

Pilot Area 6
Rasnal, Ramechhap
Nepal



Ganesha Cookstove Usability Survey Results

Pilot Area 6: Rasnal, Ramechhap, Nepal
Survey conducted December 2018
Principal Investigator: Basudev Upadhyay

Supported by: PACT



Abstract

In March 2018, 50 Ganesha stoves were donated to villagers in Rasnal, Ramechhap, Nepal. This area is in the mid-hills, with a cool climate. Snow falls in winter, and fuel consumption for heating and cooking is high throughout the year.

After villagers used the stoves for 8 months, we interviewed 10 of the stove recipients (20%) to determine usability. Primary conclusions included:

- 1) Villagers now spend almost twice as much time cooking on the Ganesha stove than on their traditional stoves (avg 122 hours vs. 66 hours).
- 2) 90% of users said they would buy the stove, for NRs Rs 500 to 1500.
- 3) Users cooked all of their traditional foods on the Ganesha stove, including rice, *dal* (lentils), beans, vegetables, potatoes, *roti* (flatbreads), and *dhindo* (a maize paste that requires vigorous stirring to cook).
- 4) Villagers found the Ganesha stove to be the most fuel and time saving way to cook, as compared to traditional stoves.
- 5) Users reported that cooking on the Ganesha stove cost about NRs 19 per hour, less than 25% of the cost of cooking on a traditional stove at NRs 86 per hour.

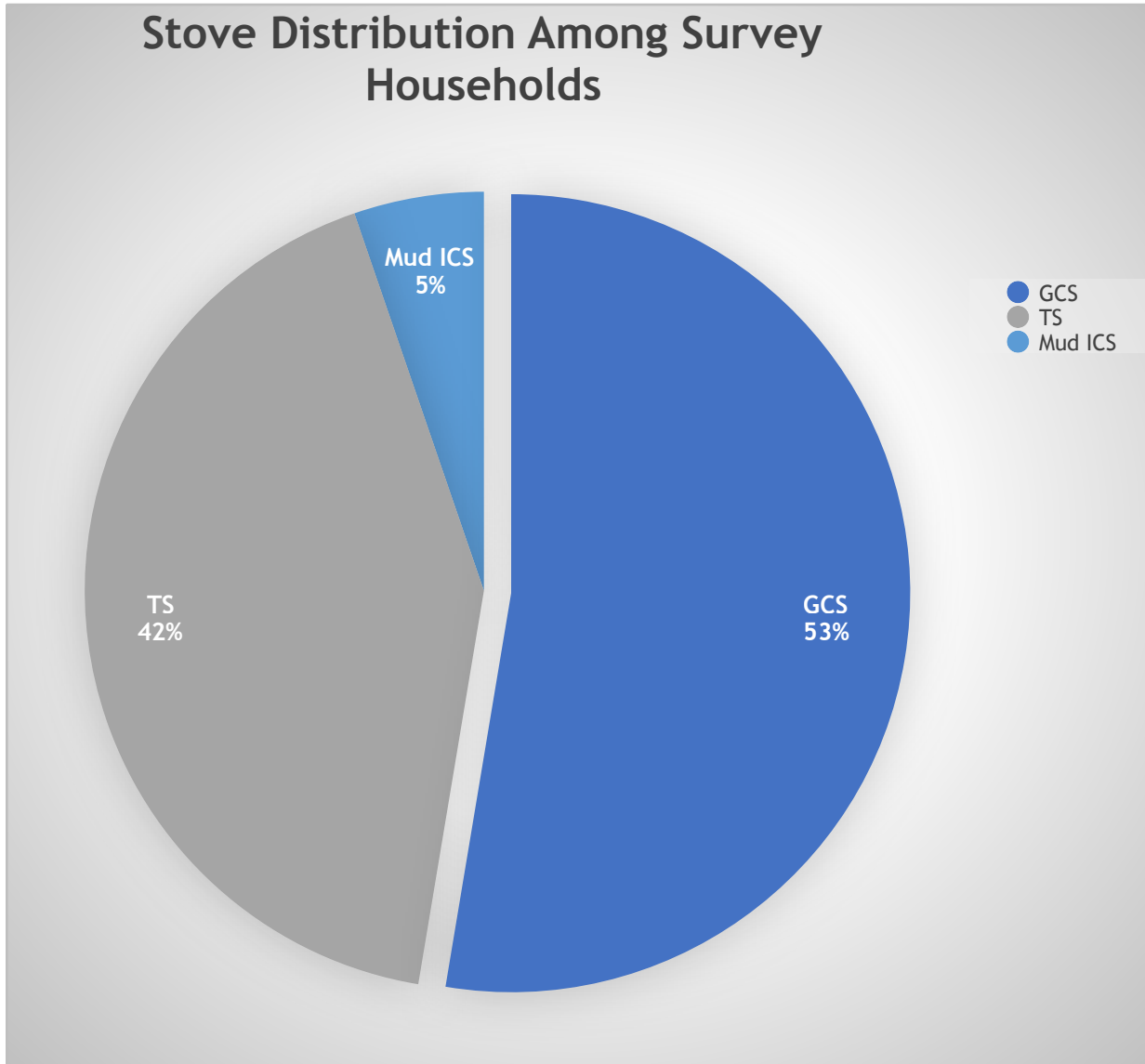




Cooking Habits in the Survey Area

- In this part of Nepal, daily common food includes *dhindo* (corn paste), rice, beans and vegetables. Potato is extensively grown and is the major crop along with millet, buckwheat and maize.
- Firewood is the main fuel source. It is usually obtained from nearby forests. People also use agricultural residues such as corn stalks and corn cobs.
- Traditional stoves include the three stone fire, metal tripod, bricks and blocks arranged as a tripod. Different sized flat bottomed aluminum vessels are the major cooking pots, but pressure cookers are also used in smaller households.

Types and Number of Stoves in Use

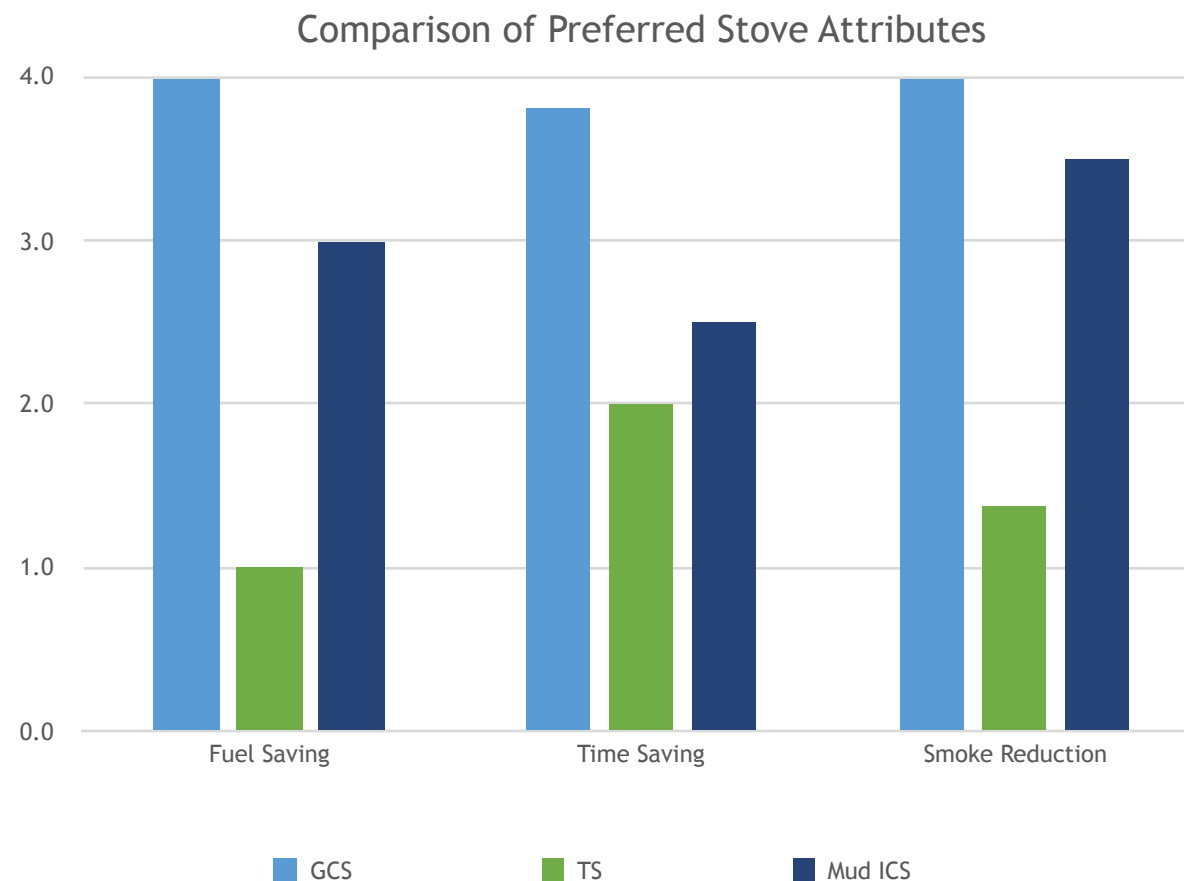


- Before this Ganesha stove pilot project, the most commonly used stoves in the project area were traditional stoves (TS) comprising three stone fire; metal, rock or cement brick fire; and metal tripod stand.
- 20% (2 households) had improved cookstoves made from mud (Mud ICS).
- The 10 sample households in the survey had 10 stoves total prior to the pilot project, and 20 total after distribution of Ganesha stoves.
- All the sample households were given the Ganesha stove (GCS) to understand its usability in comparison to other stoves.

Comparing the most preferred attributes of a cookstove

According to a 2017 World Bank study, the three most preferred attributes for stoves in Nepalese households are a) fuel savings, b) time saving and c) emissions reduction. Comparing these three attributes among the six different stoves in use in the survey area indicates that:

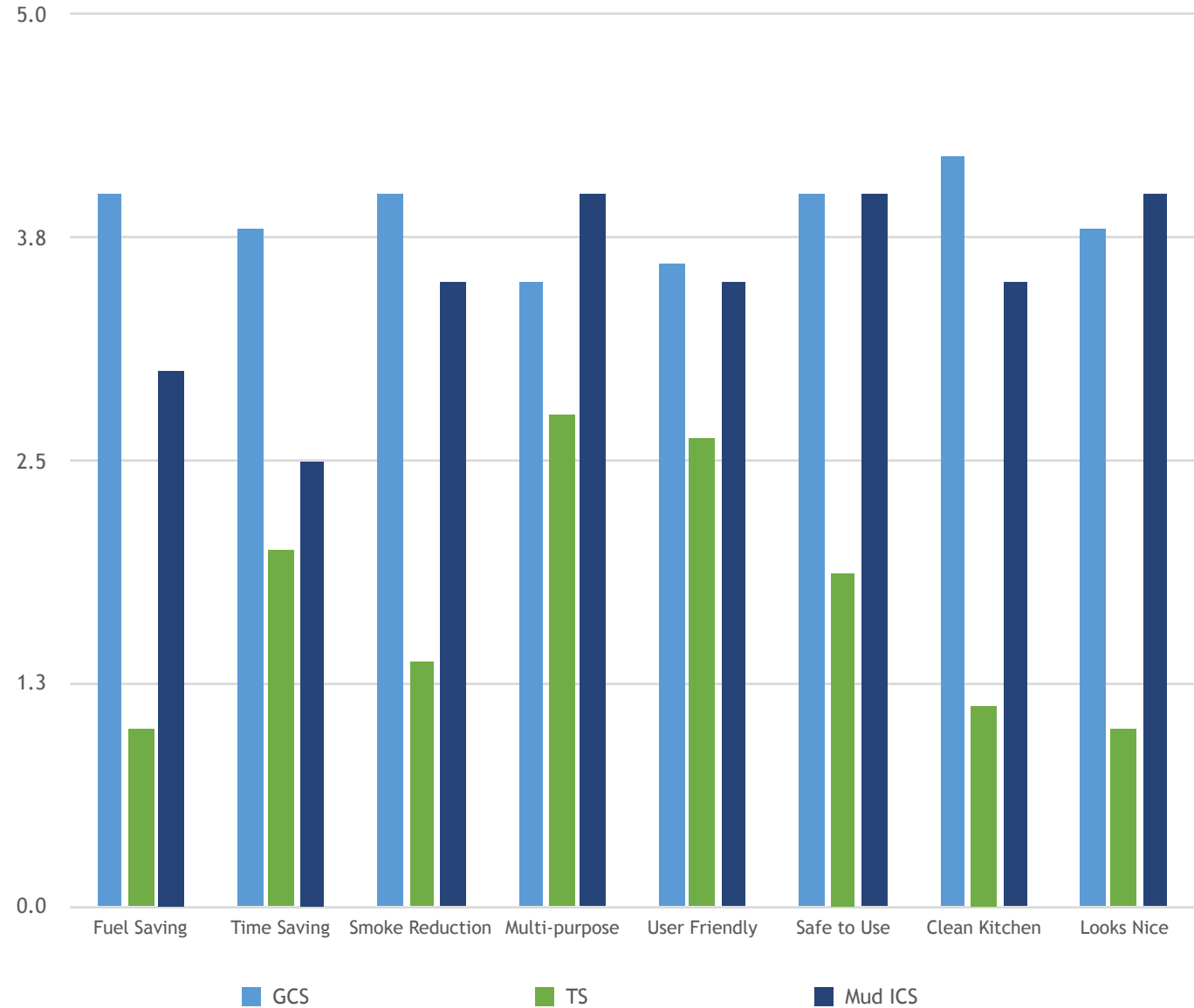
- Users ranked the Ganesha stove highest for all 3 attributes.



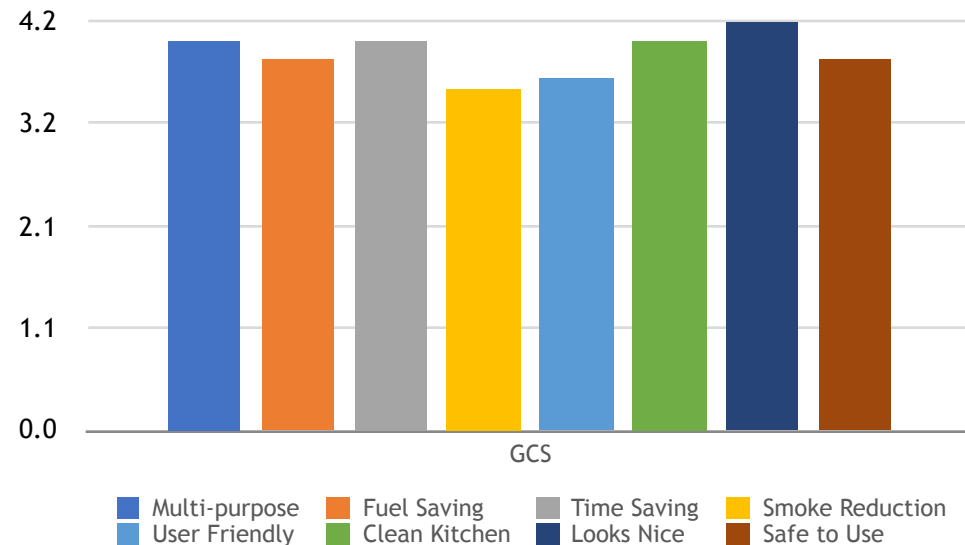
Comparing the 8 attributes measured

- Users ranked the Ganesha stove higher than traditional stoves on all 8 measures.
- The 2 households with improved cookstoves made from mud preferred some of their attributes to the Ganesha stove: multi-purpose, and looks nice. But on 5 other measures they preferred the Ganesha stove.

Comparison of Stove Attributes



Ganesha Scores for All Attributes

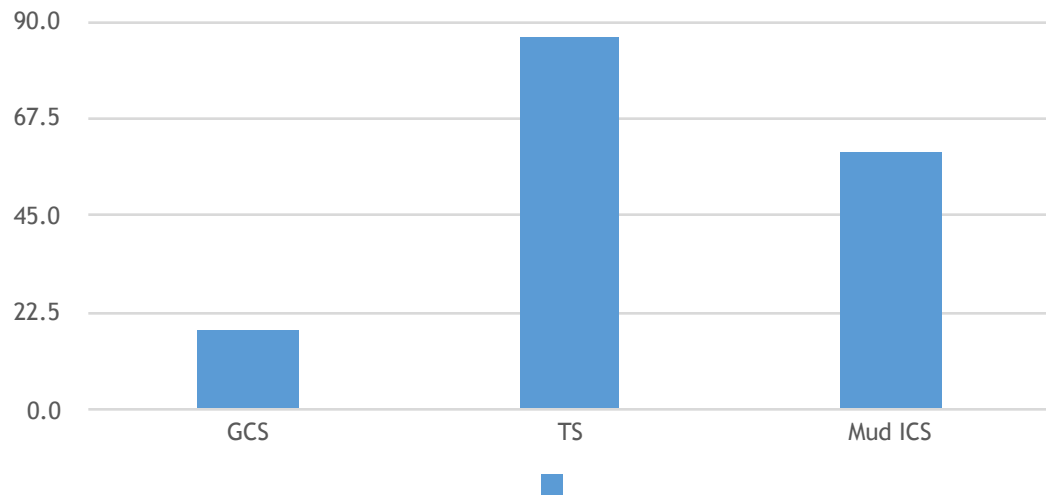


Cost of cooking

In the survey area, the cost for fuel wood was reported to be NRs 8 per kg. Villagers collect wood and other biomass from their fields, and from community and private forests. But if not sufficient, they buy. Monthly fuel expenses in this study are based on the total amount of fuel they used and the cost if they had to buy. Findings included:

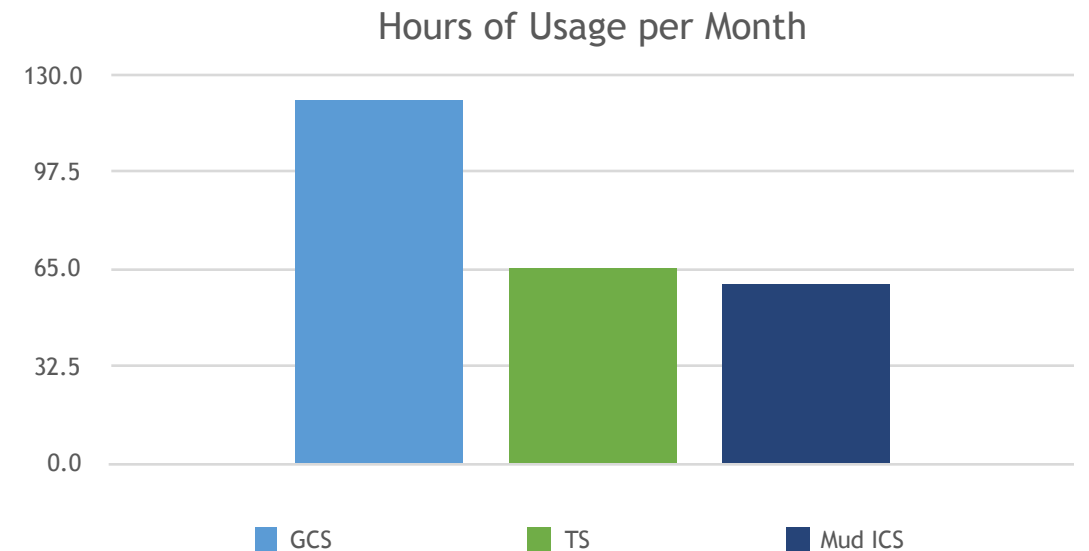
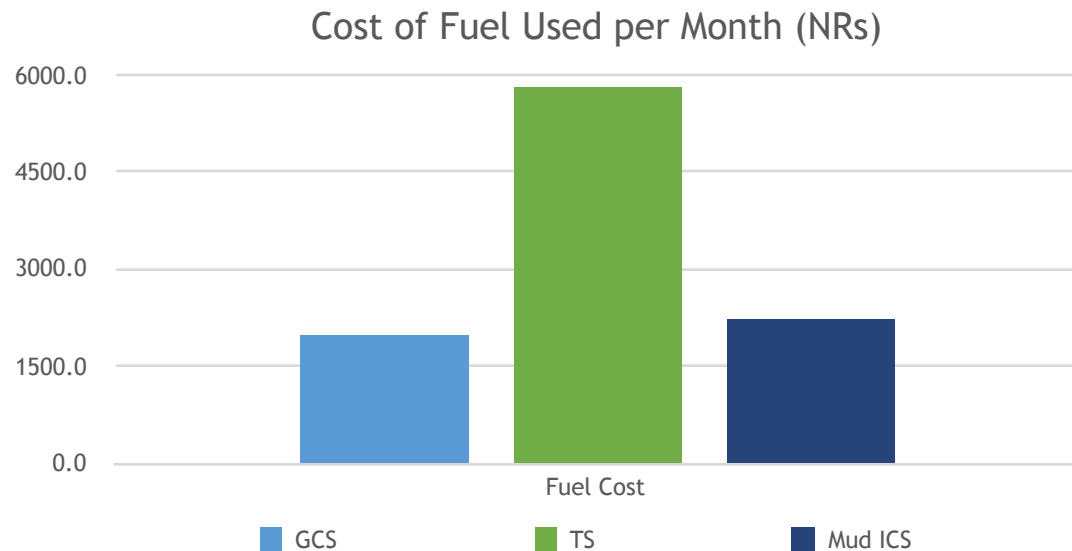
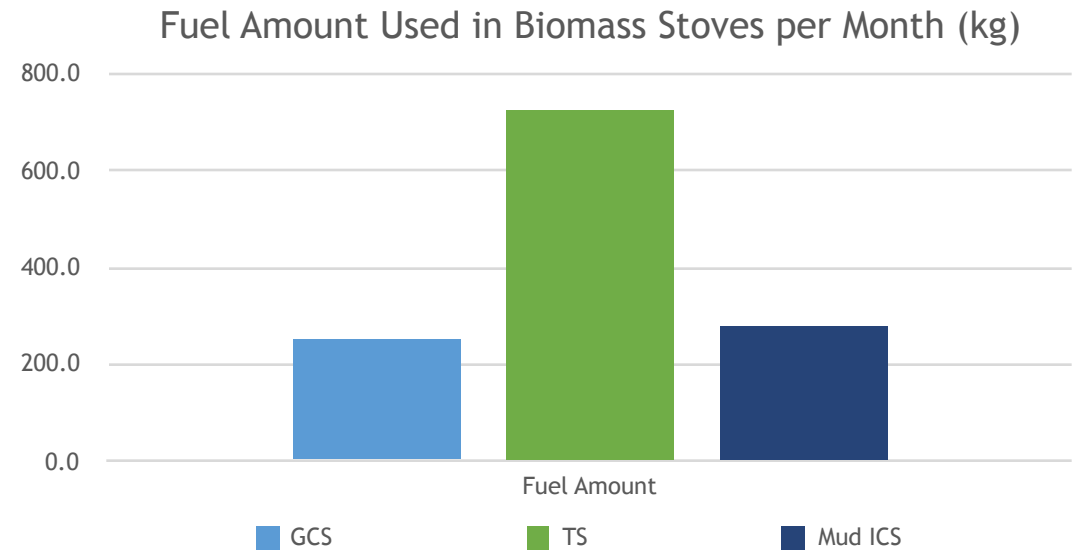
- 1) Users ranked the Ganesha stove as less expensive to operate than traditional stoves - NRs 19 per hour vs. NRs 86 per hour for traditional stoves.
- 2) Users reported that fuel use was cut by over 50% with the introduction of the Ganesha stove.

Cost per Hour (NRs) to Operate Common Stoves



Fuel Use and Cost

- Villagers used the Ganesha stove for an average 122 hours per month, and estimated the stove consumed 250 kg of wood (avg 2 kg/hr).
- After 8 months of using the Ganesha stove, villagers spent almost twice as much time cooking on it than on their traditional stoves (avg 122 hours vs. 66 hours).
- Estimates of use and cost by users confirmed that the Ganesha stove was significantly more efficient and cheaper to use than traditional stoves.



Would users buy a Ganesha stove?

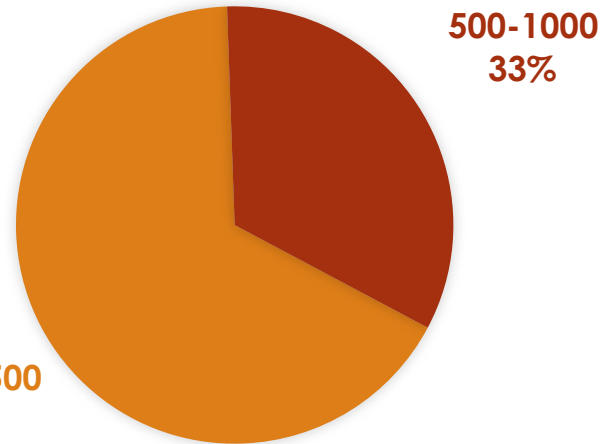
To determine user satisfaction with the Ganesha stove, we asked if they would buy it, what they would pay, and what they would use it for. Findings included:

1) 9 out of 10 sample households wished to buy it. Of those, 3 said they would pay NRs 500 to 1000, and the remaining 6 said they would pay NRs 1000 to 1500.

2) Villagers said they would use the Ganesha stove to cook all of their normal foods including *dhindo*, a dish that requires continuous, vigorous stirring.

3) Users also said they would cook animal food with the Ganesha stove, using smaller pots.

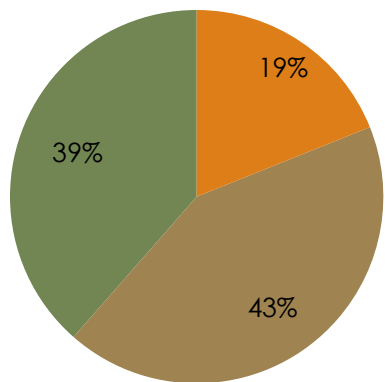
Willingness to Buy



Comparative Functional Satisfaction With the Ganesha Stove

- Users found that the Ganesha stove suited their needs for normal tasks much better than the stoves they were already using (traditional and mud stoves).
- They particularly liked the Ganesha stove for its low fuel consumption, safety and smoke reduction.
- This comparison is based on the total scores that users assigned to different stove types (the sum of attribute scores).

Comparative Satisfaction Ranking



● TS

● GCS

● Mud ICS

