

# SMALL SCALE BIOGAS IN HAITI –

## What's Happening at the HEART School

George Garland

Board President

Haiti Education and Resource Team (HEART)

March 14, 2018

# Haiti

- population 10,711,000
- 58% access to safe drinking water
- 28% access to adequate sanitation
- 49% literacy rate
- \$882.00 per capita income
- 2% forest cover

# Fuel Problems and Opportunities

- Most families use charcoal fuel
- Many small businesses use wood for fuel
- Many schools rely on wood or charcoal to cook lunches
- Charcoal use contributes to erosion, flooding
- Power generation iffy



BUT ----

- Waste stream is high in organics
- Not suitable for incineration
  
- Biogas can be part of fuel solution



# HEART School --- Basics

- Haiti Education and Resource Team (HEART)
- School started after earthquake in 2010
- Now K to 7, Goal is K through 13
- No corporal punishment. Goes beyond rote learning
- 77 in the student body - 71 girls & 6 boys.
- 25 elementary school teachers & other staff - 14 female & 11 male.
- Mixed after-school classes - plumbing, electricity & masonry/ceramics





# HEART School -- Biogas

- Environmental theme in school includes biogas --  
<http://heartinhaiti.org/biodigestion/>
- Sustainability Committee is exploring/supporting options.
- School serves 2 meals a day, 5 days a week for over 100 people.
- Kitchen waste can feed biodigester and make cooking fuel.
- Bio-slurry makes fertilizer for school garden (growing moringa trees).



## Two biodigesters have been installed, by Solar CITIES :

- One 275 gallon IBC (Intermediate Bulk Container)



**-- and --**

- One 1,000 gallon water tank
- Three Puxin gas storage bags
- Solar-powered pressure device
- Solar panels
- Institutional stove



# Outcomes

- Biodigesters are being managed on campus.
- Biogas reduces need for propane in the school kitchen.
- Cost savings result from using biogas vs propane.
- Bio-slurry is being used in gardens.
- School gardens are improving.
- Students and staff are learning about biogas innovations.
- Requests for set-ups are coming in from elsewhere.
- Data collection is underway.

# Issues dealt with along the way.....

## Operational Issues

- **Bio-slurry** -- Clogs gas outlets if not removed
- **Gas storage** -- Bags split seams if gas not used
- **Cooking** -- Haitian pots need robust accommodation

## Equipment Issues

- **Bag storage** -- to be replaced by two IBC self-pressurizing system
- **Pressurizing device** -- from China had plastic part that broke
- **Grinder** -- powered by generator added

Is it worth it?

Can biogas empower  
women and girls?

We think so!



# Contact Information

- [gagarland@gmail.com](mailto:gagarland@gmail.com)
- [www.heartinhaiti.org](http://www.heartinhaiti.org)