GEM system: Parboiling equipment for rice

Reduce milling losses, enhance nutritional and organoleptic quality

The technology improves rice parboiling with a new design, replacing traditional methods prone to emissions. Tailored for small to medium-scale processors, it enhances efficiency and product quality, reducing steaming time and improving grain quality significantly.

Africa Rice Center
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This technology is TAAT1 validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Gender assessment 4

Climate impact 4

Problem

Traditional, Old-Fashioned Parboiling Methods are:

- Inefficiency and high labor requirements
- Excessive losses during dehulling
- Degradation of nutritional value
- Inferior sensory qualities

Solution

- Reduces steaming time to 20-25 minutes, minimizing emissions exposure.
- Improves grain translucency, reduces chalkiness, and boosts nutritional value.
- Provides low glycemic index, increased fiber, and higher vitamin B availability.
- Allows longer storage as rice flour, aiding food security.
- Made from simple, locally available materials, easily scalable in remote areas.

Key points to design your program

The GEM parboiling technology:

- Improves rice quality, energy efficiency, and reduces hazardous emissions in traditional processes.
- It boosts women's income by USD 73 per tonne of paddy, cuts poverty by 26%, and supports SDGs on nutrition, energy efficiency, and women's economic empowerment.
- And, part of the Rice Technology Toolkit of TAAT, it enhances rice value chains and is ideal for development programs promoting food security, rural livelihoods, and sustainability.

Cost: $$$ **5000 USD**
Equipment

ROI: $$$ **70 %**
Internal rate of return for a GEM parboiling system

0.64 USD
firewood per 100kg of rice

IP
Open source / open access

Technology from

ProPAS

Commodities

Rice

Sustainable Development Goals

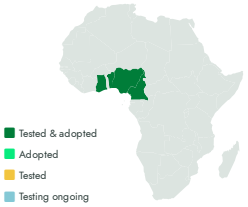
Categories

Transformation, Equipment, Agrifood processing

Best used with

- Advanced rice varieties for Africa ›
- High yield rice varieties for Africa ›
- RiceAdvice digital support ›

Tested/adopted in



Where it can be used

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