



Waste Transformation, Not Waste Treatment:

Lessons learned from Sanivation's Value-added
Processing of Fecal Waste

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C. Burner, A. Foote



Sanivation
Sanitation as a Service

Traditional
Sanitation is
expensive

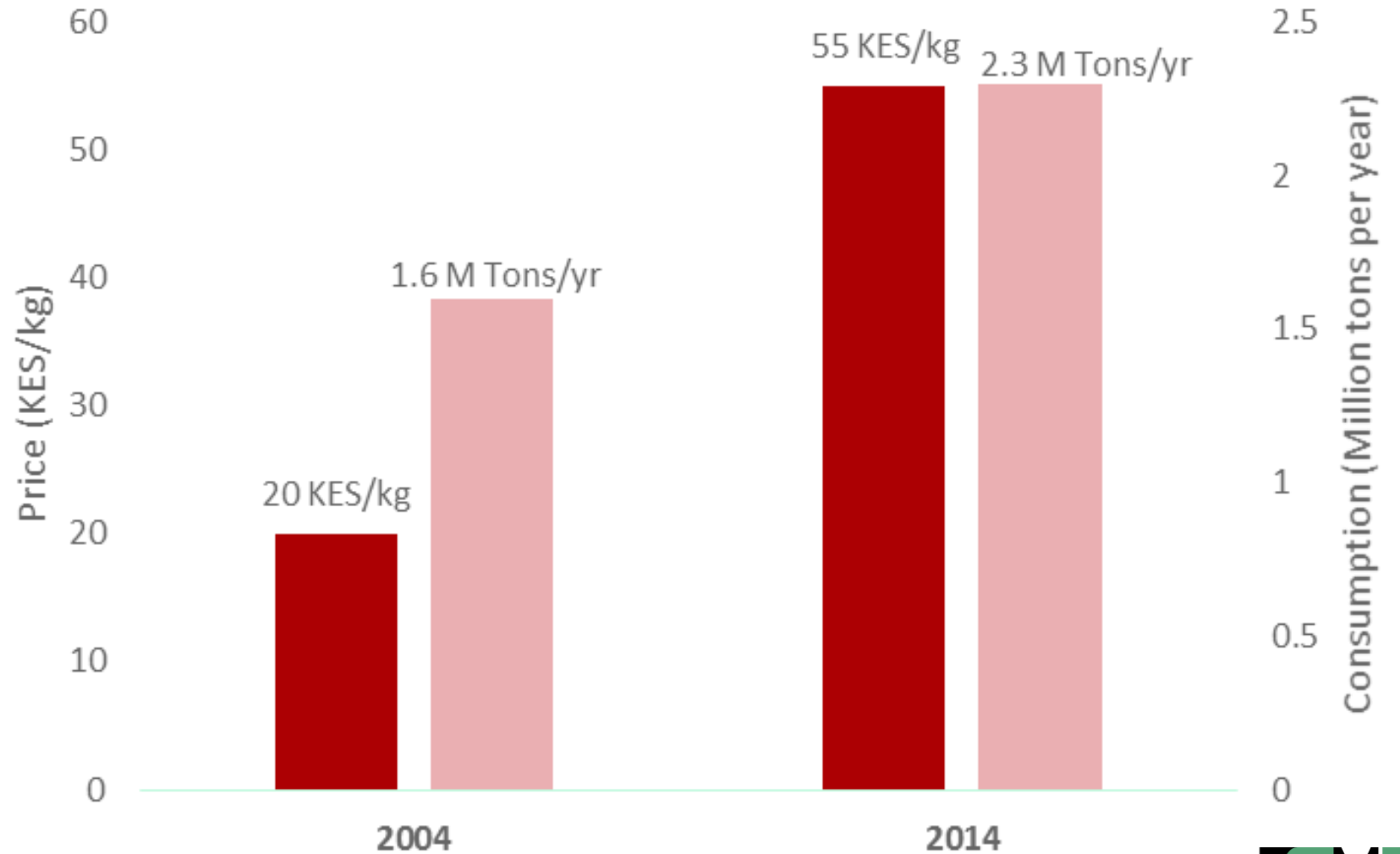
Designed to
minimize risk of
disposing feces
into environment



Need for Fuel in Kenya

- 80% HH in Urban areas
- \$1.8 Billion/ year Market
- In 10 years
 - Price almost tripled
 - Demand almost doubled

Charcoal Market Growth



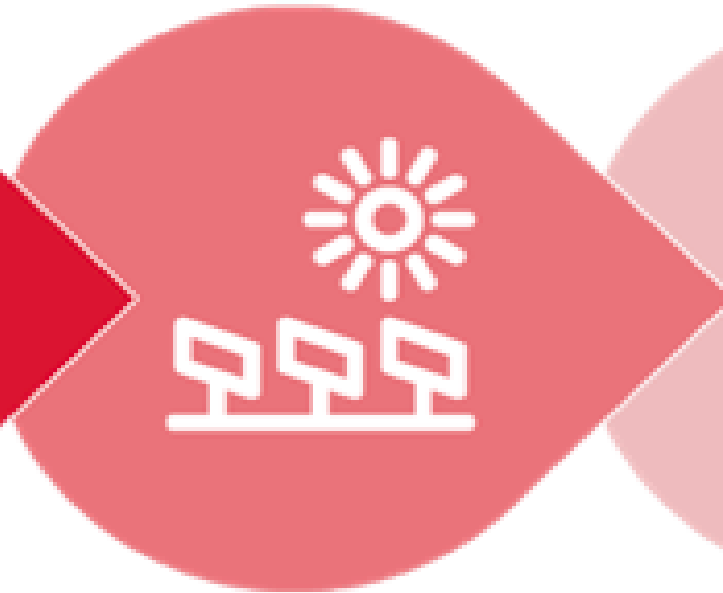
Sanivation

Waste Reuse instead of disposal

Sanitation service



Waste
treatment and
transformation



Charcoal briquettes



Sanivation



Choosing a Reuse Product

Five Key Metrics

	Revenue	Profit	Safe Reuse	Market size*	Value of Feces
Feces Pellets	Low	Low	High	Low	Low
Carbonized feces fuel	High	Low	High	Medium	Low
Dried feces	Low	Low	High	High	Medium
Charcoal Briquettes	High	High	High	Low	High

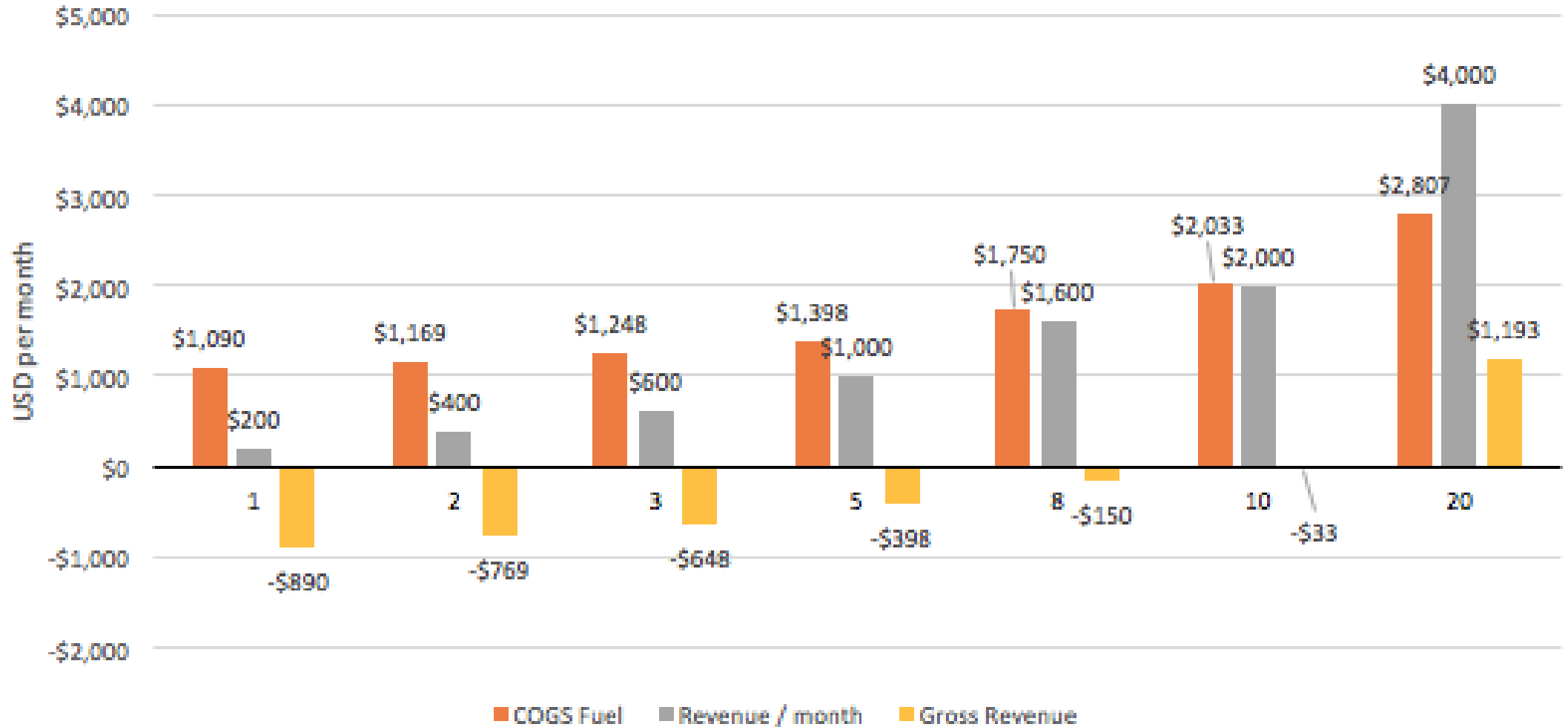
Feces Briquette Production Results

- \$200/ ton
- 20 tons a month
- In 2016 sold over 30 tons
 - Local restaurants
 - Chicken Farms



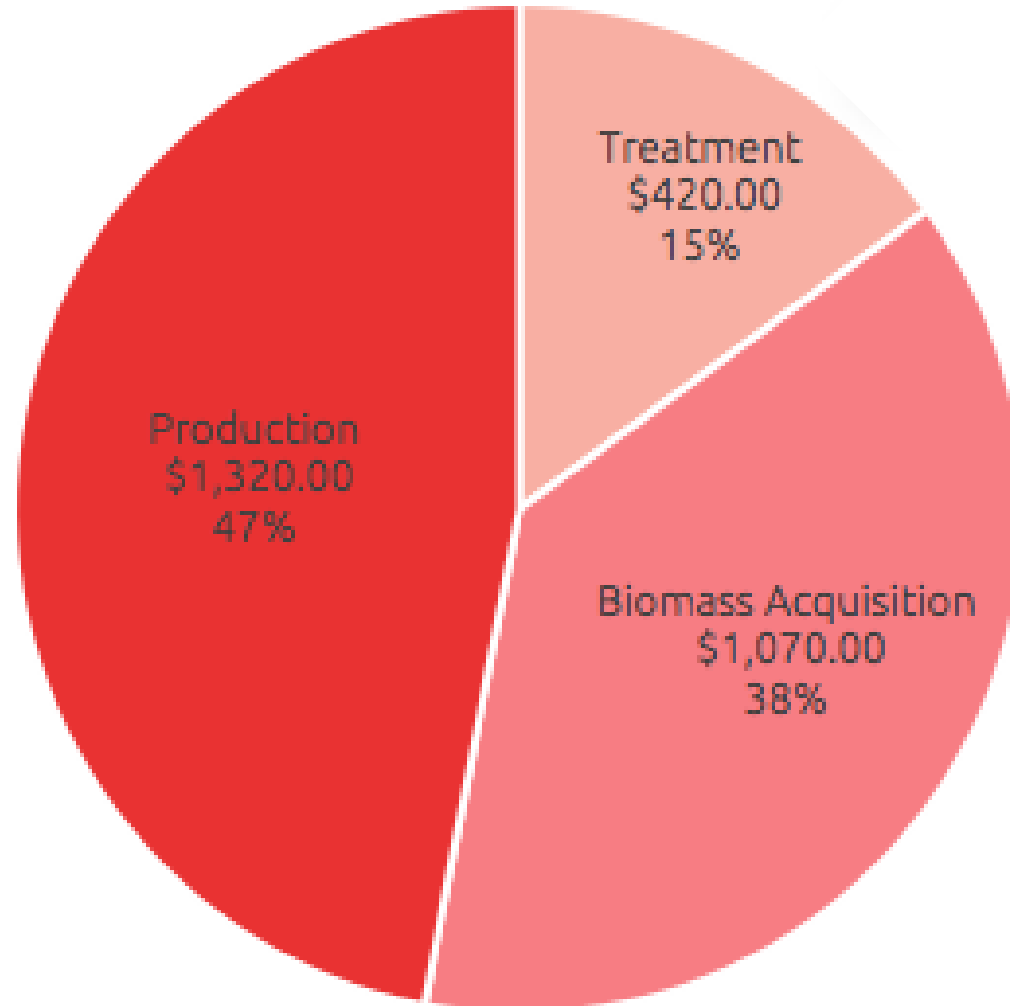
Financial Insights

Gross Margin of Feces Briquette Production



Financial Insights

Cost of feces briquette production at 20 Tons/Month.
Total: \$2,810



Challenges and Key Insights

- Value from feces can increase when combined with other waste streams
- Relying on waste streams is risky due to variability
- Waste characterization and quality control is key to scaling



Next Steps

1. Detailed characterization and classification for alternative waste streams
2. Cascade model to develop fuel portfolio
3. Expand to new waste sources and fuel products
4. Develop PPPs for future scaling and expansion



Concluding thoughts:

- Deliberate choice on reuse
- Gross margins positive- SCALE
- Waste Treatment can be much more efficient when DESIGNED for reuse

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