

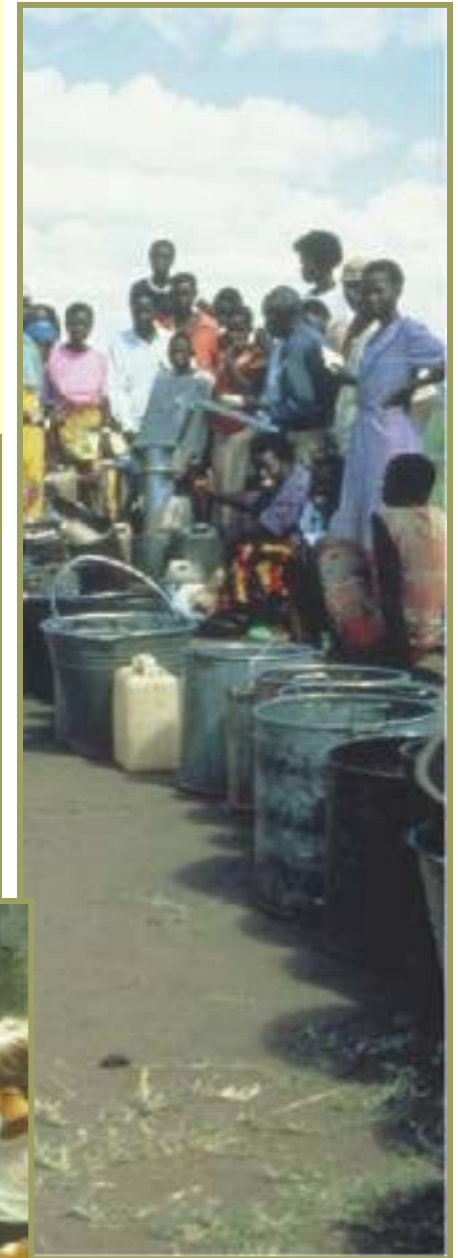
Woodburning Cookstoves for Developing Countries

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1.2 Billion lack clean water
2.4 Billion lack adequate sanitation
2.4 Billion are at risk with malaria
35,000 children die from hunger daily
2.7 Billion live on less than \$2/day
2.0 Billion cook over three-stone fires

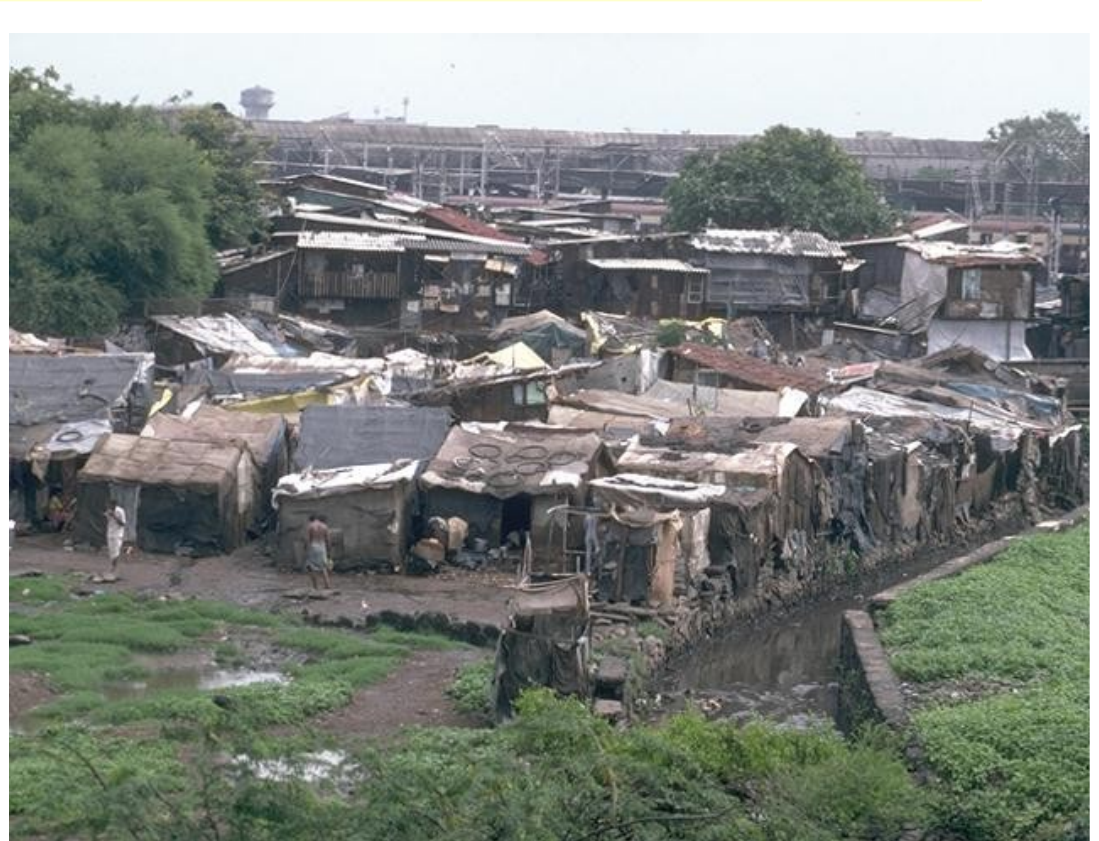
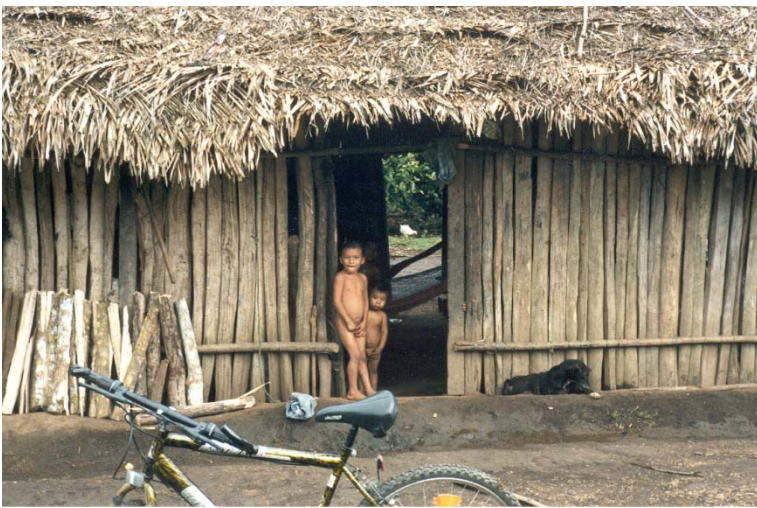


1.2 Billion lack adequate housing

1.8 Billion live in conflict zones, in transition, or in situations of permanent instability

1.6 Billion have no access to electricity

4.2 billion are unable to read



Biblical Mandates

- *“When you fed, gave water to, clothed, provided medical care, invited into your home one of these poor brothers of mine, you did it for me.”* **Jesus**
- *“From everyone who has been given much, much will be demanded, and from the one who has been entrusted with much, much more will be asked.”* **Jesus**

Examples at Baylor Currently

- Converting coconuts into value-added products (in detail)
- Making cheap, energy efficient, durable wood burning cook stoves
- Making energy efficient, low cost housing
- Providing access using pedestrian bridges
- Providing electric power using renewable micro-hydro systems

Why are stoves important?

- 600 million households cook with dry biomass every day in developing countries.
- At 4 members per average household, that means 2.4 billion people, or about 1/3rd of the world's population.
- Campfire cooking every meal, rain or shine, winter and summer, with few options.



Why are stoves important?

- Health: Indoor air pollution (IAP = “Smoke”) is the #4 cause of poor health in developing countries, including upper respiratory diseases mainly in women and small





Why are stoves important?

Safety: Burns and house fires.

Injuries from 3-Stove Fires



Skirt fire



**Child's hand
into fire**



Why are stoves important?

- Environment: Deforestation and soil loss.





Why are stoves important?

- Drudgery: Fuel collection can consume hours of work every day, with danger for women and





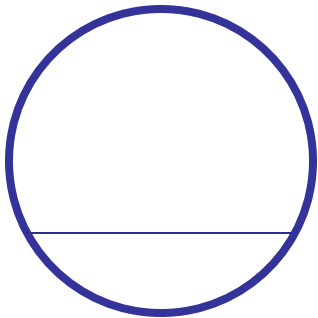
Project with Colorado State University

Funded by Shell Foundation

- Goal – energy efficient, durable wood cook stove for ~ \$120-\$150
- Durable = 5 years
- Efficient = 40%
- Carbon credits being traded in Europe to reduce global warming would be worth about \$120/stove if we hit these targets, making stoves very affordable for poor people.



The Rocket Stove



Primary Air
Secondary Air

Gasification
Zone

Burnout
Zone

Draft
Induction

Core Technology: The Combustion Chamber

- Need:
 - Low heat capacity
 - Low thermal conductivity
 - Good abrasion resistance
 - High temperature capability (1000° C)
 - Tolerance to corrosive (alkaline) environment



Potential Impact

- Shell Foundation is prepared to invest \$25,000,000 in the production of these stoves around the world if we can successfully meet the targets

- **Potential Impact**

2,000,000,000 people







Partners in Concrete/Foam Housing Project and Prospects

- Point Loma Nazarene University
- Armenian Gospel Association
- George Fermanian
- Habitat for Humanity—Armenia

- Production being planned for foam blocks in Mexico and Armenia SOON!!



What's wrong with this 420' bridge?













Summary

- How might God use your gifts, talents, training and experience?
- It is a journey that you should begin, by praying and asking God to guide and direct you into the right areas and partnerships.