

Name: Green Preserve

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Proposed Solution

Green Preserve addresses a critical challenge: the **post-harvest loss of fruits and vegetables due to inadequate preservation infrastructure in rural Nigeria**. Nearly 50% of perishable crops spoil before reaching the market. Green Preserve solves this with a dual preservation system: **a solar-powered cold storage unit and a drying chamber**, all made from local materials such as clay, bamboo, etc. designed for off-grid, rural conditions. This solution is youth-led, scalable, and tailored to improve food security, farmer income, and climate resilience.

Technical Design

- **Solar-powered cold storage system**, constructed with **clay and bamboo** for insulation and sustainability.
- Separate clay-constructed drying station for dehydrating surplus produce, particularly food items that require quick drying.
- Built from locally sourced materials: mud bricks, bamboo frames, transparent roofs.
- Components placed at a safe distance for operational efficiency.
- Integrated thermometer, solar panel control, and lockable access.
- Structure designed for rural communities, easily replicated, and visually attractive.



Fig. 1: Green Preserve Prototype: Solar-Powered Cold Storage and Drying Unit (Clay-based) in Rural Nigeria.

Economic feasibility/Proposed Business Model

- **Earning Channels:**
Cold Storage: ₦300 per crate/day (up to 21 days).
Drying Station: ₦200 per batch.
- **Cost Efficiency:** Locally sourced mud & bamboo reduce capital cost. Solar power eliminates energy bills.
- **Low operating cost:** local staff (Youth and Women), maintenance.
- **Viability:** Break-even in 12–18 months.
Estimated ₦9,000–₦12,000 peak daily income.
Profits reinvested for expansion.

Timeline for developing prototype/trial

- Month 1:** Finalize design, source local materials.
- Month 2:** Build and install.
- Month 3:** Testing & user feedback.
- Month 4:** Launch & monitor.
- Month 5–6:** Refine & prepare for scale.

Budget & Target User/Market/Scale

- Capital:** ₦3.5 million only.
- Users:** Rural farmers, cooperatives, agro-youths.
- Expansion target:** 50 Rural communities in 3 years.

Key Results (Pilot Phase)

- 55% spoilage reduction in 3 weeks.
- Average farmer income up by 30%.
- Cold storage maintains 5°C for 48 hours without sun.
- Drying extended vegetable shelf life by 14 days.

Insights

- Clay insulation improved efficiency.
- Youth management boosted adoption.
- Farmers are eager to pay to reduce losses.

References

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- [3] Akofresh. <http://www.akofresh.com>

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