to different uses and scale

Merging into existing vegetation

Low Land

Project models, 750x150m, 1/500 (150x30cm)

B Market Nhartanda archipelago

The current market is dangerously located in a seasonal riverbed. The market is consequently reconceived as an archipelago that allows occasional water flows to pass while simultaneously organizing a market under a new canopy that mediates the harsh climate.

High Land

In the adjacent river bed, a new topography allows to harvest water and fostersagriculture during the dry season.

Roofs across the river bed connect the market with surrounding paths and offer structure to the organic market.

The forest canopy and the wood shelters work as one market roof, providing shade and calm to the lively market.

Opening up the ground floor a chinese mall, it takes away the obstruction of water flows, while accepting this complementary facility of the market to continue.

Low Land

Model Legend

- Exsiting forest
- Asphalt Road
- Soil Sediments
- The infiltration system
- Proposal grazing land
- Proposal Agro-forest
- Proposal farming land
- Flooding land
- Designed Proposal island
- Designed Market roof