ECO SIKA: Clean Cooking Innovation for Gari and Salt Processing

An affordable clean-energy solution that empowers women salt and gari producers to adapt to climate change!

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The cooking stove is a rectangular structure designed for agrifood processing. It measures approximately 3.5 meters in length and efficiently integrates four independent combustion chambers within a single frame. This system relies on controlled air injection to manage the fire. A fan, positioned at the rear of each chamber and powered by solar panels, is manually operated via a switch to regulate the oxygen supply.

This technology is **not yet validated**.

8·4 Scaling readiness: idea maturity 8/9; level of use4/9

Inclusion assessment 9 5 6

Climate impact 4

Problem

- **Environmental Degradation:** Traditional cooking methods rely heavily on wood fuel, causing rapid deforestation and biomass depletion, which contributes to biodiversity loss.
- **Public Health Strain:** Inefficient stoves produce high levels of toxic smoke, leading to severe health risks (respiratory diseases) among communities and workers.
- **Climate Risks:** Unregulated fires result in incomplete combustion, releasing significant CO_2 and hindering national climate goals.

Solution

- **Climate Action & Health (SDGs 3, 13):** The ECO SIKA stove produces **no direct emissions during cooking**, significantly reducing air pollution and associated health risks.
- **Forest Conservation (SDG 15):** The stove cuts demand for wood fuel by up to **50%** by using agro-residues, protecting local forests and biodiversity.
- **Increased Efficiency:** Improves combustion efficiency by over **25%** through controlled air injection, optimizing the use of energy resources

Key points to design your project

To successfully integrate the ECO SIKA stove into national programs, the following conditions are necessary:

- **Solar Power Infrastructure:** Requires that the project or community establish a reliable solar panel system to power the fan and air injection system.
- **Flexible Energy Strategy:** Policy must account for operations with or without batteries; without batteries, use is restricted only to sunny periods.
- **Sustainable Fuel Supply Chain:** Requires a guaranteed local supply chain for the approved ecological charcoal or carbonized palm nut shells (agro-residues) to maintain the low-cost and environmental benefits, ensuring producers move away from firewood.
- **Training and Safety Standards:** Must implement training programs to ensure workers wear gloves and operate the fan/switch safely.

1088 USD	142 USD	54 USD	5 %
Cost per unit	Revenue per unit	Net income per unit	ROI Per year

IP

Open source / open access

Commodities

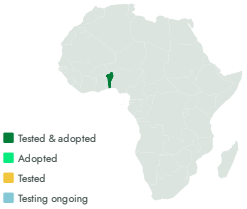
Cassava, Salt

Sustainable Development Goals

Categories

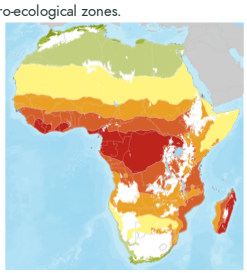
Postharvest, Equipment, Agrifood processing

Tested/adopted in



Where it can be used

This technology can be used in the colored agro-ecological zones.



Target groups

Development institutions, Governments, Processors, Manufacturers, Advisory and Extension Services,