

# Micro Enterprise Stove Project in Honduras



Protecting the  
Environment  
and Family Health

Trees, Water & People  
Honduran Association for Development  
Aprovecho Research Center



# Trees, Water & People

TWP is a 501(c)(3) not-for-profit organization that improves people's lives by helping communities protect, conserve and manage the natural resources upon which their long-term well-being depends



# Honduran Association for Development (AHDESA)

AHDESA is a Honduran not-for-profit organization that contributes to the sustainable development of marginalized communities.



# TWP in Latin America

- Has been working in Latin America since 1998
- Has established reforestation and fuel-efficient stove projects in Central America, Mexico, and Brazil
- Has produced and planted over 1.2 million trees and built more than 16,000 fuel-efficient stoves





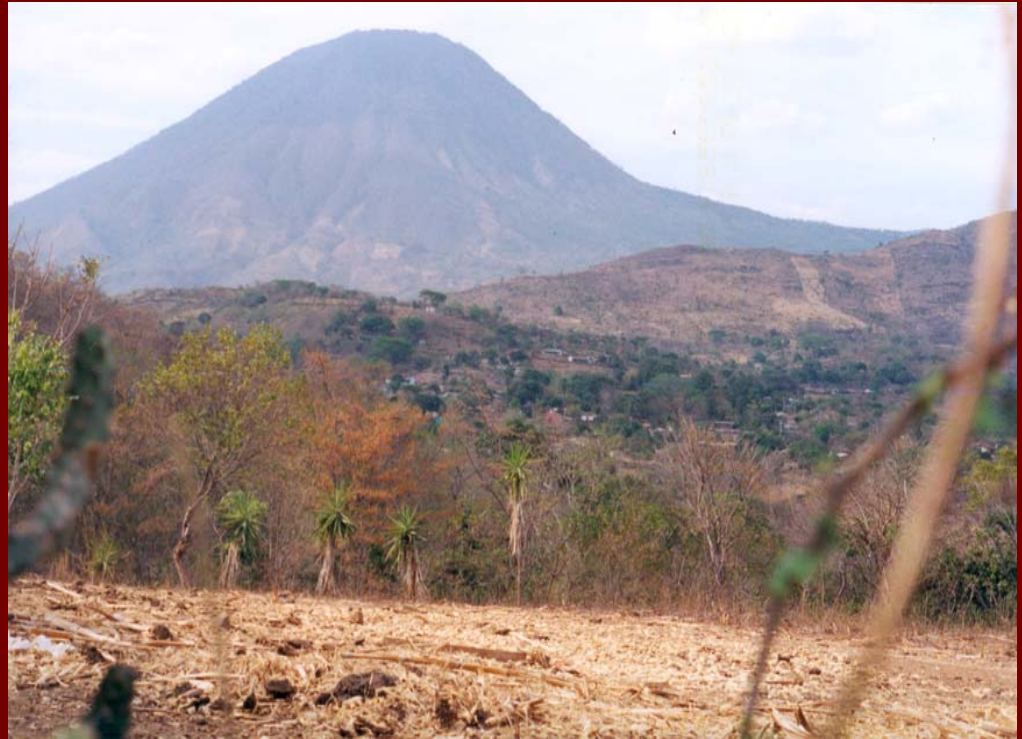
# Two-Pronged Approach to Sustainable Energy and Forest Conservation

- **Reforestation** to increase supply of trees
- **Fuel-efficient stoves** to reduce the demand for trees



# Deforestation Facts

- The FAO estimates that Central America lost 340,000 hectares of forest between 1990 and 2000
- Central America has lost two-thirds of its forests over the last 30 years



# Family Health

The World Health Organization estimates that **1.6 million** people die each year due to indoor air pollution.

Women and children are most at risk.





# Traditional Stoves

Utilize only 8 – 10% of potential wood energy  
90% of wood wasted = more deforestation





# Traditional Stoves

In Honduras, 90% of rural families and 50% of urban families use traditional stoves for cooking



# Traditional Stoves and Household Economics

Some families spend more than one quarter of their monthly income on fuel wood purchases





# The Justa Stove

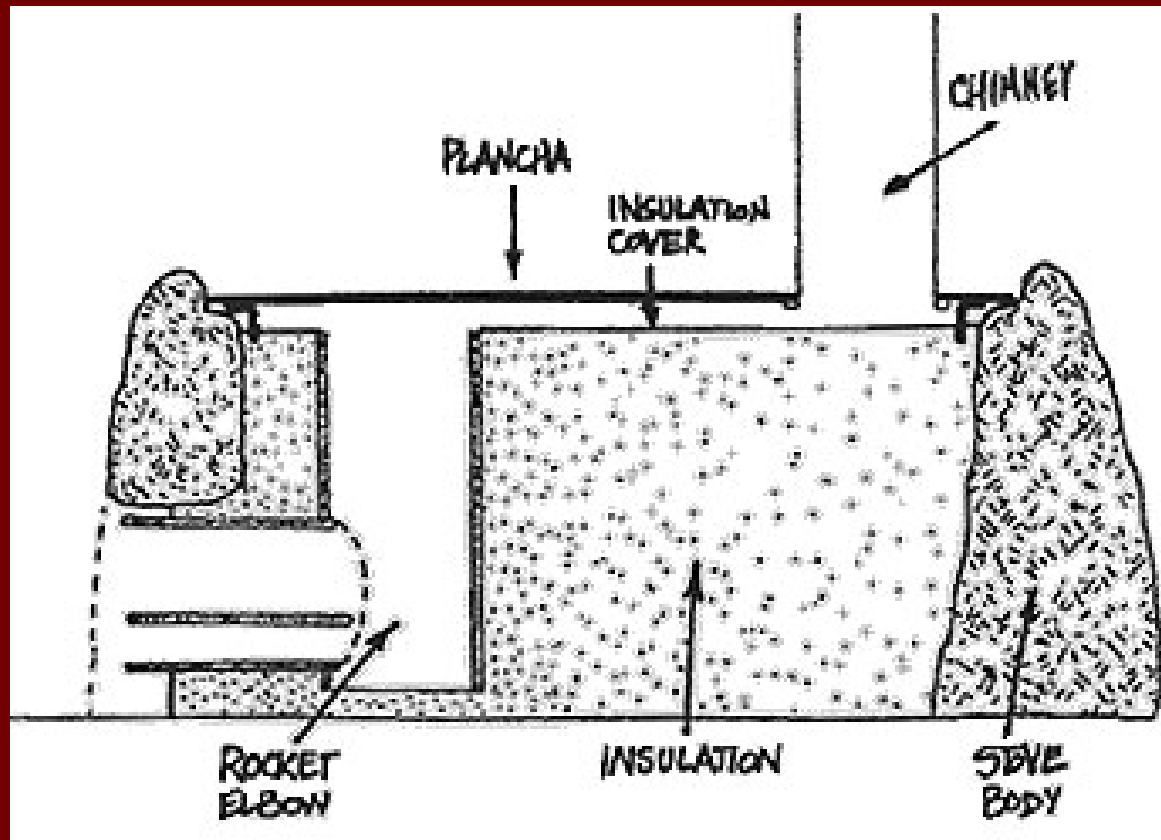
Developed by Trees, Water & People, Aprovecho Research Center, and the Honduran Association for Development (AHDESA) in Honduras after Hurricane Mitch in 1998

TWP and AHDESA have built more than 5,000 Justa stoves in Honduras



# The Justa Stove

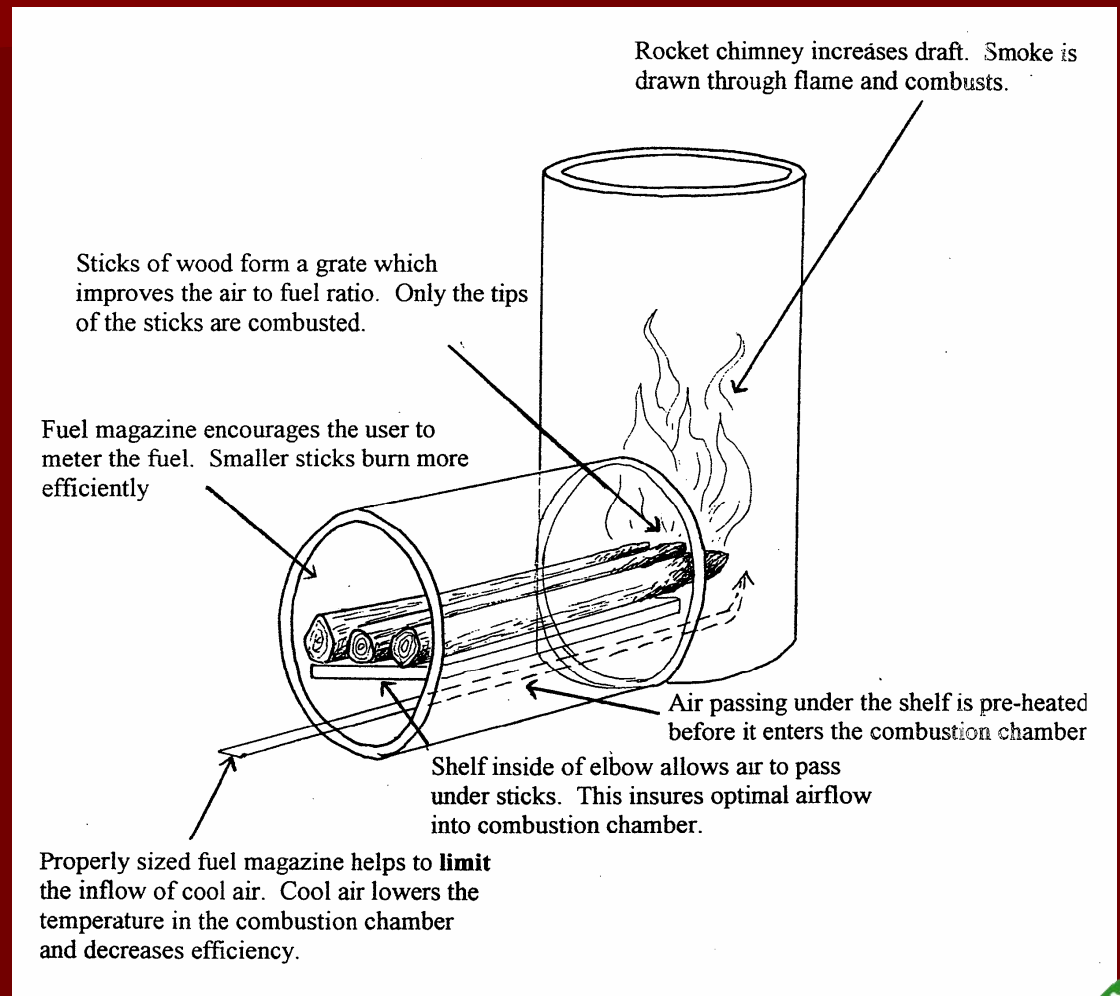
Stove design is adapted to local cooking needs –  
metal griddle to cook tortillas





# The Justa Stove

Addition of improved technology increases fuel efficiency and saves firewood



# Benefits of the Justa Stove



Removes over 95% of toxic & greenhouse gases from kitchen:

Reduces respiratory and eye problems; cleaner clothes and more hygienic kitchen

These changes benefit and empower women



# Micro Enterprise Stove Project Goals

- To train stove producers to make and sell improved stoves
- To tap into the entrepreneurial spirit of the Honduran people
- To disseminate the improved stoves to the hundreds of thousands of families in Honduras still using traditional stoves



# More Stove Project Goals

- Raise consciousness of the Honduran people about the dangers of indoor air pollution
- Design and build clean & affordable cook stoves for Honduran families
- Create stove building micro-enterprises
- Reduce indoor air pollution
- Improve the health of women and children
- Reduce deforestation caused by fuel wood use
- Provide economic relief to low income families
- Study greenhouse gas emissions of traditional stoves versus our improved stoves





# Project Objectives

- Develop three stoves for the Honduran market
- Select and train 4 craftspeople (metal shops and brick makers) to produce the improved stoves
- Select and train 26 vendors to sell cook stoves in public markets, bus stations, and shops
- Provide funding to build and sell 720 stoves
- Assist with marketing of stoves by training producers and vendors
- Promote stoves via radio, printed materials, fairs, and training workshops
- Collect stove emissions data from 50 homes



# Project Results to Date

- Selected and trained 4 stove producers:
  - 3 metal shops and
  - 1 ceramic producer
- 5 Stove Models developed: EcoLenca, EcoStove, EcoHorno, EcoTortillero and Justa
- Training 15 Stove vendors
- Made 500+ stoves
- 350 Stoves Sold
- Developed attractive marketing materials
  - Contracts with NGO's and government agencies for 100+ stoves/month
- Publicity via radio, newspapers and television



# Stove R & D

Aprovecho stove consultants design and local women test stoves



**Rocket – *EcoLenca***



**Stove with oven –  
*EcoHorno***



**Ecostove - *EcoFogon***



# Stove Models that didn't pan out

- Some models had problems:
- EcoBarrel – overheating of metal/safety issue
- EcoBarrelito –  
Consumer preference for modern looking stoves – rectangular or square are more popular





# Training Stove Producers

- Ricardo Cruz –  
upper left - EcoBarrelito
- Marvin Cordova  
upper right -Ecostove
- AHDESA  
making EcoHornos

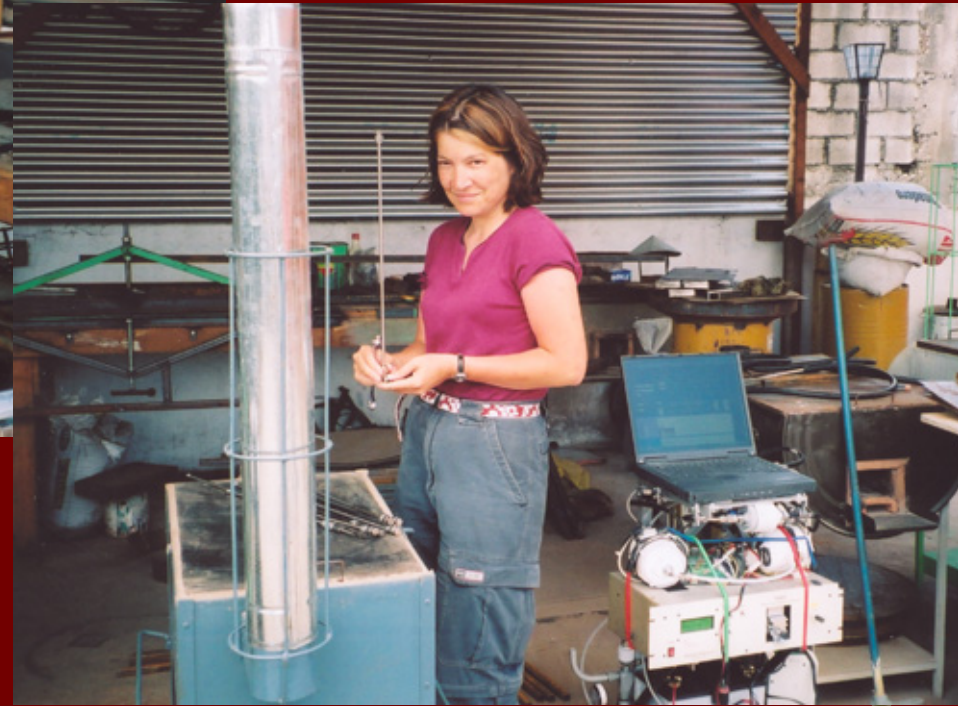


# On-going Technical Assistance



Dr. Bryan Willson of Colorado State University discusses stove design with Sebastian Africano of AHDESA

Dr. Tami Bond of U. of Illinois tests emissions of Ecostoves





# Rocket Stoves – EcoLenca



Dr. Larry Winiarski –  
Inventor of the Rocket



Pedro Franco –  
Ceramic Rocket

# Vendor Training

AHDESA staff training vendors on stove technology, health and environmental benefits, and marketing





# Stove Marketing & Sales



Logo and Branding

Customer Viewing Stoves



# Stove Marketing Flyers

## ¿Qué te ofrece un Ecofogón?

- Plancha amplia y duradera para cocinar todos sus alimentos a la vez
- Ahorros de 50% a 75% de leña
- Tremendos ahorros de dinero y tiempo
- Un ambiente sano, libre de humo y hollín
- Una cocina portátil y moderna que embellece su hogar

*¡Eficiencia, Economía y Salud!*  
Llame a AHDESA - 227-9224



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EcoLenca: Lps 200

EcoHorno: Lps 2350  
Plancha de 16" x 30"

EcoTortillero: Lps 2200  
Plancha de 20" x 32"

EcoFogon: Lps 1750  
Plancha de 22" x 22"

## *¡Un Eco Fogón Para Cada Ocasión!*

AHDESA  
El Country:  
227-9224

Oscar  
A. Flores:  
989-5648

Aldea  
De Suyapa:  
953-3560

Los Prados  
Universitarios:  
230-3768



R.T.N. SEM3JI-W



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# Stove Demonstration at Public Market



Where do I buy one?



# Central Park - Tegucigalpa

Yes, it can it cook a tortilla!





# The EcoStove – Inspired by PROLENA



8,000+ Ecostoves  
produced and sold  
in Nicaragua

# Funded by

- United States Environmental Protection Agency's Partnership for Clean Indoor Air (PCIA)
- Rotary Clubs and Rotary International
- Weyerhaeuser Family Foundation
- Trees, Water & People
- Ashden Award/Climate Care
  - add micro-credit fund to allow poor families to borrow funds for a stove and pay back with comfortable monthly payments



# TWP and AHDESA selected for Ashden Award – Add Micro-credit





# Conclusions

- Need more advanced stove production methods to reach the 700,000 families who need improved stoves in Honduras
- Micro-credit is a key component to make stoves affordable for the majority of families in Honduras
- Make more linkages with government agencies, especially public health agencies, to raise awareness on dangers of indoor air pollution to women and children
- More research, development, and funding needed to lower costs of stoves and disseminate them more widely





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