



FAIR TRADE ZONE: CIRCULAR ECONOMY AS A SPATIAL METABOLISM

Posted on April 20, 2023 by martabuges



Categories: [Juergen Strohmayer](#), [Low Density](#), [Politics and economics](#), [Project](#), [Technology and fabrication](#), [Urban Paradigms](#)

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Fair Trade Zone: Circular Economy as a Spatial Metabolism
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The design of the Fair Trade Zone understands the circular economy as a spatial metabolism between architecture and landscape. Led by a women's cooperative, the Fair Trade Zone in Akuse, Ghana is based on an alternative model for integrated sustainable manufacturing, agriculture, and eco-tourism in Ghana. While the raw materials processed in the built interior grow outdoors in productive gardens, the buildings harvest rainwater and nourish the plants with ecologically purified production wastewater through the courtyard's drainage channels and gravity-fed furrow irrigation. The result is a striated landscape composed of different biomes suitable for the diverging ecological requirements of a dye garden, a paper garden, a textile garden, a skin care garden, and an energy garden. Interwoven into the productive terrain are a variety of spaces including modular indoor production rooms bordered by shaded outdoor circulation spaces that open onto courtyards and social spaces.

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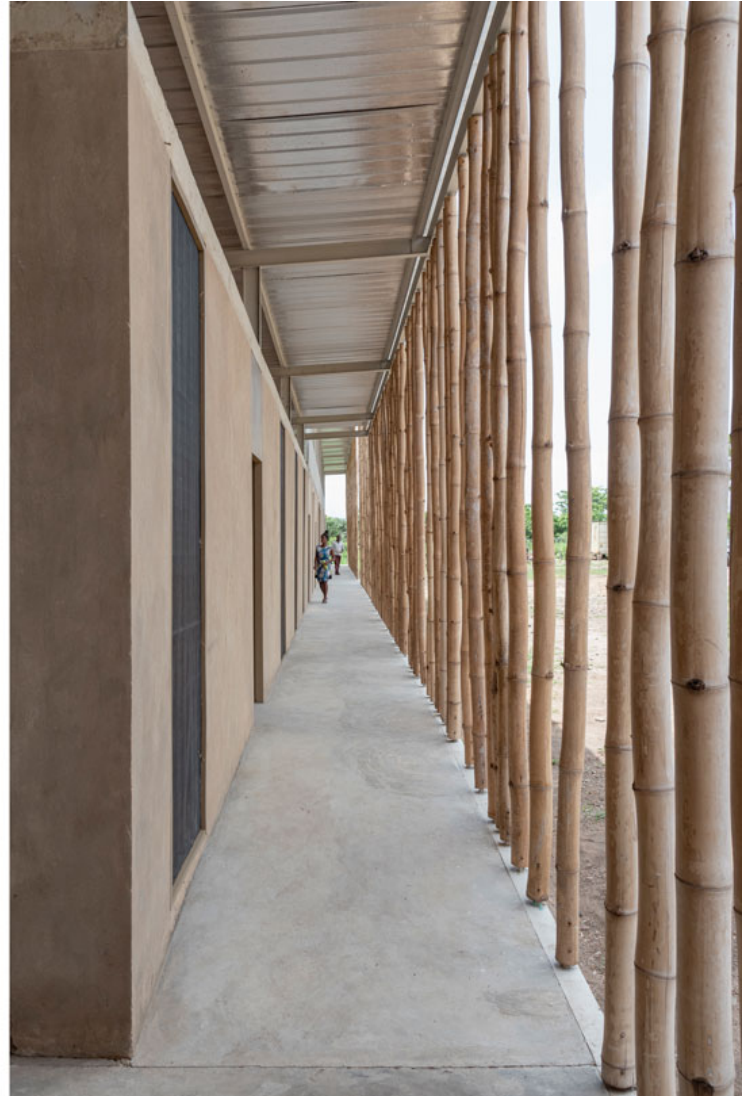
As a driving force for rural empowerment, the new Fair Trade Zone creates and ensures jobs for 200 female artisans and will be a step towards gender equality. Its design supports the visions of the organization in becoming a sustainable alternative model to production facilities in the region by providing a socially conscious and ergonomic work environment for employees, creating a tourist destination, and integrating innovative building strategies and technologies throughout the site.

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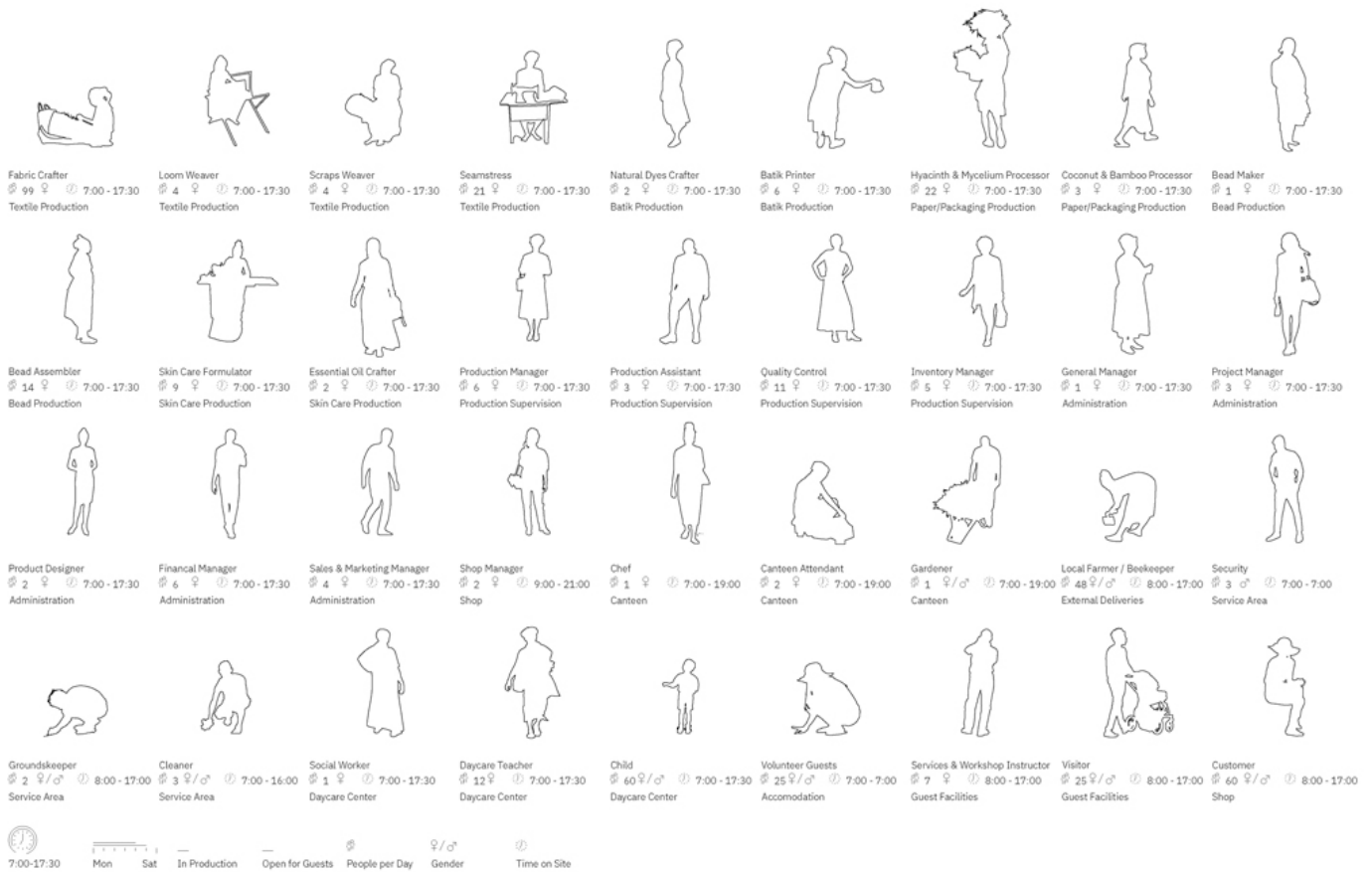
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People On Site

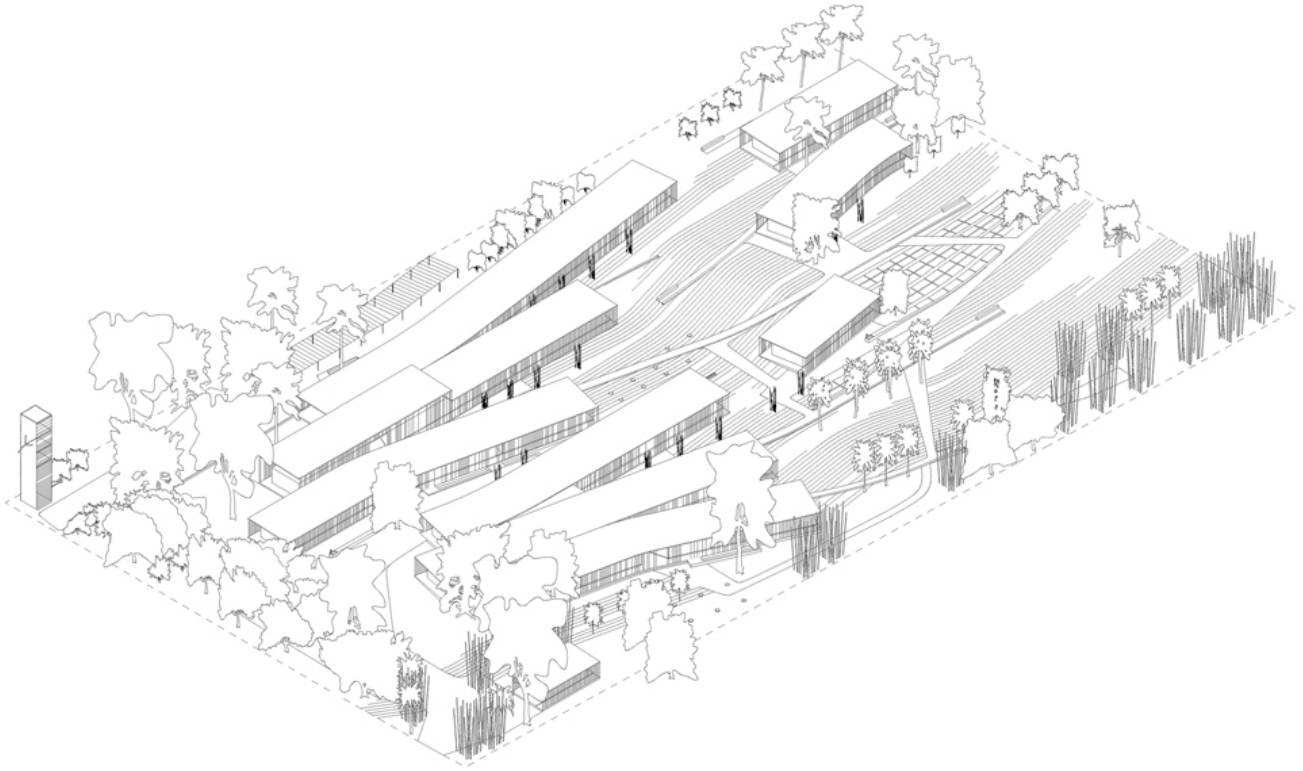
Fair Trade Zone by Juergen Strohmayer (architecture) and Chrlil Car (landscape architecture)

The natural topography of the land serves as the main guiding theme of the design. Curved, elongated buildings adapt to the contour lines of the site and each houses different production lines, which are associated with adjacent productive gardens. Individual buildings allow Global Mamas to construct and start operations of the facilities in phases. Embedded in the lush vegetation are retreats, a daycare center, as well as a cafeteria set in a communal kitchen garden. Being open for guests, the Fair Trade Zone is also a new ecotourism location that offers educational workshops and tours along its circular pathway, which showcases the economic and ecological diversity of the project.

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Site Overview

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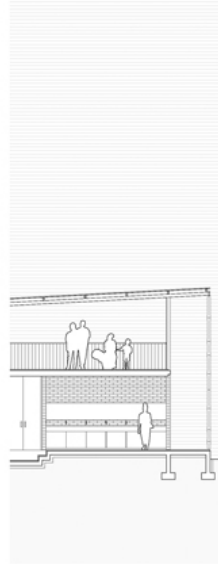
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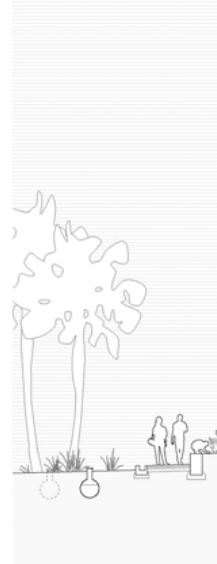
11 Visitors to the Fair Trade Zone arrive at an entrance courtyard between two linear buildings, fronted by a bamboo facade. Vegetation in the courtyard introduces visitors to key plants in the production lines and research interests at the Fair Trade Zone such as bamboo and water hyacinths that grow in feature water basins, fed by rainwater.



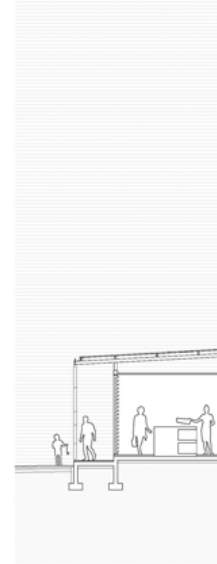
12 Visitors receive a guided tour through the indoor and outdoor production facilities at the Fair Trade Zone and participate in hands on workshops. A sheltered, outdoor roof terrace provides space for workshops, conferences and large gatherings and provides views across the site.



13 The Fair Trade Zone cafeteria sits inbetween the productive gardens of the site and is used by employees and visitors. Communal sitting arrangements in the building and on an outdoor terrace invite visitors to taste and experience products grown on the site and the region.



14 Footpaths throughout the Fair Trade Zone connect the gardens and buildings in an experiential visitor path. Footpaths are adjacent to irrigation channels and benches that include visitor information on the circular production process, cultural heritage and botanical backgrounds. Clay olla pots buried in the ground provide continuous irrigation for certain species of plants.



15 A shop close to the entrance and exit of the Fair Trade Zone visitor path allows visitors to buy items from the Global Mamas collection. The product collection are also displayed through windows to the storage. Screens give insights in to production processes creating a rotating display of products that is also seen by the employees when they enter and leave the building.

Eco-Tourism

Fair Trade Zone by Juergen Strohmayr (architecture) and Chrlie Car (landscape architecture)

By pairing formal minimalism with ergonomic detailing, the architecture draws full attention to the vibrant manufacturing processes and the rich biodiversity of the land. Locally harvested bamboo serves as a shading screen on the eastern and western façades, allowing natural cross-ventilation to occur and filtering natural sunlight, while adding to the linear and cohesive visual character of the buildings. Walls are offset from the perimeter of the building to avoid direct sun exposure and consist of reinforced interlocking compressed earth bricks. Palm kernel shells, an agricultural waste product, cover the unsealed access roads and onsite pathways. The material palette is composed of natural materials for barrier-free, soft and permeable transitions, natural ventilation and social inclusion within a connective landscape that transcends the site boundaries of the large 2-hectare

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plot. The curved design of the buildings and the layout of courtyards reveals views as far as Krobo Mountain, a culturally significant marker in the surrounding landscape. The focus on building with the topography and the terraced water system are both inspired by the pre-colonial legacy of the Krobo. Prior to their eviction from Krobo Mountain during British occupation, the Krobo devised innovative rainwater harvesting systems and had created unique terraced settlements.



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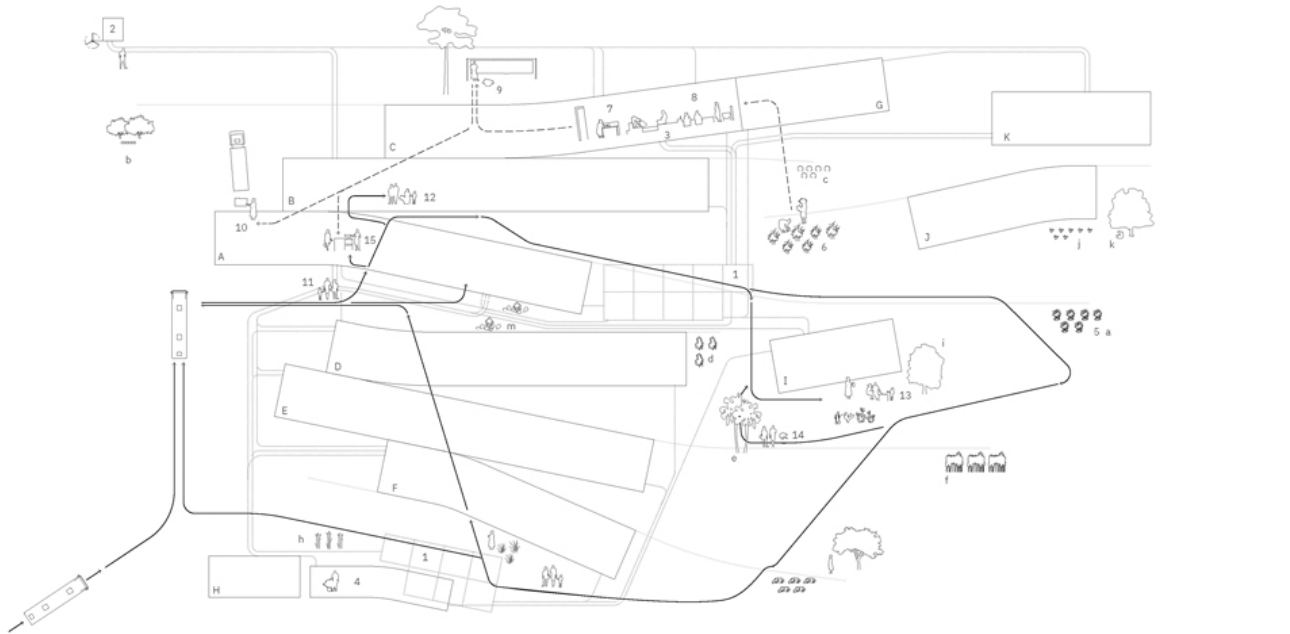
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The design of the Fair Trade Zone focuses on integrated renewable energy with a wind turbine-powered water tower, solar energy, passive cooling, water-saving toilets, the ecological treatment of toxic dye waste water with moringa flocculants, biogas and biochar production from human and production waste, and on-site production of ecological fertilizer and insecticide.

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10 m

A Logistics, Storage, Administration, Shop,
Bead Assembly, Skin Care
B Staff Rooms, Sewing, Paper Assembly
C Scraps Weaving, Loom Weaving,
Batikting, Papermaking
D Skincare, Weaving
E Paper Assembly, Sewing

F Bead Assembly, Packaging
G Batikting
H Storage & Agricultural Shed
I Cafeteria
J Daycare & Accomodation
K Accomodation

a Skincare Garden
b Fruit Grove
c Dye Garden
d Textile Garden
e Packaging Garden
f Multifunctional Agricultural Area

h Energy Garden
i Communal Kitchen Garden
j Plant Nursery
k Retreat
m Paper Garden

1-5 Water Cycle
6-10 Batik Production
11-15 Eco-Tourism

Circular Economy

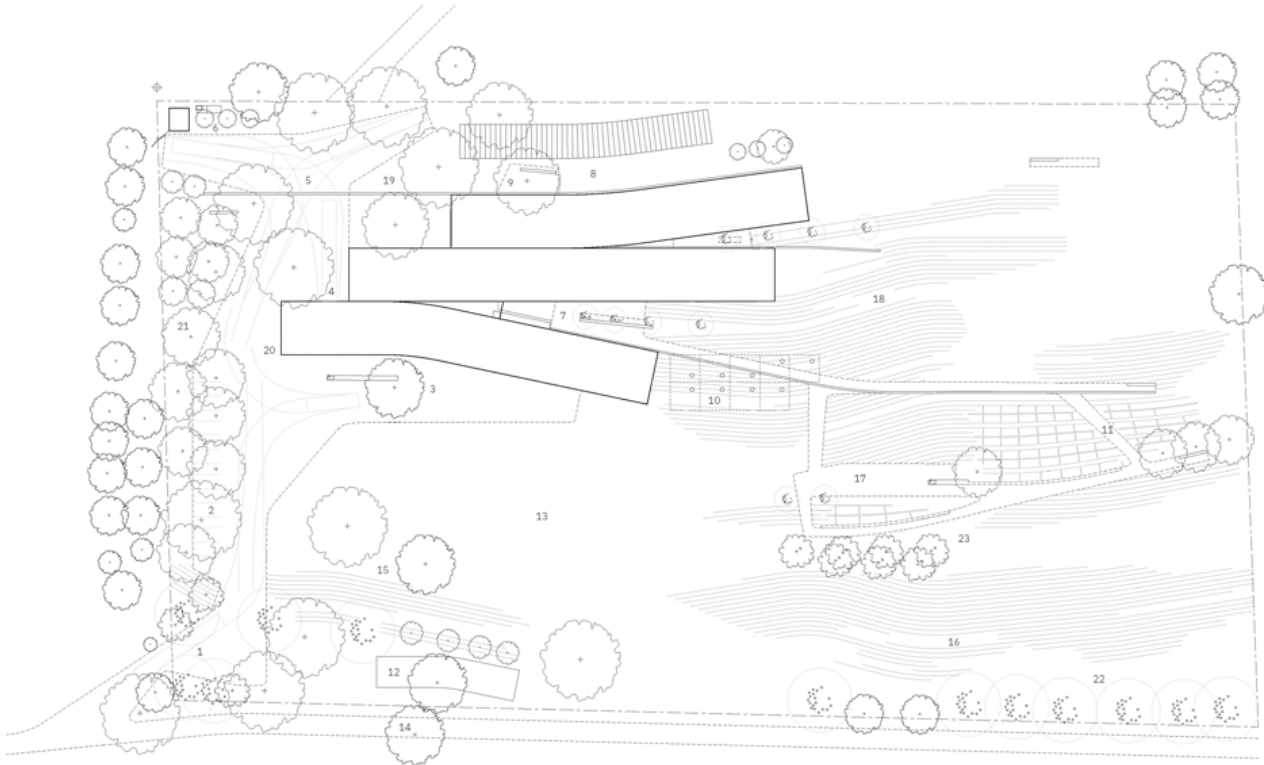
Fair Trade Zone by Juergen Strohmayer (architecture) and Chrlil Car (landscape architecture)

The Fair Trade Zone's design process follows a cooperative and participatory approach. Outdoor areas for batikting and papermaking are designed with bespoke, ergonomic production floorscapes that have been developed in design workshops together with Global Mamas' production teams. The realization takes place, step by step, by local builders as a growing facility. The interior organization is based on a modular construction system that supports phasing and versatility of use. The outdoor spaces will be developed in detail in workshops, which join traditional local and international expertise.

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Siteplan: Phase 1

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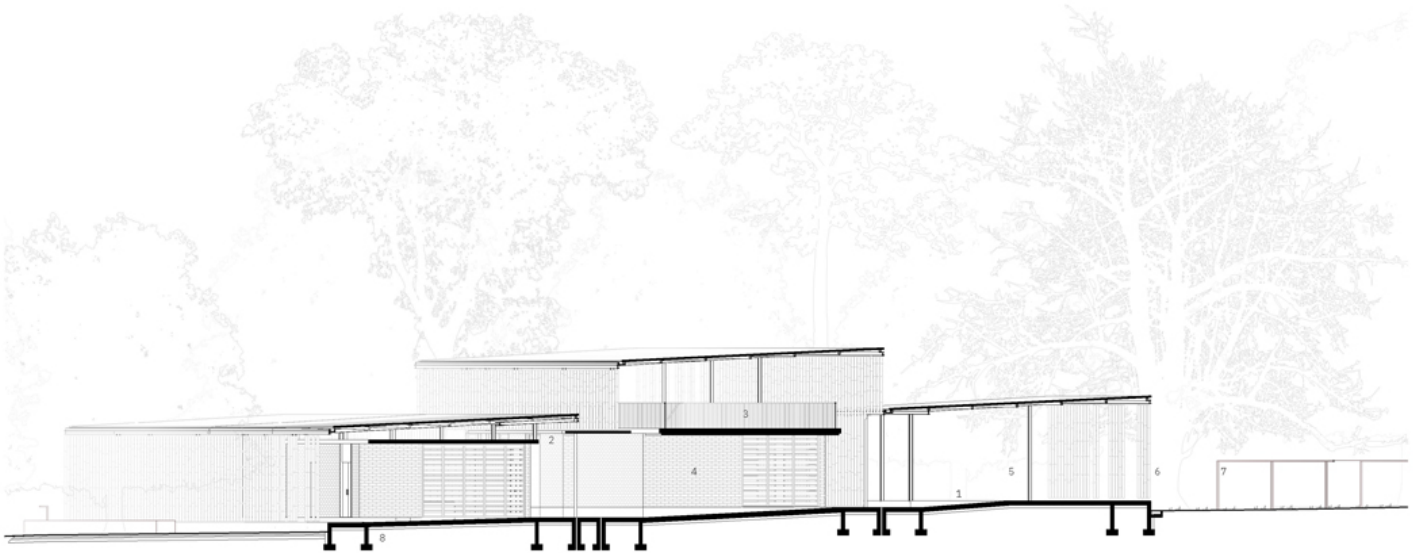
- | | | |
|--|---------------------------------------|--|
| 1 Main Gate | 8 Drying Lines | 16 Agricultural Furrows |
| 2 Unsealed Road & Parking | 9 Breakout & Rest Area | 17 Palm Kernel Shell Pathways |
| 3 Entrance Courtyard | 10 Cisterns | 18 Furrows with Gravity Fed Irrigation |
| 4 Loading Bay | 11 Vegetable Patches | 19 Autochthonous Savanna Trees |
| 5 Turning Bay & Bus Parking | 12 Waste Processing, Biogas Prototype | 20 Production Buildings |
| 6 Wind Turbine Powered Water Tower with Observation Platform | 13 Wild Grasses | 21 Fruit Grove |
| 7 Courtyard; Savanna Bamboo | 14 Existing Neem Trees | 22 Local Bamboo |
| | 15 Energy Crops | 23 Terraces/Sitting Step |

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- 1 Accessibility through ramps that follow the natural slope of the terrain
- 2 Ventilated roof, pitched roofs follow the east-west inclination of the site
- 3 First floor terrace and viewing platform
- 4 Load-bearing compressed interlocking earth block walls
- 5 Metal roof structure
- 6 Bamboo screen on east and west facades
- 7 Batik textile drying lines
- 8 Sand-based ecological termite barrier

Building Section: Phase 1

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