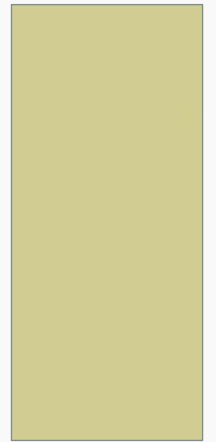


BARREL ON FIRE, CHARCOAL DESIRE

D-LAB ENERGY
SPRING 2011



OUR GROUP



Jessica



Vivian



Kurt

SIGNIFICANT CONTEXT FOR CHARCOAL IN SABANA GRANDE



[2009]

[20010 – 2011]

[3/2011]

[3/2011 – Present]

[Future]

Burns: 4
Yield: <10
briquettes
per burn

Burns: 3
Yield: ~80
briquettes
per burn

Burns to date:
2
Yield: 110
briquettes per
burn

Display in
community fair

Use to cook in
on-premise
restaurant

EXISTING BURN PROCESS IS HOT AND DANGEROUS - VIDEO



DUG-OUT SOLUTION MITIGATES SAFETY RISKS



Barrel sits on bricks and forms seal with ground from the beginning of the burn (except for the air channels). The barrel does not move or tip during burn while biomass is on fire.

METAL PLATES ALLOW SEALING FROM A DISTANCE, MINIMIZING HEAT



User maintains ~1m distance from flaming barrel by using metal seals, minimizing exposure to heat and flames

SOLUTION IN USE - VIDEO



FEEDBACK FROM “MUJERES SOLARES”



On **lighting the biomass:**

“It was very fast. We aligned the holes with the channels.”

On the **reduction of safety risk:**

“There is no risk of the barrel falling over now, which was just as important as the heat.”

On the **reduction of heat:**

“We can’t feel the heat anymore.”

On **cooking with the charcoal:**

“I cooked tortillas with the charcoal we made! The tortillas were delicious.”

“I made arroz con leche with the charcoal.”

On the **future of charcoal in the community:**

“We will have a community fair on May 17. We will sell our charcoal briquettes there.”

Pack Biomass
into Barrel



Light Barrel from
Under



Easier: Wind Protection



Stop Burning:

- Dismount from bricks
- Seal all around



Cooler: Less heat from bottom



Safer: No toppling over



Remove
Charcoal

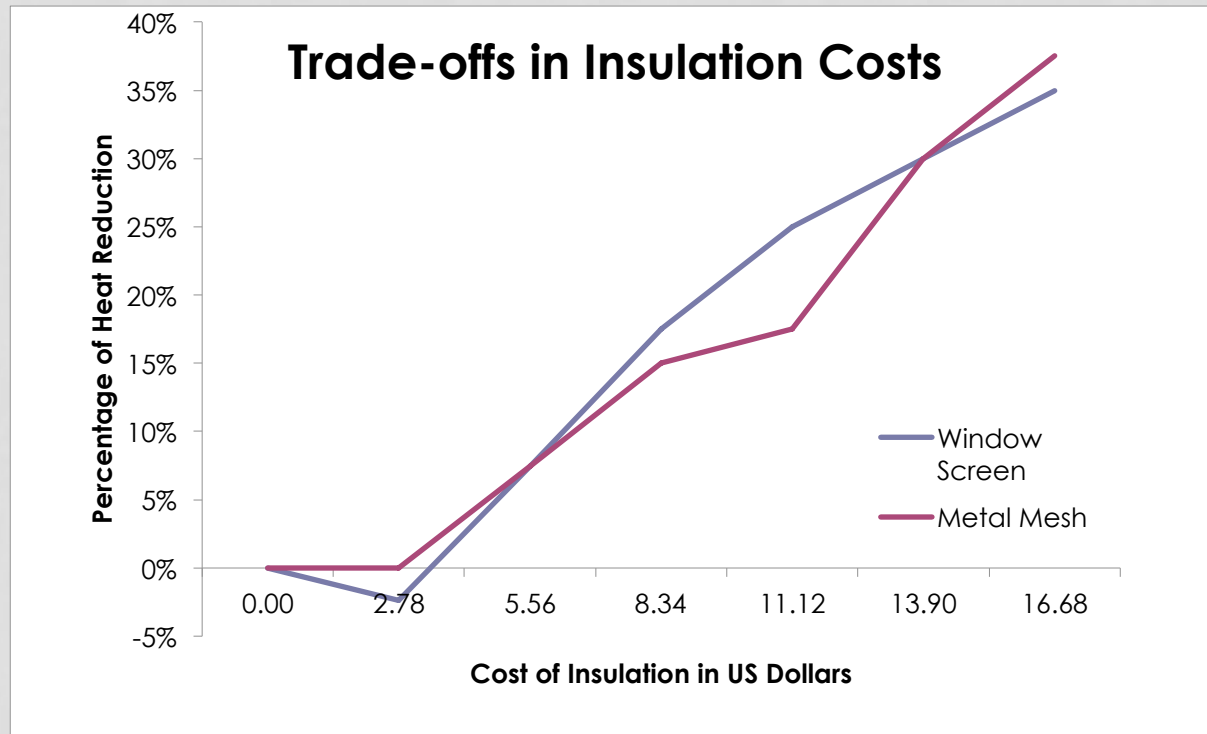


Faster: Requires less
coordination



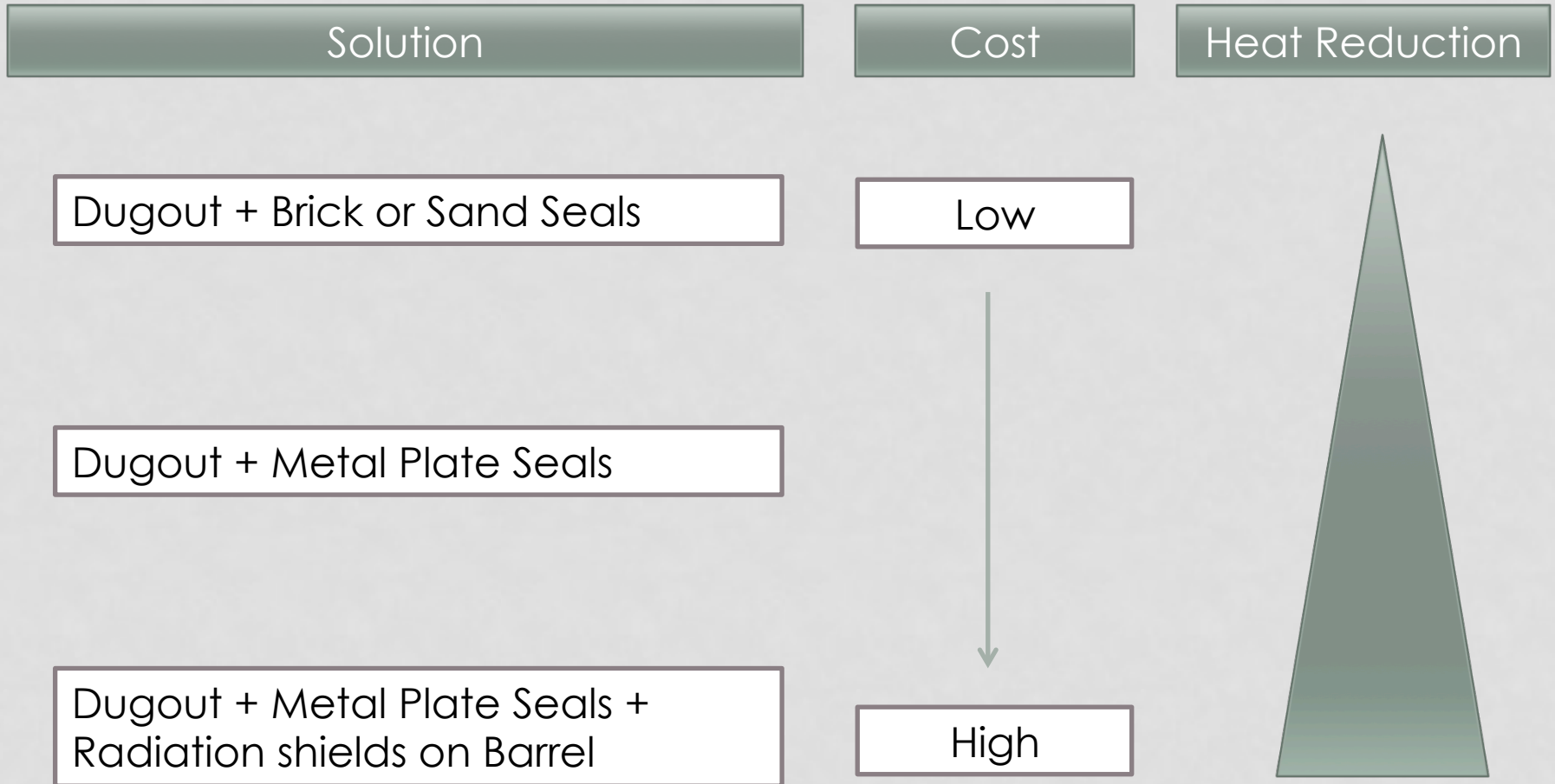
Make Briquettes

FURTHER RECOMMENDATIONS



Data collected using readily available materials in Nicaragua. Shielding heat radiation using other insulation types will require testing of more materials.

SOLUTION ADAPTABLE ACROSS RANGE OF COSTS AND HEAT REDUCTIONS



SPECIAL THANKS

- Amelia Servi, Trip leader and project mentor
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- Amit Gandhi
- Mike Tarkanian

QUESTIONS?

