

Pilot Area 3  
Dhorpatan, Baglung  
Nepal



# Ganesha Cookstove Usability Survey Results

Pilot Area 3: Dhorpatan, Baglung, Nepal  
Survey conducted September & October 2018  
Principal Investigator: Basudev Upadhyay

Supported by: Employees of PLAN International



# Abstract

In June 2018, 100 Ganesha stoves were donated to villagers in Dhorpatan, Baglung District, Nepal. This area is 2,000 to 3,000 meters above sea level (6,500 to 10,000 feet) with little food production. Villagers migrate between uplands and lowlands with the seasons.

After villagers used the stoves for 3 to 4 months, we interviewed half of the stove recipients to determine usability. Primary conclusions included:

- 1) All of the users liked the stove and said they would buy it, for NRs 500 to 1500.
- 2) Users cooked all of their traditional foods on the Ganesha stove, and particularly liked it for making tea, boiling rice, boiling milk, frying vegetables, boiling beans and steaming potatoes.
- 3) Villagers said they particularly liked that the Ganesha stove used less wood, cooked food faster, produced very little smoke, was highly portable, and worked well in the wind at the fields where they worked.
- 4) The Ganesha stove was ranked to be just as safe to use as gas (LPG).
- 5) Data indicated that biomass fuel use was cut in half when using the Ganesha stove.

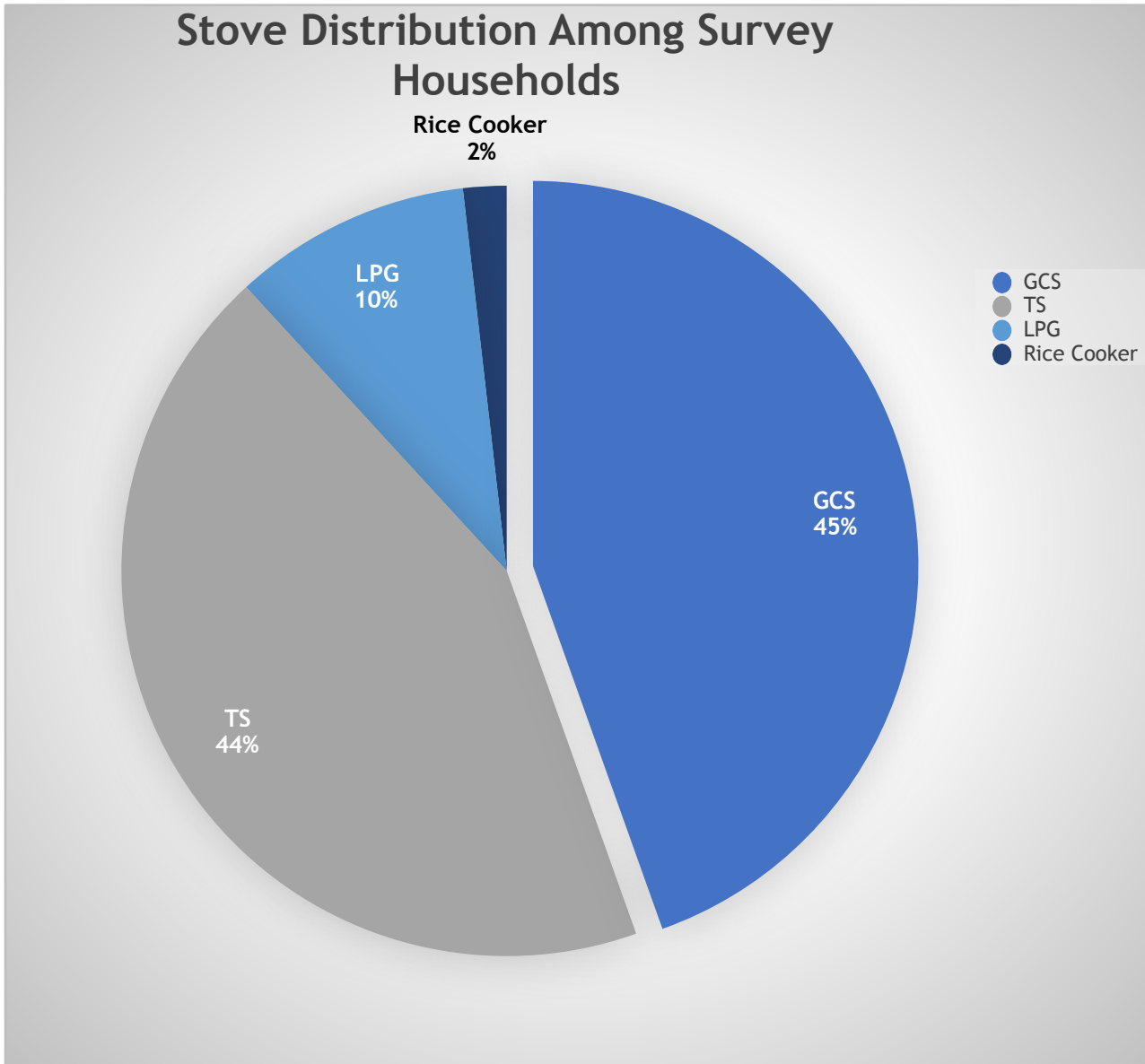




# Cooking Habits in the Survey Area

- In this part of Nepal, there is very little rice production. People fry and bake bread, “*roti*,” at breakfast and dinner.
- Along with *roti*, locals eat large quantities of potatoes (steamed or made into *roti*), bean soup, and dairy products. Each of these foods takes a significant amount of time to cook: beans must be boiled for a long time to soften, and it is time-consuming to fry or bake *roti* for an entire family.
- In addition to food production, alcohol brewing and distilling is common.
- The Ganesha stove was found to be good for making tea, boiling rice, boiling milk, frying vegetables, boiling beans, and steaming potatoes.
- Pressure cookers are used to cook beans and sometimes for boiling rice. A semi-spherical open pot “*karaai*” is used for making vegetables and vegetable soup. A round-bottom pot with a narrow opening, locally known as “*kasaudi*” is used to boil rice. They also use a frying pan with handles to fry and cook meat. Closed “*Kitli*” pots are extensively used for making tea and boiling water.

# Types and Number of Stoves in Use



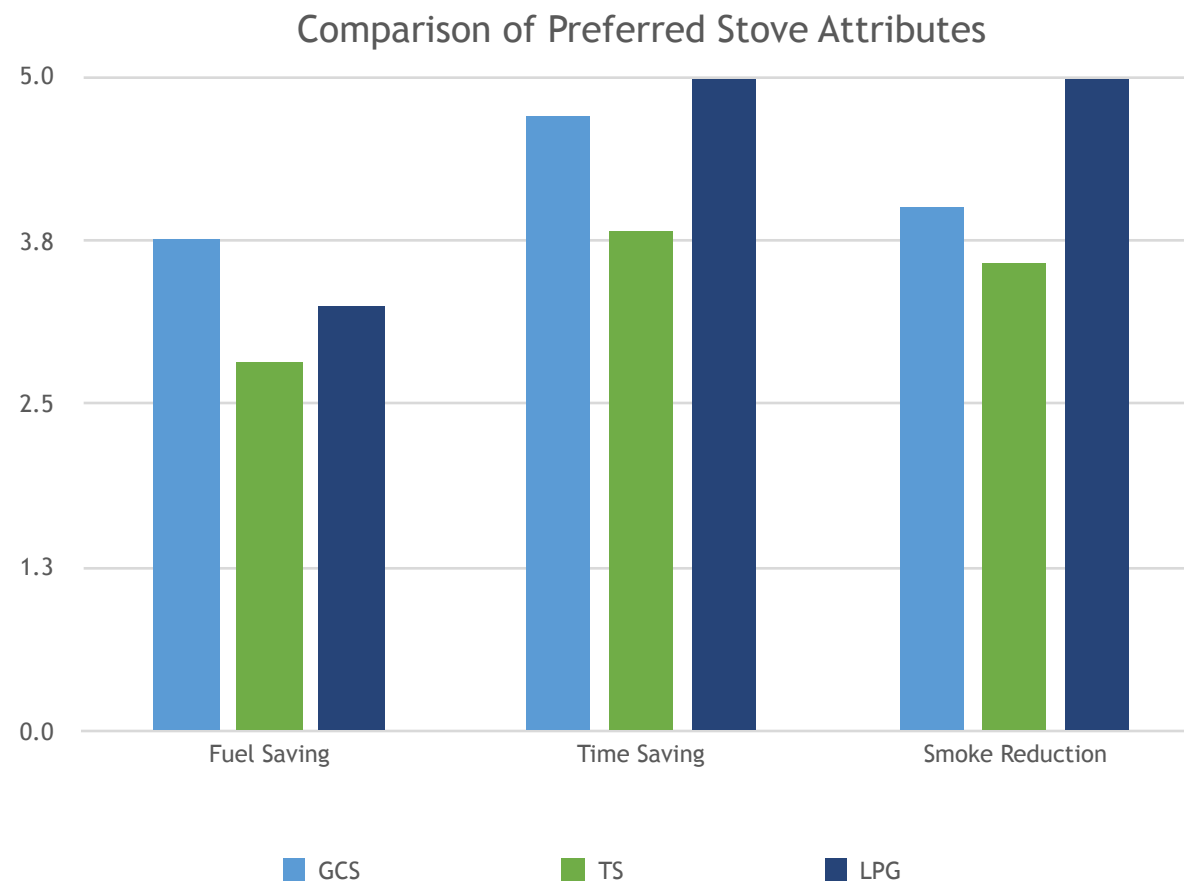
- Before this Ganesha stove pilot project, the most commonly used stoves in the project area (96% of sample households) were traditional stoves (TS) comprising three stone fire; metal, rock or cement brick fire; and metal tripod stand.
- 23% owned gas (LPG) stoves, and another 4% also owned electric rice cookers.
- 70% of users also had gas stoves (LPG).
- 25% of users had charcoal stoves, and 10% of users had biogas stoves.
- The 50 sample households in the survey had 61 stoves total prior to the pilot project, and 110 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:

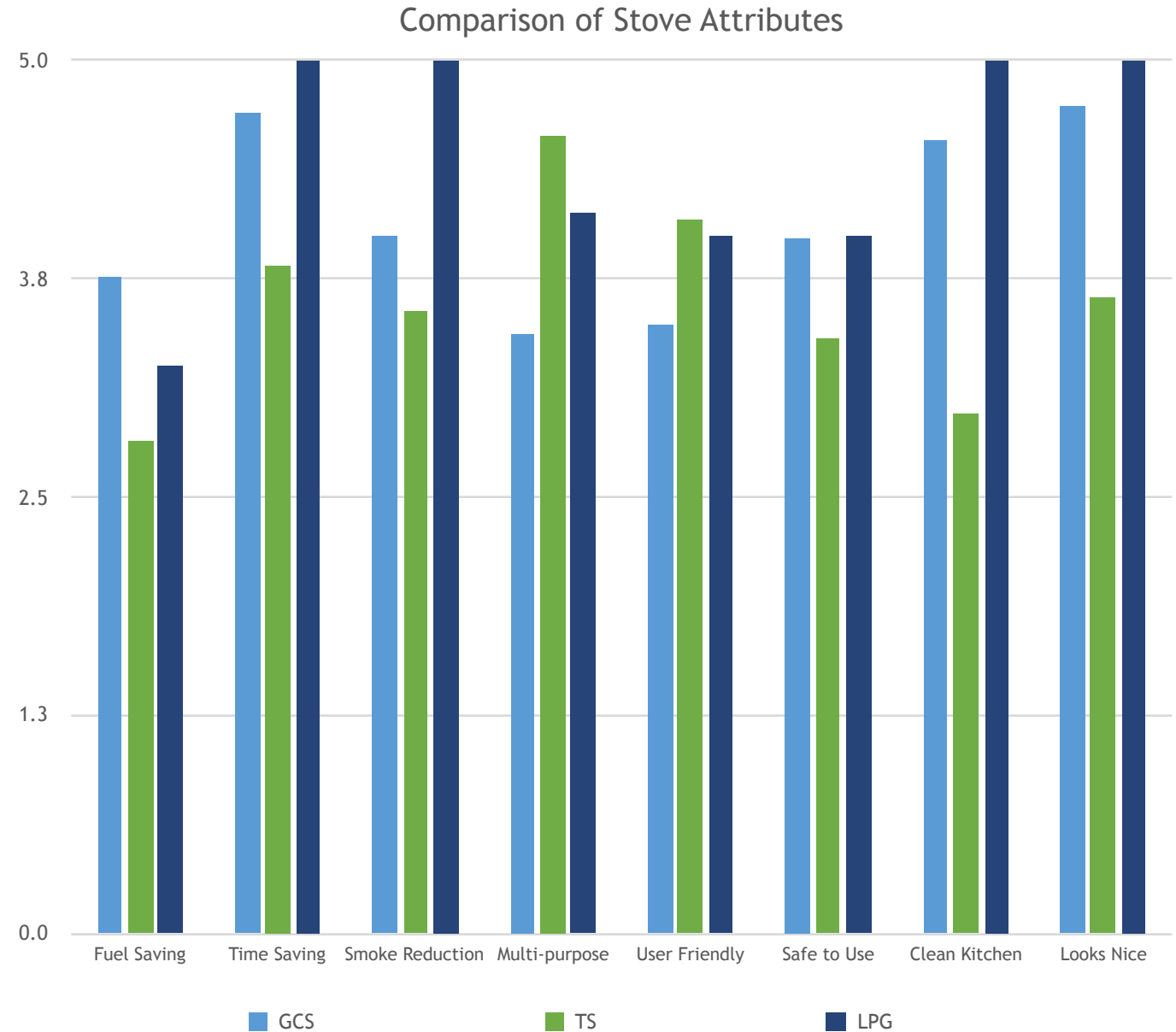
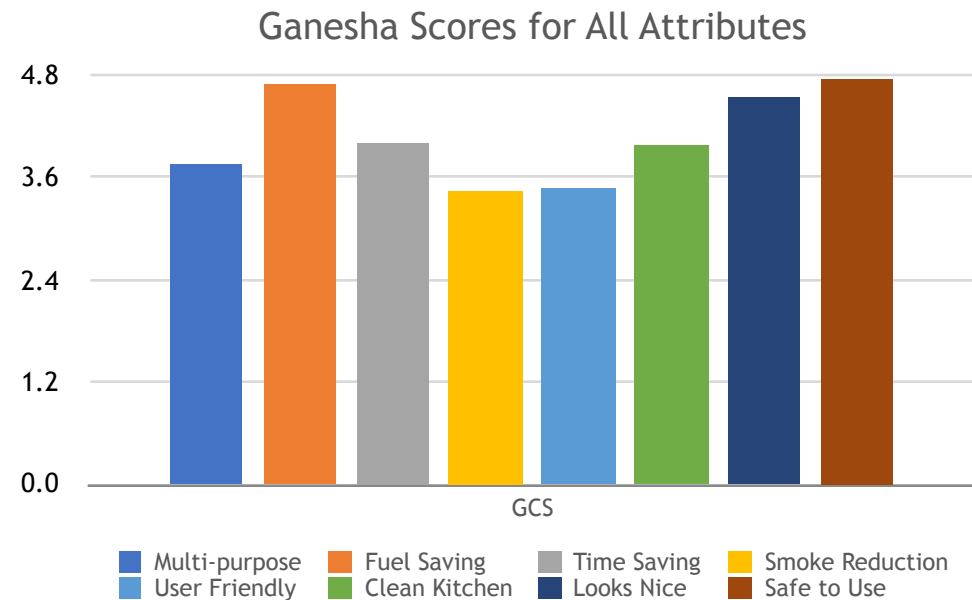
1) Among all stoves including LPG, users ranked the Ganesha stove highest for fuel saving.

2) Users ranked the Ganesha stove's time saving and smoke reduction second, after LPG.



# Comparing the 8 attributes measured

- Users ranked the Ganesha stove as highest for fuel saving, and just as high as LPG for safety.
- The Ganesha stove also scored highly on ability to cook different kinds of food items, keeping the kitchen clean, and saving time.

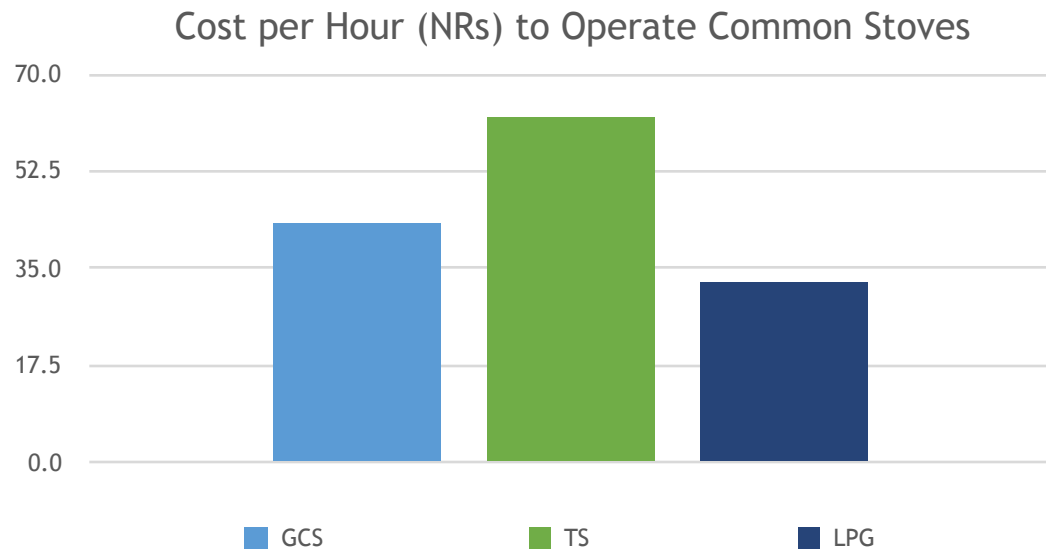




# Cost of cooking

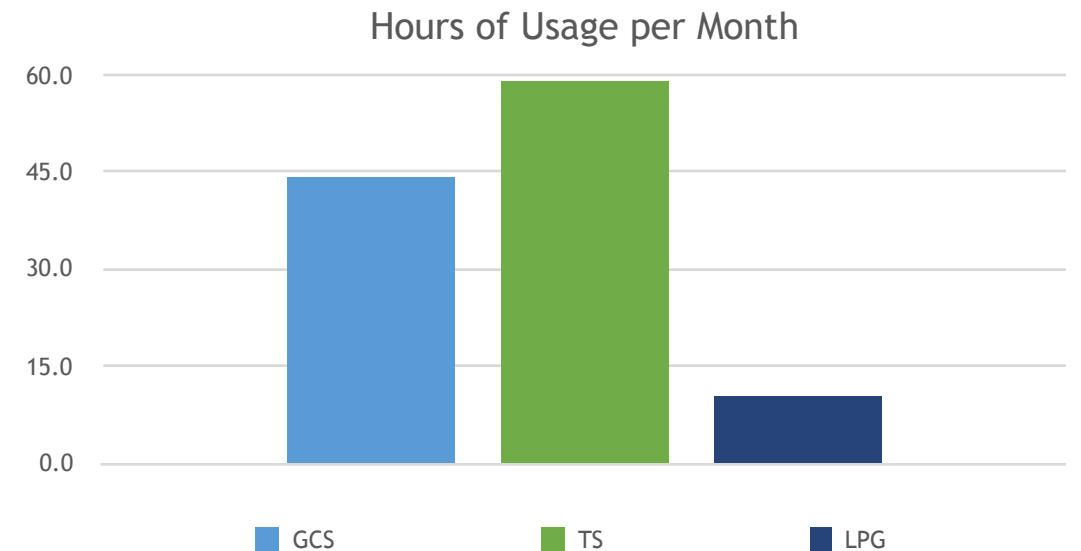
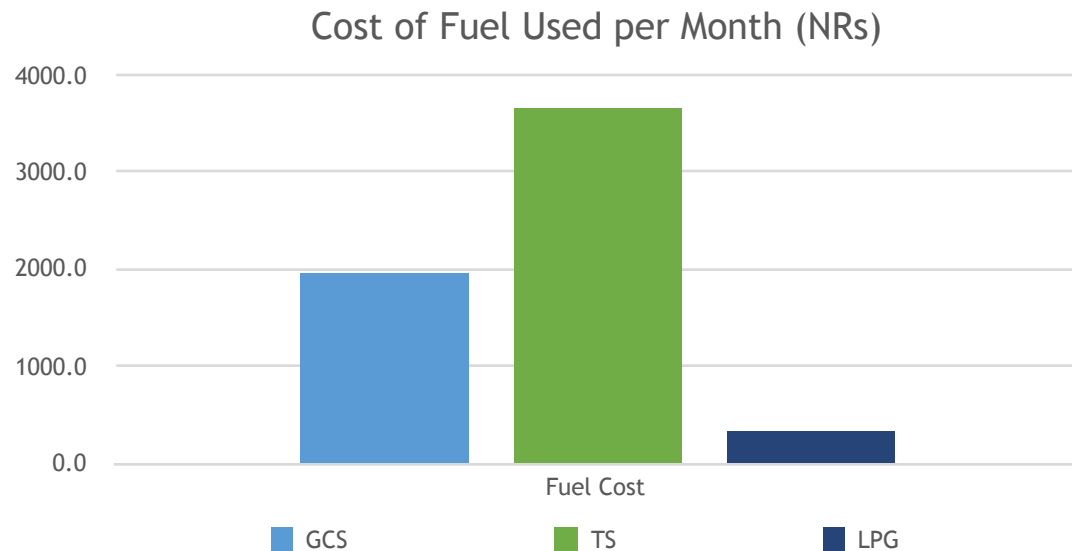
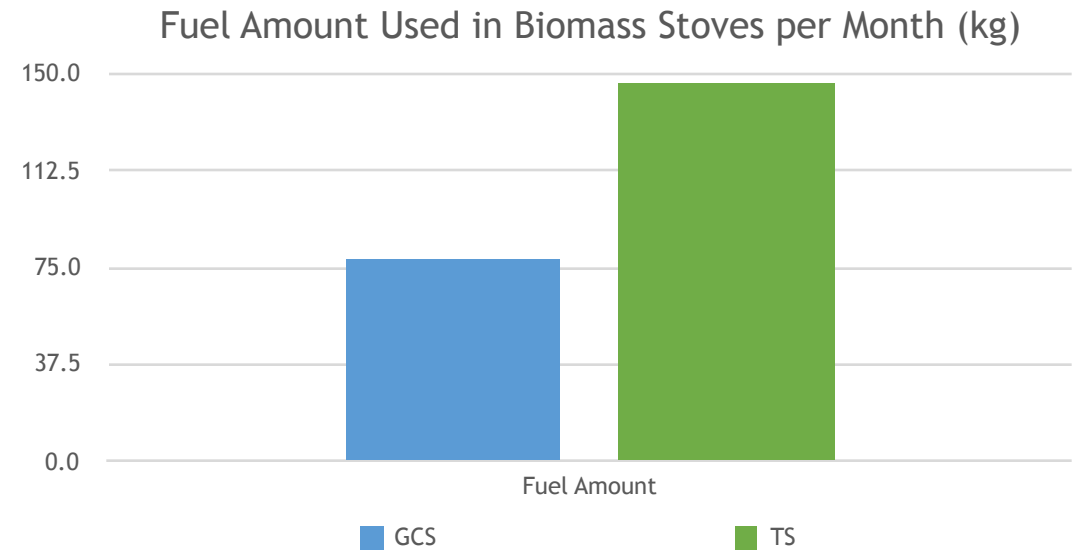
In the survey area, the cost for fuel wood was reported to be NRs 15 per kg in summer, and NRs 25/kg in winter, if purchased. Dhorpatan villagers collect wood from the edges of their fields, and sometimes in the forest. But if not sufficient, they buy. Monthly fuel expenses in this study are based on the total amount of fuel they used and the cost if they had to buy. Findings included:

- 1) Users ranked the Ganesha stove as much less expensive to operate than traditional stoves and LPG.
- 2) Although users like many of the qualities of LPG stoves, they often don't use them because of the difficulty of obtaining LPG and the associated cost.
- 3) Users reported that fuel use was cut in half with the introduction of the Ganesha stove.
- 4) Cooking cost per hour was lowest for LPG stoves, followed by the Ganesha stove and traditional stoves (highest).



# Fuel Use and Cost

- Villagers used the Ganesha stove for an average 44 hours per month, and estimated the stove consumed 78 kg of wood (avg 1.8 kg/hr).
- Owners of LPG stoves reported cooking on them for just 20 minutes a day.
- Estimates of use and cost by users confirmed that the Ganesha stove was significantly more efficient and cheaper to use than traditional stoves.





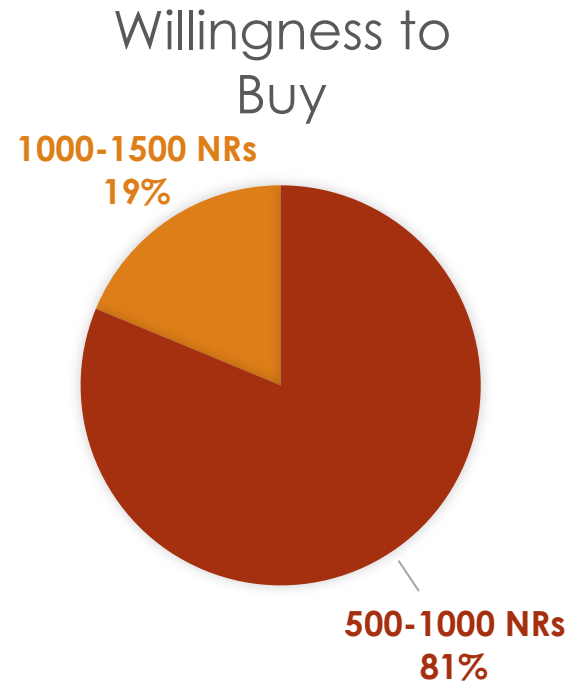
# Would users buy a Ganesha stove?

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) All sample households wished to buy it. 81% said they would pay NRs 500 to 1000, and another 19% 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.

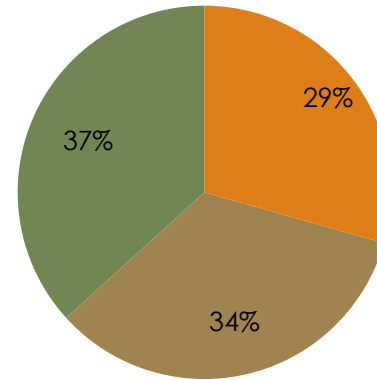
3) 8% of households replaced their traditional stove with the Ganesha stove. These households were relatively small, without livestock.



# Comparative Functional Satisfaction With the Ganesha Stove

- Users found that the Ganesha stove suited their needs for normal tasks as well as the stoves they were already using (traditional and LPG stoves).
- They particularly liked the Ganesha stove for cooking food, but continued to use traditional stoves for coking alcohol and space heating.
- This comparison is based on the total scores that users assigned to different stove types (the sum of attribute scores).
- Users really liked the Ganesha stove's portability. They carried to their fields during harvest seasons, and also took them along when they migrated between the highlands and lowlands.
- Quotes from users: Easy to transport; Food is cooked faster; Wind doesn't affect the fire; No smoke so house remains clean; Easy to use

Comparative Satisfaction Ranking



● TS

● GCS

● LPG

Stove type	Before	After
TS	48	44
GCS	0	49
LPG	9	9

