

# 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.



**AfricaRice**

**Africa Rice Center**  
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Technology from

[ProPAS](#)

Commodities

Rice

Sustainable Development Goals



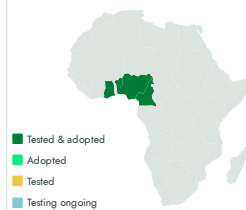
Categories

Transformation, Equipment,  
Agrifood processing

Best used with

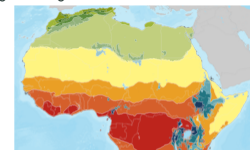
- [Advanced rice varieties for Africa >](#)
- [High yield rice varieties for Africa >](#)
- [RiceAdvice digital support >](#)

Tested/adopted in



Where it can be used

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



✓ 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.

## Key points to design your project

To integrate it into your project, follow these steps:

- Raise awareness among processors and consumers about GEM parboiling systems.
- Assist in selecting the right system size and configuration.
- Ensure a steady supply of high-quality rice.
- Develop marketing strategies for rice flour and derived products.

Cost: \$\$\$ **5000 USD**

Equipment

**0.64 USD**

firewood per 100kg of rice

ROI: \$\$\$ **70 %**

Internal rate of return for a GEM parboiling system



IP

Open source / open access



**GEM system**

<https://e-catalogs.taatafrica.org/gov/technologies/gem-system-parboiling-equipment-for-rice>

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