The Honduran Production Valleys

Finding Balance Between People and Environment

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Landscape Architecture MSc Thesis January 2018
Palm Oil Agriculture
Palm Oil In Honduras

Two more Honduran land rights activists killed in ongoing violence

Honduras and the dirty war fuelled by the west’s drive for clean energy
Palm Oil Agriculture
Research: Global Scale

Research: Local Scale

Spatial Design Explained

Implementation of design.
The Landscape Approach
The Present Landscape

Intensive agriculture
Palm Oil
Extensive agriculture with spread
Forest Needleleaf
Forest Broadleaf

Source PBL
The ILM Landscape

Source PBL
Themes in the Landscape

Food Security

- Focus on rural development
- Diversity of agriculture, owned by small holders and coorporates

Sustainable Palm Oil

- Ecological corridors ensure biodiversity is kept

Water Management

- River buffer and water storage
- Reforestation

Eco Tourism

- Increase of protected areas
- Nature protected by tourism
- Coast developed in tourism
Stakeholder Discussions
Research Lens: Local
Area of Focus
Red of Women Cocoa and Chocolatiers of Honduras (REDMUCH)
How can the Landscape Approach provoke a spatial design in the Northern coastline of Honduras to create a future sustainable environment, accounting for the area’s landscape values?
A New Story of Honduras
### Design Interventions to Concepts

<table>
<thead>
<tr>
<th>Blue System</th>
<th>Technical Landscape Interventions</th>
<th>Reconnecting People back to their landscape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water management</td>
<td>River water collectors</td>
<td>Recreation and space in landscape</td>
</tr>
<tr>
<td>Soil erosion and food production on hills</td>
<td>Hill water collectors</td>
<td>Water and power access</td>
</tr>
<tr>
<td>Flooding prevention</td>
<td>Town water collectors</td>
<td>Water points through town</td>
</tr>
<tr>
<td>Food production on valley and more productive palm</td>
<td>Distributing water ways</td>
<td>Water access across landscape</td>
</tr>
</tbody>
</table>

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</thead>
<tbody>
<tr>
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<td>Agroforestry and extensive agriculture</td>
<td>Food security / power for people</td>
</tr>
<tr>
<td>Watershed restoration</td>
<td>Green corridor</td>
<td>Natural route and connection through landscape</td>
</tr>
<tr>
<td>Ecological diversity</td>
<td>Community gardens and tourism activities</td>
<td>Food security / new economy space and power for people</td>
</tr>
<tr>
<td>green movement</td>
<td>River buffers and marshland</td>
<td>Reconnection to true nature</td>
</tr>
</tbody>
</table>

- **Food Security**
- **Sustainable Palm Oil**
- **Water Management**
- **Eco Tourism**
The Blue System
RIVER WATER COLLECTION
RIVER WATER COLLECTION | Technical

Natural overflow points of the river

Plan

M 0 10 20 30 40

Water gates control water into waterways.

Section A

Waterway distributing water around water system.

Section B

On-site poured concrete retaining wall

Reservoir floor made from compacted clay.

Material detail

Guaymiana 3 minute walk

Narrow pools horizontal to the North, to allow space for trees to grow in between, creating shaded spaces to conserve the water

Recreational pools sit between the river and reservoirs as spaces for people to enjoy the natural areas.

10m 6m

Section through pools

During high rain months, water is collected into the pools.

Water is distributed through pools via sluices.

Stairs for access in dry months and cleaning of pools

Raised edge, with endemic vegetation growth to protect land from overflow of water.

Trees surrounding the water pools to create shade from the sun.

Section A

During high rain months, water is collected into the pools.
HILL AND URBAN WATER COLLECTION
The waterways are to be dug by trenches, and lined with compacted clay (from the clay landscape itself). The compacted clay will hold the water and allow the waterway edges to be natural in appearance.

Water from secondary waterways connects to individual farms. Farmers can attach hand pumps to access water for use.

Waterways connected through pipes (under existing infrastructure). Water can be powered through via water powered pump.

Plants can be introduced to clean the water, which can become polluted from pesticides used in farms.

Water level in rainy months

Water level in dry months

Primary Waterway Section
Main water channels following topography distributing water from collection points to secondary channels and to farms.

Secondary Waterway Section
Smaller water channels linking water to individual farms.

Individual handpumps for farmers to access the water

Water powered system to pull water from primary to secondary waterways

Control Gates are staggered across the landscape, to control the movement of water through the landscape itself. The waterways follow the natural topography, allowing gravity to level the water throughout the system.

Tropical papyrus

Nelumbo Nucifera

Solar panels on roof to generate energy

Red clay tiles

On site poured concrete

Control Gates to control the distribution of water. The red clay roofs have coherence through landscape, identifying one system.
The Green System
STORM WATER LANDSCAPE | Technical

Axo Plan of new landscape area

- Dug ground used as raised border surrounding landscape area, to protect agricultural outside
- Existing landscape is mainly agricultural

Gate houses sit at the entrances of the watersystems into the area. As recreational viewing points over natural landscape

Trenches dug into the landscape at diagonality to the main water channels

- Trenches create variety of habitat types to support more wildlife

1m ground raise surrounding for protection of agricultural fields

Channels dug into marsh to form new landscape

Section through agriculture to new landscape

Agriculture | Riparian Zone 50m | River

New storm water landscape

Section through system North to South
The storm water landscape sits at the lowest point in the topography, collecting the natural flow of the water overflows

Storm water and renewed marsh landscape
GREEN ROUTE
The proposed green route takes over existing agricultural plots. Allowing the agriculture to grow out and natural vegetation to grow through. The route is 230 metres wide.

**Green route connecting towns, riparian corridors and valley floor**

**Plan of Green Route**

**Green Route**

- **Section One**
  - Town of Mczapa
  - Green route and recreational area
  - Palm oil agriculture
  - Recreational areas and paths through the green route can be built by the people over time.

- **Section Two**
  - Town of Urraco
  - River Ullas
  - Palm oil agriculture
  - Riparian Zone 50m
  - Riparian Zone

**Technical**
LAND USE HILLSIDES
New Ownership Plan

Ownership by corporations ➔ Democratic ownership

2017

2030

- Red: Palm Oil Agriculture
- Orange: Intensive Agriculture
- Yellow: Extensive Agriculture
- Green: Natural Areas
Construction and Change of Ownership
**Construction Timeline**

**Green System**
- Areas in landscape designated their new land use.
- Waterways: Digging of the waterways through the landscape, during the Dry months.

**Waterways**
- People able to buy into landscape, in coherance with the new land uses; to start their own businesses or have their own land.
- The aim is for a 50/50 in ownership between co-ops/corporations to people.

**Blue System**
- Green Links surround waterways join, riparian zones encouraged to grow at 30m bordering rivers.
- Stormwater Landscape: Creation of main water collectors at the points adjacent to the river. Constructed in dry season.

**Stormwater Landscape**
- New land uses initiated and increased in diversity of economy. Agroforestry; cocoa and coffee, extensive agriculture such as cattle, and diverse food agriculture.
- Surrounding land left to recover.

**RIVER WATER COLLECTION**
- Water pumps in secondary.
- Funding of local initiatives.

**NEW LAND USES**
- Old palm oil trees remain.
- Trees planted by people in valley.
- Green recreational areas start in construction.

**Present**
- People able to buy into landscape, in coherance with the new land uses; to start their own businesses or have their own land.
- The aim is for a 50/50 in ownership between co-ops/corporations to people.

**Future**
- valley floor

**Future**
- Trees (endangered species)

**Present**
- Valley floor

**Present**
- Trees (endangered species)
Construction Timeline

NEW LAND USES
- New landuses initiated and increase in diversity of economy: Agriculture, cocoa and coffee, extensive agriculture such as cattle, and diverse food agriculture.

GREEN ROUTE
- Green recreational areas start in construction - natural areas have been left to grow. Endangered trees planted by people in valley.
- Activism tourism starts as a prominent business in the area.

RECREATIONAL LAND USES
- Recreational areas, paths through green route, and community gardens start taking place, constructed by local people.

HILL WATER COLLECTION
- Farmers can construct their own water systems on farms in hills. Water systems built up over time, according to their own needs.
- Farmers can buy tools to access water, such as water pumps. Funding of local initiatives.

URBAN WATER COLLECTION
- Water pumps in urban areas over time can be expanded in area to connect to larger water systems over time. Continuous process with urban expansion.
- System is united in identity. System can be expanded in area across whole valley.

URBAN WATER COLLECTION
- Towns adapt water collection in urban areas over time to connect to larger water systems over time. Continuous process with urban expansion.

Landscape initiatives help people start business and join common market, such as WWF and REDMUCH.

Water system becomes one system across whole valley.

2030
Thank you for listening