

# GEM: Parboiling and flour production 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 >](#)
- [New rice for Africa varieties >](#)
- [RiceAdvice digital support >](#)

Tested/adopted in



Tested & adopted  
 Adopted  
 Tested

Where it can be used

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



This technology is [TAAT1 validated](#).

7-7



Scaling readiness: idea maturity: 7/9; level of use: 7/9

Cost: \$\$\$ **400 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

## Problem

- High milling losses.
- Decreased nutritional quality of the rice.
- Undesirable texture, aroma, and appearance of the rice.
- Significant time and effort required for the process.

## 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 business plan

This technology is beneficial for three main groups: manufacturers, resellers, and end users (farmers).

Target wholesale distributors, development projects, and government agencies.

Costs vary; main expense is USD 400 for gasification stove installation.

GEM technology reduces firewood expenses from USD 1.83 to USD 0.64 per 100 kilograms of rice.

Gender assessment

4

Climate impact

7



GEM

http://taatdb-web.com/technologies/gem-parboiling-and-flour-production-equipment-for-rice

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