



JOURNEYMAN INTERNATIONAL

WANDUSOA ECOLOGICAL LEARNING CENTRE

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1 Project overview



Across the world, over one third of soil is already degraded, and up to 90% of productive topsoil could be lost by 2050. Since 95% of our food depends on healthy soil, this represents not only an environmental issue but a growing food crisis. In Cameroon, where more than 80% of the population relies on agriculture, 75% of arable land is already degraded, placing smallholder farmers, especially women, on the frontlines of an urgent humanitarian challenge.

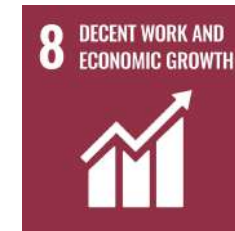
Wandusoa Organic Cameroon responds by providing traditional education and hands-on training in regenerative agriculture, agroforestry, and entrepreneurship. By restoring land and strengthening livelihoods, the organization supports more climate resilient food systems. To scale this impact, the project proposes an ecological learning and community centre that anchors knowledge sharing, fosters collaboration, and empowers women and marginalized youth with the skills and infrastructure needed to build sustainable agricultural futures.

The design responds to environmental, economic, and social realities. Located in a humid tropical rainforest climate with heavy rainfall, high humidity, and intense solar radiation, the architecture relies on breathable materials and passive cooling strategies. Soil degradation and erosion risks call for lightweight, regenerative interventions that minimize ground disturbance.

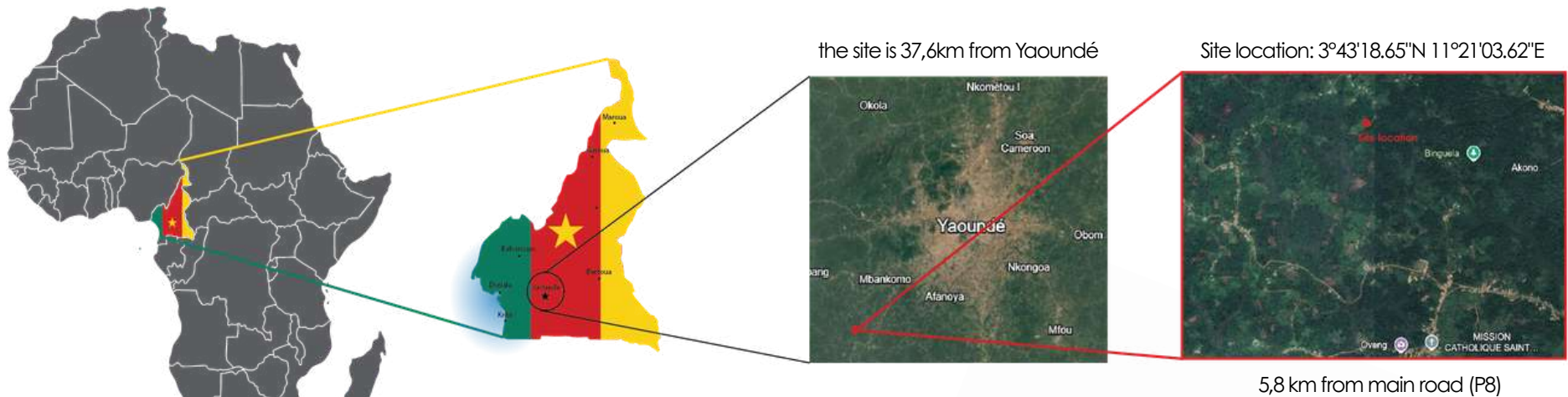
Limited access to industrial materials and constrained budgets make locally sourced, affordable, and repairable construction essential, using simple techniques that local workers can build and maintain. At the same time, the centre is designed to remain inclusive, accessible, and community-owned, ensuring long-term relevance for farmers, women, and marginalized youth.

2 Project goals and community impact

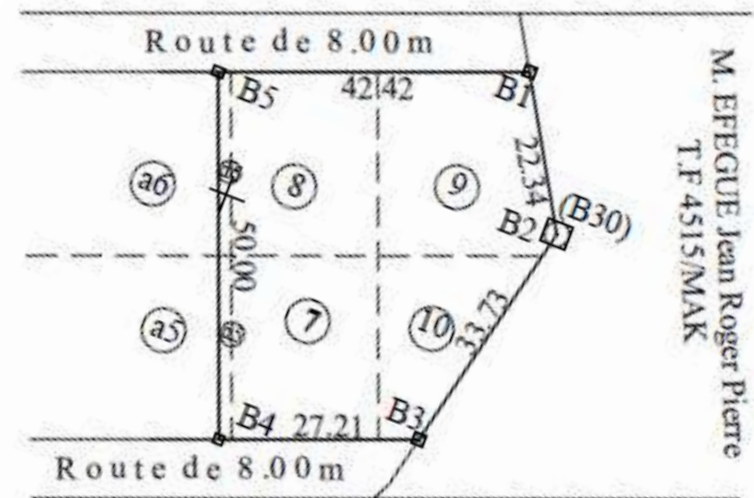
- Restore degraded land into productive, biodiverse farming systems that **improve local food security and soil health**.
- **Provide traditional and hands-on education** in regenerative agriculture, combining practical farming, entrepreneurship, and cooperative learning to **equip marginalized youth and women with income-generating skills**.
- **Create sustainable livelihoods** in rural communities by supporting smallholder farmers and enabling local enterprises such as organic production, seedling nurseries, and training services.
- **Empower marginalized youth and women** by expanding access to education, leadership roles, and economic opportunities within agricultural cooperatives.
- **Strengthen local economies** through cooperative networks, green jobs, and resilient local food systems.
- **Promote sustainable farming practices that increase climate resilience**.
- **Encourage collaboration**, knowledge sharing, and strong farmer networks to scale regenerative practices and long-term community impact.



3 Site and environmental analysis



Yaoundé has a tropical wet climate with consistently warm temperatures, high humidity, and significant rainfall throughout most of the year, strongly influencing strategies for shading, ventilation, and rain protection. Located near the equator, the sun reaches very high angles throughout the year. As a result, midday shadows are short and horizontal shading elements such as deep roof overhangs are highly effective in providing thermal comfort.



4 Existing operational conditions



Site from above



inhabited building across the site



Entrance to the plot



The site is located on partially cleared agricultural land at the edge of a dense tropical rainforest. The flat terrain contains young crops and scattered banana trees. The soil consists of laterite, approximately 1.2 meters deep, enriched with volcanic nutrients that support agriculture. During heavy rains, access roads can become muddy and parts of the site may temporarily flood, although the land drains quickly.

The surrounding context is rural and sparsely built, with one inhabited house directly across the site and other buildings about 100 meters away, reinforcing the area's strong connection to local farming and community life.

Project constraints:

- Ongoing soil degradation and declining agricultural productivity
- Economic vulnerability of smallholder farmers
- Limited access to ecological farming knowledge
- Lack of shared community infrastructure
- Climate pressure: heavy rainfall, humidity, and heat
- Risk of top-down interventions without local ownership

5 Design intent: concept, principles and vision

The design approach is guided by principles of dignity, resilience, and sustainability, ensuring the project is locally grounded and community driven, rather than imposing an external model.

Inspired by agriculture, the spatial strategy draws from the logic of cultivated fields. A 2.5 × 2.5 meter grid organizes the project, translating the parallel rhythms of agricultural landscapes into a clear, modular, and adaptable structure that creates parallel courtyards. The low horizontal layout reinforces the building's strong connection to the land that sustains it. It is designed in a way that inside and outside flow smoothly into one another.

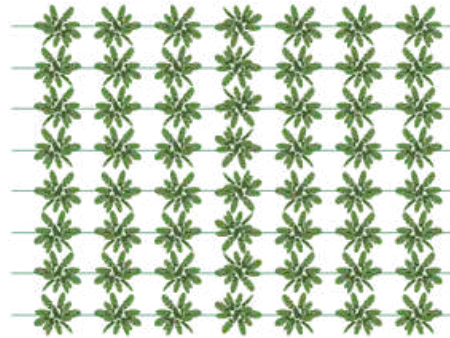
The project is also inspired by the vision of Kuta, one of the founders of Organic Cameroon, who imagined a place where people feel respected, knowledge is shared, and a new generation can build a sustainable future. For him, the centre represents more than infrastructure; it is a reflection of his commitment to the community.

This vision shapes the project's openness and flexibility. The spaces are designed to adapt over time, supporting multiple functions and allowing the building to grow with its community while giving physical form to Kuta's dream.

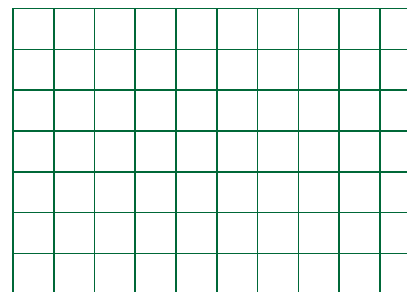
Design principles listed:

- Climate Responsive Design
- Local Material Logic
- Cultural Fit
- Practical Economics
- Agricultural Relevance
- Adaptive Flexibility
- Community Engagement
- Community Empowerment
- Passive Cooling & Natural Ventilation
- Risk Management
- Regenerative Thinking
- Low-Tech Resilience
- Horizontal Ground Connection
- Long-Term Legacy

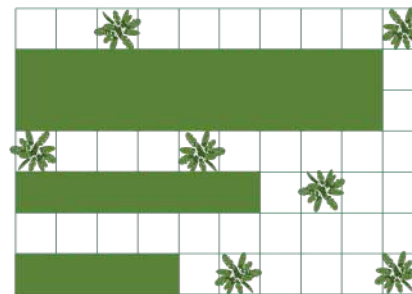
Agricultural fields



Grid 2,5m x 2,5m



Wandusoa buildings - Horizontal focus



Lightweight structure

Thermal mass: Solid brick base



Water collection

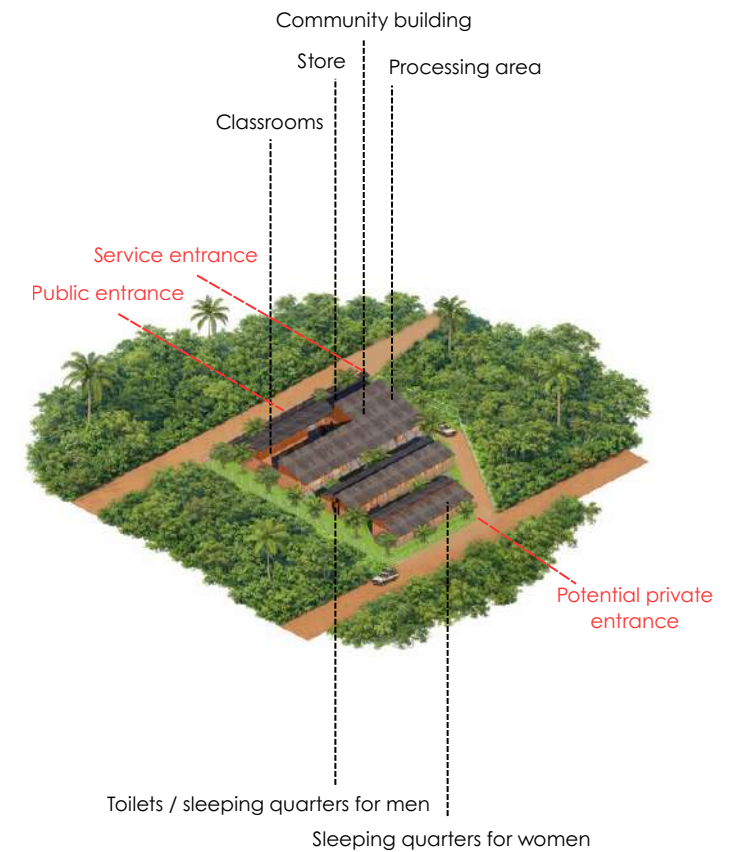
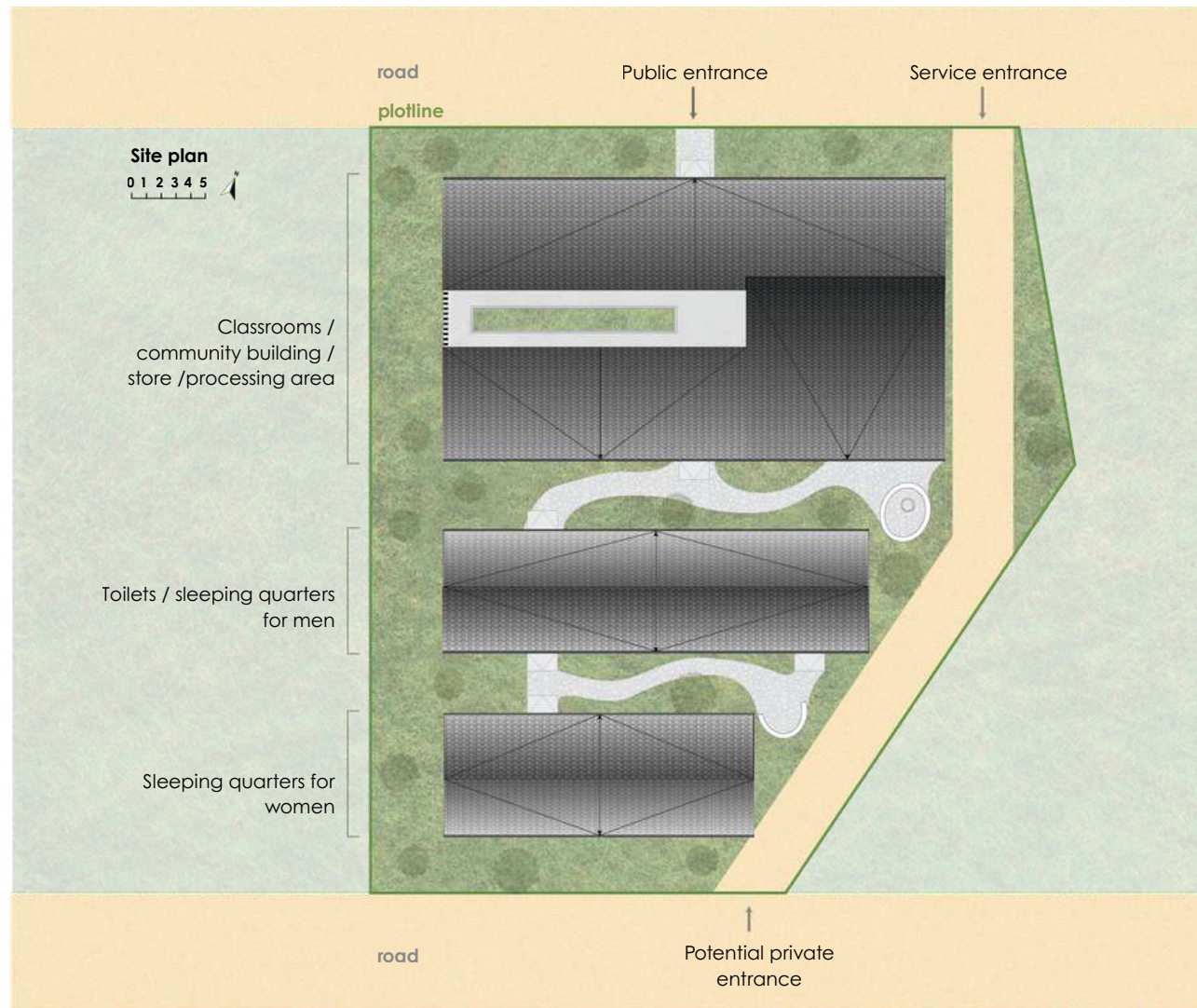


Natural cooling and ventilation

Permeable doors

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Proposed site plan



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Proposed floor plan



Legend

- 1 Classrooms
- 2 Storage
- 3 Entrance hall with reception
- 4 Store/Storage
- 5 Wet processing
- 6 Dry processing
- 7 Kitchen
- 8 Main hall/Multifunctional room
- 9 Toilets for men
- 10 Toilets for women
- 11a Staff sleeping quarters for men
- 11b Sleeping quarters for men
- 12a Staff sleeping quarters for women
- 12b Sleeping quarters for women
- 13 Laundry

8

Proposed phasing strategy



Phase 1 establishes the productive and social core: the main hall, entrance patio, storage, wet and dry processing rooms, and kitchen. From the start, the centre functions both as a gathering space and as an economic engine. The hall and patio can temporarily host classes and gatherings, while the processing facilities and kitchen enable income-generating activities that support long-term maintenance and financial sustainability.

Phase 2 (a and b) introduces the dormitories and compost toilets. If funding allows, the men's and women's quarters are built together; otherwise, they can be phased separately. This stage strengthens the programme by enabling residential training and longer stays. It adds a more private layer to the project while supporting inclusion and safety.

Phase 3 completes the educational framework with flexible classrooms, allowing the programme to scale up and creating dedicated learning spaces.

Phase X: Future extensions can follow the same design concept and expand vertically if no additional land is available.

Throughout all phases, gardens and courtyards develop incrementally, responding to use and fostering community ownership.

Areas are calculated per functional unit including wall thickness. Total built area refers to the overall footprint measured from the exterior building perimeter to avoid double counting shared walls.

Phase 1:

Total footprint = 366m²

Seperate areas:

Entrance hall + patios = 170.16 m²

Main hall = 80,34 m²

Store / storage = 41.34 m²

Wet processing + dry processing + kitchen = 3 x 28.09 m²

Phase 2:

Total footprint 2a = 219,62 m² → total both = 379,99 m²
2b = 160,37 m²

Seperate areas:

Patios = 2a: 70,16 m² 2b = 52,78 m²

Toilet unit (8 stalls) = 41,87 m²

Each sleeping unit (staff and non-staff) houses 6 people and includes 2 showers = 8 x 28,09m²

2a = 4 x 28,09m² 2b = 4 x 28,09m²

Phase 3:

Total footprint = 234,24 m²

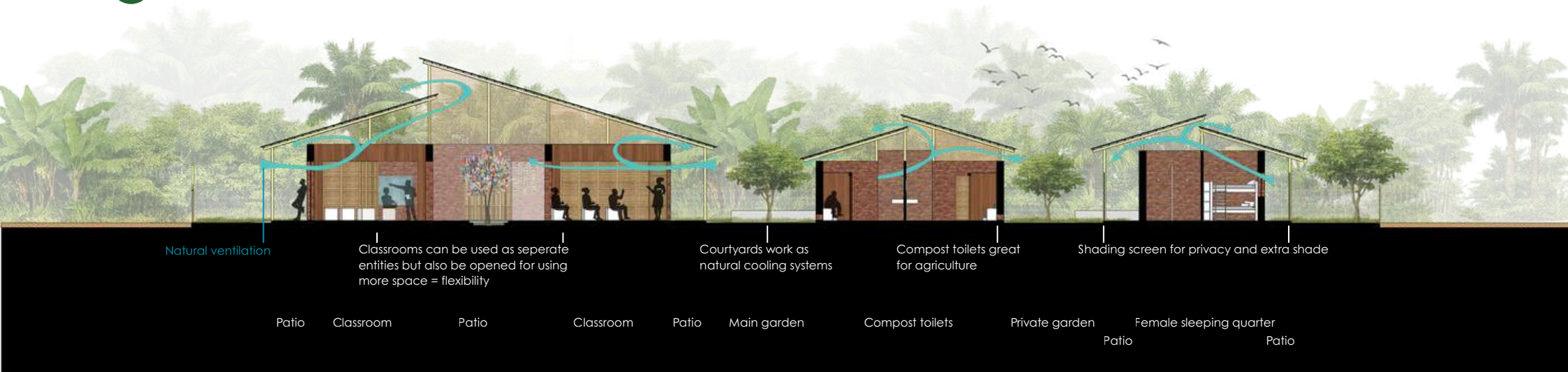
Seperate areas:

Patios = 98,56 m²

Storages = 2 x 15,39 m²

Classes = 4 x 28.09 m²

9 Project sections



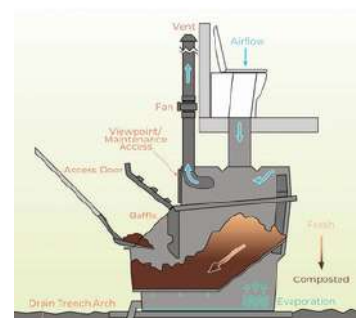
10 Materiality and architectural innovation



Reinforced concrete foundation



Load-bearing brick masonry base
(adobe bricks)



Compost toilet



Water collection system



Tolltrill zinc roof tiles (locally sourced)



Structural bamboo framework



Bamboo or
timber screens



Local wood



Local artist

- **Passive climate design** – raised roofs, natural ventilation, and deep overhangs reduce heat gain and protect from heavy rainfall.
- **Locally sourced materials** – bamboo, brick, and simple construction techniques rooted in local knowledge and reparability.
- **Circular water systems** – rainwater harvesting support resource efficiency and regenerative agriculture.
- **Compost toilet system** – dry sanitation transforms human waste into compost, reducing water use and returning nutrients back to the soil for agriculture.
- **Flexible multi-use spaces** – rooms and outdoor areas are designed to adapt over time, supporting education, food processing, meetings, and community events as the needs of the centre evolve.
- **Courtyard-centred layout** – creates a naturally ventilated social heart for learning, gathering, and community life.
- **Flexible modular grid** – a 2.5 × 2.5 m system inspired by agricultural fields allows adaptability and future growth.
- **Buildable and replicable architecture** – lightweight, low-tech solutions that local workers can construct, maintain, and reproduce.
- **Integration with regenerative agriculture** – the architecture directly supports farming, processing, learning, and community collaboration, creating one interconnected ecological and social system.
- **Collaboration with local artists** fosters authenticity, ownership, and representation.



Visualisation of the entrance

The open entrance hall forms a welcoming threshold for the community. With its warm materiality and clear structure, the centre stands as a confident and inclusive landmark.





Visualisation of the Main entrance hall

In the main hall, a floating reed carpet connects the entrance to the garden, symbolising unity through a vernacular material. The open space remains flexible, with movable seating and room for local art, encouraging community ownership.



Visualisation of the classrooms

The view opens towards the community tree, a symbolic space where residents can share written wishes and messages. The flexible classrooms extend into the surrounding areas, allowing both formal and informal teaching to unfold naturally



Visualisation of the main courtyard

The main garden features an oval concrete seating area with a central fire space for gathering and traditional cooking. Its shape encourages conversation, while reed screens protect the privacy of the dormitories. The kitchen opens directly to the main hall and garden, supporting flexible indoor-outdoor use. The garden is inclusive and accessible via a ramp at the back.



Visualisation of the private garden of the dormitories

The private garden forms a refreshing green buffer between the two dormitories. Reed screens protect the patios to enhance privacy, while a simple seating element supports both laundry activities and informal gathering.



