Case Study of Solar Cooker use by Retirees in Chandigarh, India

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ABSTRACT

Global energy demands are expected to increase rapidly in the near future, particularly among Asian countries. For example, India's energy needs are expected to grow at more than twice the global average rate. To meet the increased demand, India could improve its use of renewables. Solar energy, in particular, has large potential in India because the country receives 5000 trillion kW/h every year. I examined solar cooker use amongst retirees in Chandigarh, India to determine factors affecting cooker diffusion. I first compared cooking times and cost data of regular gas stoves and solar cookers. I then conducted a survey of the retired residents in Chandigarh. Finally, I interviewed local vendors who sold solar cookers in the area. My results show that, on average, solar cookers took 2-3 times longer to cook food than a regular gas stove and that solar cookers are a cheaper option when compared over a year. My survey results suggested that many people are unwilling to adopt cookers and are unfamiliar with the government subsidies in place. My interview data show that, although vendors made profits off their sales, solar cookers have become more expensive over time. Overall my results suggest that the government needs to improve its subsidy programs and increase cooker awareness if cookers are to be adopted in the future.

KEYWORDS

renewable energy, subsidies, box-type cookers, interviews, surveys

INTRODUCTION

In recent decades, countries worldwide have witnessed a sharp increase in the demand for gas and electricity. The global energy demand increased from 5000 million tons of oil equivalent (Mtoe) in 1971 to 11,700 Mtoe in 2010 (Matsuo et al. 2013). Because the generation of electricity and heat is the largest source of carbon emissions, countries that continue their dependence on fossil fuels for these purposes will be major contributors to increased green house gas (GHG) emissions in the future (Popp et al. 2011). Asian countries have accounted for 70% of this increase since 2000 (Matsuo et al. 2013). In India, for example, the gas and electricity demand is expected to grow at an annual average rate of 7.4% over the next 25 years (Schmid 2012). When averaged over several decades, India's energy demands are expected to increase by 140% whereas the world as a whole will experience a 55% increase (Singh 2013). The growing gap between the demand for and supply of energy will have negative impacts on economic growth in India (Khan et al. 2014). Because of its relatively high energy consumption rates, adopting renewable energy technologies in India can have large impacts on efforts to reduce overall energy demand.

Renewable energy sources can be used to reduce reliance on fossil fuels, thereby introducing cleaner alternatives to meet energy demands. Although renewable energy sources supply 14% of the total world energy demand, fossil fuel-based energy still predominates with the highest share in energy consumption (Cuce and Cuce 2013). Therefore, the effective implementation of renewable energy technology is going to become more crucial over the coming years (Schmid 2012). Alternative energy sources with the maximum potential in India include solar, wind, hydropower, geothermal and biomass (Pillai and Banerjee 2009). Solar energy, for example, has useful applicability to cooking in India because 36% of its total primary energy consumption stems from cooking (Cuce and Cuce 2013). Additionally, India receives the solar energy equivalent of 5000 trillion kWh/yr, making solar cooking appear as a more attractive alternative to traditional cooking methods (Kumar et al. 2010). Solar cooking has been tested in rural Indian communities but should be taken advantage of in urban settings to include a greater proportion of the population.

Previous study results have shown that people choose to refrain from cooker use when given the option. This is because most of the owners have been younger/middle-aged members of the population who found solar cooking inconvenient due to the long hours of preparation needed

(Ahmad 2000). However, several recent developments suggest that the use of solar cookers should be reevaluated. For example, recent liquefied petroleum gas (LPG) price hikes can potentially incentivize solar cooker use because 28.5% of all Indian households use LPG as a primary cooking fuel (Bharambe et al. 2013). An additional disincentive to use LPG is that it enhances the risk of lung and eye disease, which affect millions all over the globe (Arif et al. 2010). Solar cookers are useful because they can cook up to 4 dishes at a time and save 3-4 LPG cylinders in a year if regularly used (Purohit and Purohit 2007). Despite these existing incentives to use solar cookers and disincentives to use LPG, solar cookers are still widely unused in both urban and rural settings.

A number of factors can be labeled as barriers to diffusion of the technology. The cumulative number of solar cookers in India is below its theoretical potential, so a majority of the population might be unaware that the technology exists (Purohit and Purohit 2007). Cultural obstacles and perceptions are other potential barriers to diffusion because cooker use is generally associated with lower-income groups in rural communities (Yadav et al. 2009). So, positive attitudes and perceptions will play a vital role in determining the adoption rate of this technology (Yadav et al. 2009). An analysis of cooker use amongst retired pensioners can potentially identify barriers to diffusion that are not cooking time related because retirees generally have more time available for cooking. Little is known about retiree attitudes and perceptions towards this technology.

I conducted a case study of the retired community in Chandigarh, the capital city of the Northern Indian state of Punjab, to compare solar cookers to traditional means of cooking, and analyzed external factors affecting solar cooker use amongst retirees. The overarching goal of the study was to determine how barriers affecting the diffusion of solar cookers amongst retirees in urban India could be overcome. Background on barriers to diffusion was limited, so I 1) Drew comparisons between solar cooking and LPG use to determine which method is more attractive 2) Carried out a survey to understand why residents are unaware or or do not use solar cookers 3) Interviewed local vendors and manufacturers to get a better understanding of the market for cookers. I hypothesized that cultural obstacles, government policies and knowledge gaps are some of the barriers that might explain poor diffusion trends of the technology. I expected that solar cookers would present more pros in terms of cost and nutritional value when compared to traditional cooking methods, based on previously conducted studies.

METHODS

Study Site

Chandigarh has a population density of 8,400/km^2 (Figure 1). The city is divided into sectors, each with a multitude of households, local markets and schools. The most commonly spoken languages include English, Hindi and Punjabi. The city has a Human Development Index (i.e. an indicator of human development) of 0.819 out of 1, which is a good indicator of high literacy rates. Urban communities make up 80% of the region and rural communities make up the remaining 20%. I chose Chandigarh for my study because of the numerous neighborhoods that have large populations of retirees. Conducting my survey in neighborhoods like those would increase the likelihood of finding retirees to answer my survey questions.

Figure 1. Map of study site.

To determine the size of my study area and sample population, I used Google maps to understand the geography of the area. I located the Chandimandhir Cantonment, an army base near Chandigarh. I identified the residential neighborhoods closest to the base and used them to conduct

surveys with the inhabitants because the areas closest to the base are known to have a large population of retirees. Because the areas surrounding the base are divided into sectors, I chose sectors 2 and 6 because they were approximately the same distance from the base. Each sector had over 500 households, an adequate amount for me to carry out my survey.

Data Collection Methods

Cooking Times

I cooked the three food types, which I selected because they are commonly used among the retirees, in gas stoves and solar cookers to compare the time and cost required for each cooking method. I cooked foods on three separate occasions: on the first occasion I cooked rice, on the second I cooked lentils and on the third I cooked potatoes. All solar cooking procedures were carried out at noon, under similar conditions, to make sure the comparisons were as accurate as possible. I measured the cooking times of each of the procedures using a stopwatch. I began the timer when meal preparation began and stopped it when meals were ready to be served. Then, I collected information on the cost of each cooking method, excluding the prices of ingredients. I determined the cost of solar cookers and liquefied petroleum gas cylinders by travelling to local markets. All the prices depicted in my results are in USD. The conversion rate from USD to Rupees is 62 Rupees to 1 USD but this rate is subject to change[1] (XE Currency Converter).

Survey design and population

I sampled 142 households to gauge retiree knowledge on solar cookers. Since my initial goal was to survey 150 households, I targeted 75 households in each sector. To randomly select the homes, I approximated the number of homes in each sector and divided that total by 75. I estimated that there were about 1050 homes in Sector 2, so I divided 1050 by 75. The result from the division is 14, so I surveyed every 14th house in Sector 2. I estimated that Sector 6 had about 700 households so 700 divided by 75 is 9.33 but I rounded it off to 9, so I surveyed every 9th house

[1] Rate based on XE Currency Converter

in Sector 6. Most of the survey questions consisted of straightforward yes/no questions; followed by a few, open-ended questions.

I designed my survey to test whether the three hypothesized barriers to diffusion were responsible for the lack of solar cooker use. The survey consisted of 14 questions to gauge a retiree's basic knowledge of solar cookers. I designed the questions to be mostly categorical, and I designed the survey to take no longer than 5 minutes to answer. A few open-ended questions allowed for respondents to express their opinions, which in turn, gave me a better sense of their attitudes towards solar cooker use.

I separated certain questions into categories, based on each hypothesis. I tested the hypothesis of knowledge gap and government subsidies using specific survey questions that gauged resident's knowledge about solar cookers and government programs that supported cooker use. I also used information from vendors/manufacturers to determine if cookers were being offered at discounted prices or if other incentives to buy cookers were in place. Since each interview consisted of the same questions, I organized the data from each interview in a manner that made it easier for me to analyze the market situation of cookers in different regions of Chandigarh. I determined cultural obstacles using specific survey questions as well.

Interviews

To interview local vendors in the area, I travelled to 4 different areas of Chandigarh that sell or manufacture solar cookers. I then manually recorded the textual and numerical information I received from each vendor. I interviewed these vendors to get a better sense of the current market situation of solar cookers. I used this data to determine current market trends in solar cooker use and whether or not government subsidy programs existed.

Data Analysis

Because my study included three distinct data collection methods (cooking procedure, surveys and interviews), I analyzed the results from each method separately and triangulated the results. I analyzed the results of the cooking procedure by conducting a cost-benefit analysis of each cooking method. I compared the cooking times and prices of each cooking method using the cost and time data I collected. Then, I entered the time and cost data into an Excel spreadsheet and generated bar graphs to summarize the results.

To analyze the close-ended survey responses, I categorized and coded the answers using Excel. Then, I used bar graphs to compare responses for each set of questions. I used data from the surveys to assess knowledge gaps, cultural obstacles and government policies. Each of the graphs I generated depicted how responses varied between each survey respondent.

I analyzed the data from interviews by comparing solar cooker sales, solar cooker demand, types of cookers sold and prices of cookers. I also used summary graphs to compare the data I received from each solar cooker vendor/manufacturer. Because interviews consisted of fewer questions, analyzing the data was not as extensive as the data from surveys. By analyzing all of the interview data, I determined how solar cookers were marketed and sold in Chandigarh. This in turn helped determine how solar cooker demand and supply influenced cooker use amongst retirees.

RESULTS

Study Site

I found that the homes in both study sites had similar features and were mostly double story houses. The majority of homes in the area had small to medium sized gardens in the front, an important factor when allocating cooker space. I collected 75 surveys from sector 2 and 67 surveys from Sector 6 so I completed a total of 142 surveys.

Results from Cooking

Results of the first stage of my cooking experiment showed that lentils took the longest time to cook using both a gas stove and a solar cooker whereas rice took the shortest amount of time using the gas stove and solar cooker (Figure 2).

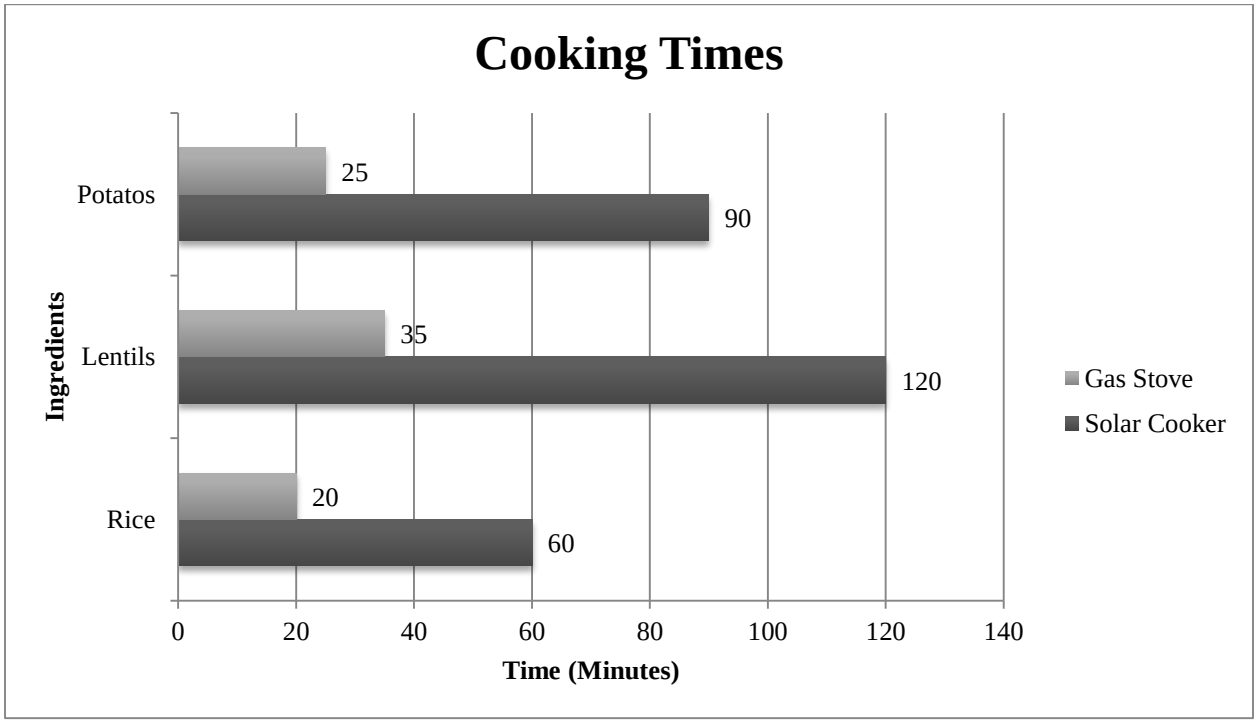

Figure 2. A comparison of cooking times for different food types using solar cookers and gas stoves.

Cost of Cooking Devices

I compared the cost of an LPG cylinder and a box-type solar cooker (Figure 3).

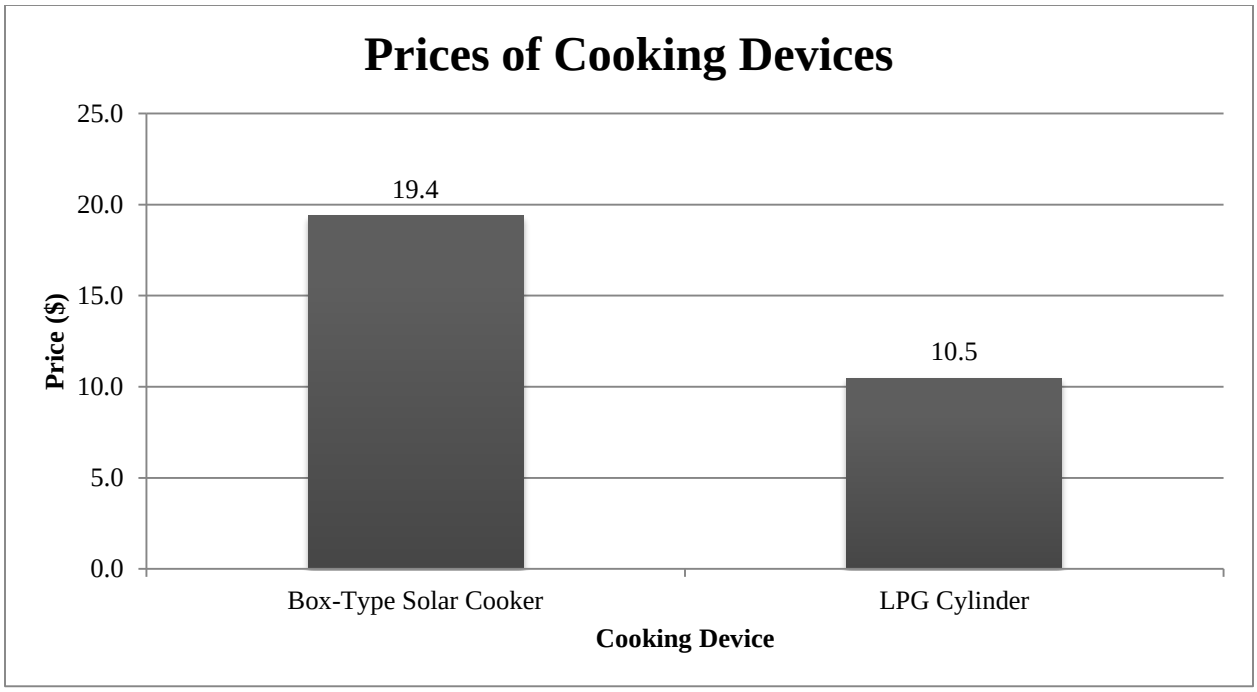

Figure 3. Prices of cooking devices in USD.

Although solar cookers require more time to cook food, they are a much cheaper option in the long-term because LPG cylinders have to be replaced when they run out of gas whereas solar cookers consist of a one-time fee after which it can be used free of cost (Figure 3). The price of the cooker listed here was subsidized; the actual price was $29.

Survey Data

From the 142 households I surveyed I received responses to all of the close-ended questions that were asked because they simply required yes/no responses. The responses to other, more open-ended questions varied because many respondents either left the spaces blank or did not provide substantial information. One of the questions asked people how many meals their household consumed daily (Figure 4).

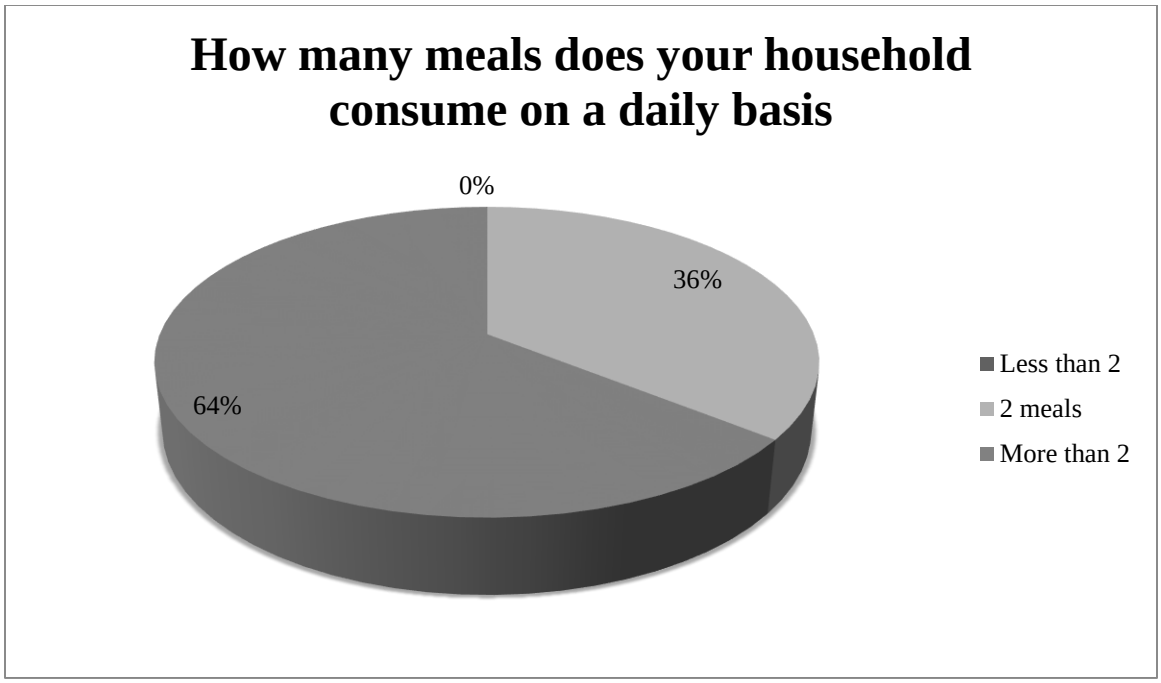

Figure 4. Number of meals consumed daily.

Most people cooked more than 2 meals a day and nobody cooked less than 2 meals a day. When I asked residents about the length of time it took them to cook meals, I left the question open ended because different households have different cooking styles so the time taken to cook meals varied among residents. After I analyzed the survey responses, I found that the average time it took to cook meals was between 30 minutes to an hour for most people. I then asked respondents which ingredients they used most (Figure 5).

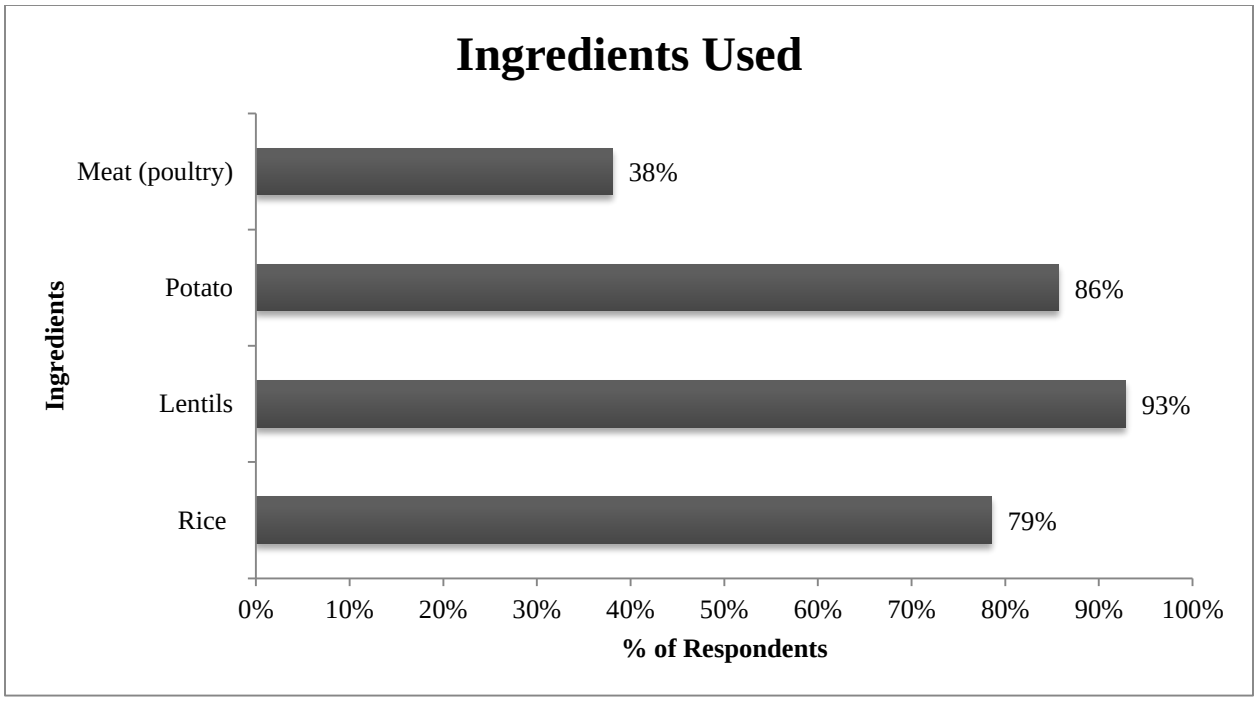

Figure 5. Ingredients used regularly.

Most of the residents used vegetarian ingredients more than they used non-vegetarian ingredients. Other, non-listed answers included eggplant, garbanzo beans, fish and eggs. The next set of questions tested resident knowledge of solar cookers and their functions (Table 1). These questions also tested resident knowledge about government subsidies.

Table 1. Responses to close-ended questions about cooker knowledge and government subsidies.

Questions (Yes/No Responses Only)	**Yes (%)**	**No (%)**	**N/A (%)**
Do you know what a solar cooker is?	42%	58%	
Do you know how a solar cooker works?	35.5%	64.5%	
Do you own a solar cooker?	6.3%	93.7%	
Would you ever consider buying/using a solar cooker?	40.5%	53.2%	6.3%

Questions (Yes/No Responses Only)	**Yes (%)**	**No (%)**	**N/A (%)**
Do you know of any government programs in place that subsidize cooker use?	27%	73%	
Would you be more likely to buy a solar cooker if the government subsidized it?	45.7%	48%	6.3%
Will knowing that the people who typically use solar cookers belong to poorer, rural communities affect your decision to buy/use a cooker?	0%	100%	
Will knowing that there are environmental benefits affect your decision to buy/use a solar cooker?	47.2%	46.5%	6.3%

I found that most people did not know what a solar cooker was or how it worked. A very small percentage of people actually owned a cooker and over half of the respondents would not consider buying a cooker. However, once I mentioned environmental benefits and government subsidies, the number of people willing to buy cookers went up by 7%. Most people did not know the details of the government subsidy programs in place even though they knew of the existence of subsidies. Of the few people that knew the details, they mentioned that the government does subsidize a good portion of the cooker cost but they were unsure of the numbers. The people that considered buying cookers wanted a subsidy range from 30% to about 50% of the cooker cost. When I asked people why they would not consider buying a cooker, many people said it was too inconvenient to use, while others left the open-ended question blank. Additionally, when I asked people if environmental benefits would affect their purchasing decision many respondents said they thought the device was inconvenient, even though they were aware of the environmental

benefits. When I asked people if knowing that poorer people use cookers will affect their decision to purchase a cooker, all of the respondents said no. They said that other people's use of the cooker has no relevance to their own use of the cooker.

I also asked retirees what their willingness to pay for a solar cooker was based on specific price ranges (Figure 6).

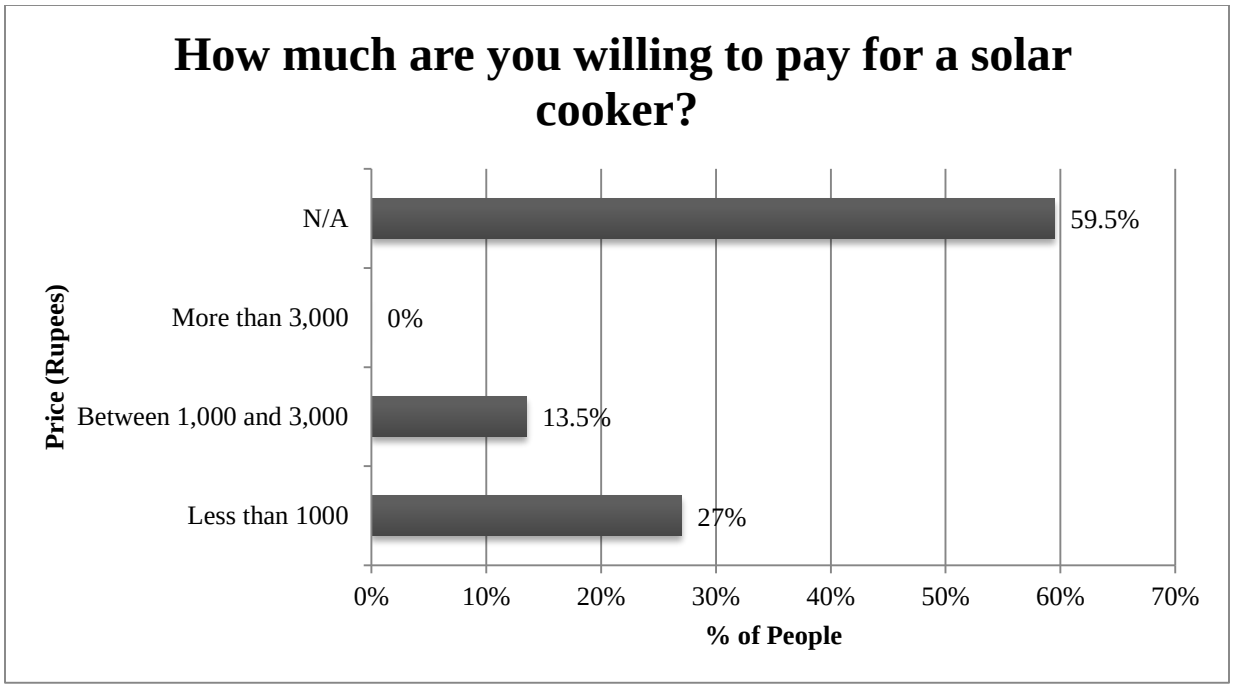

Figure 6. Willingness to pay for a solar cooker. The group of people that responded N/A includes the people who did not give a price range because they had not considered buying a cooker and the people who already own solar cookers.

Those who gave responses within the given price ranges are those who have considered or are considering buying cookers. This question was asked before there was any mention of a government subsidy program or environmental benefits so the willingness to pay might have changed if the question was asked towards the end of the survey.

Interview Data

My interview data was not as extensive as my survey data but provided me with a good idea of cooker demand and supply within the area. Interviews did not take as long as surveys to complete because they consisted of fewer questions. I retrieved information like sales and profit data and judged vendor knowledge of the government subsidy programs in place. Like the surveys, I received responses to all of the close-ended questions and a few of the open-ended questions (Figure 7).

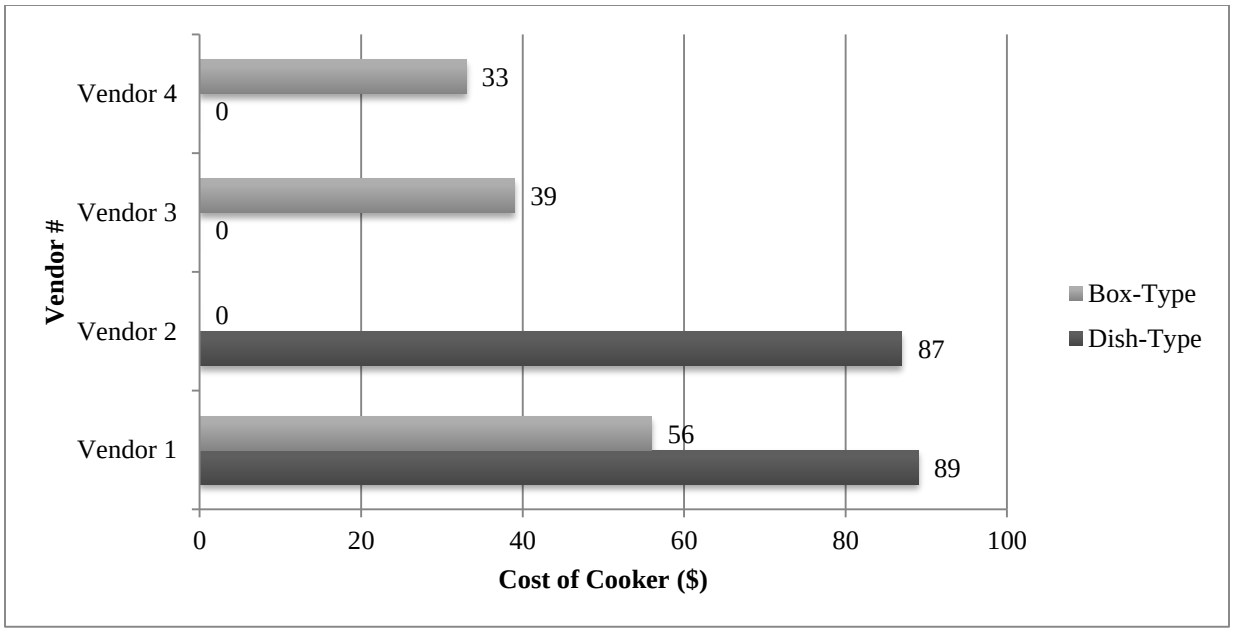

Figure 7. Cost of solar cookers sold by Vendors.

Vendor 1 sold 2,000 solar cookers but he did not have a very good idea of the quantities of each type of cooker sold. The vendor also claimed that there were government subsidy programs in place but they were not advertised enough. The cookers that he sold were not subsidized even though a subsidy program existed, which is why his cookers seem to be more expensive. Vendor 2 sold 1,300 dish-type solar cookers in the last year. He sold his cookers for $129 but the government subsidized $42, dropping the price to $87. Vendor 3 sold only 50 box type solar cookers per year. He sold cookers for $39 but the government did not provide any subsidies to go with it. This vendor said that the subsidies were ineffective, he did not mention anything about publicity or advertising. The fourth vendor sold about 1,000 box-type solar cookers at $33 in the last year. Similar to the previous vendor, this one's cookers were not subsidized. He mentioned

that the government subsidy program is still inefficient although it is gradually being improved. Overall, each vendor did make profits on their cookers (Figure 8).

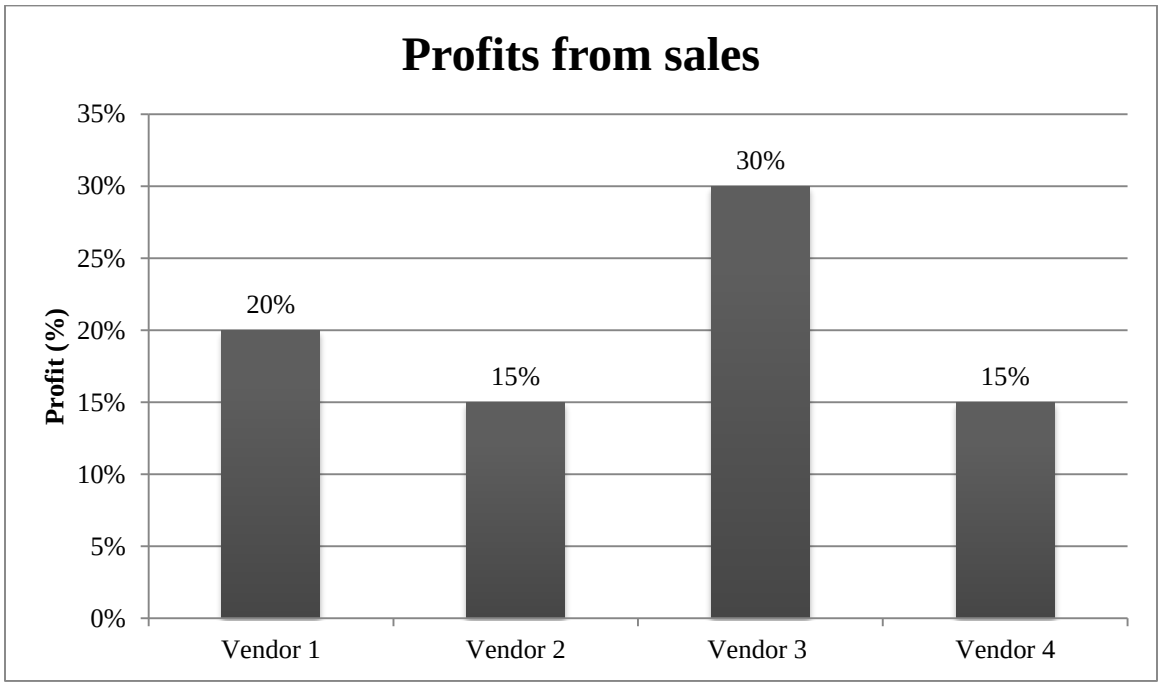

Figure 8. Vendor cooker profits.

The profit margins were relatively large but the quantities sold were not high enough for the actual dollar value of the profits to be substantial. Vendor sales information was disorganized so some of these numbers might not reflect the true profit margins. Although some vendors sold large amounts of cookers, they mentioned that most of their customers were part of the rural community.

DISUCSSION

My major findings show that cooker knowledge and use is very limited amongst retirees. The results proved that the majority of the surveyed population had very little knowledge about solar cookers and why the government programs in place were inadequate. Cooker dissemination has a large potential to improve but the government needs to make the public more aware of their

subsidy programs. The subsidies should also be improved to incentivize retirees to purchase cookers because cookers have recently become more expensive.

Implications of prices and cooking times on future solar cooker use

My results suggest that cooking times could be a major deterrent for cooker dissemination; it appeared to be the only major drawback of solar cookers. Findings from the cooking experiment showed that the cooking results were similar to those of other studies, which showed that the cookers took 2-3 times longer to cook food than gas stoves (Ahmad 2000). Even though box type cookers work well with intermittent cloud cover, the cooking times would have been lower in hotter months (Cuce and Cuce 2013). Lower cooking times might incentivize people to use cookers more often in the future. The longer cooking times from the experiment suggest that most people would avoid using cookers because they would find it too inconvenient.

My findings also proved that even though a small percentage of the study population used cookers, incentives to use cookers needed to be improved. Perceptions of the environmental benefits of solar cooking need to be improved as well if cooker dissemination is to increase. In terms of cost, solar cookers are generally more expensive than gas stoves but only consist of a one-time cost (Nandwani 1996). Gas stoves have to be constantly replaced, so expenditure on gas builds up over time. In 2013, the government increased LPG prices so gas stoves might become more unpopular in the future (Bharambe et al. 2013). The government could be trying to incentivize cleaner cooking methods by steadily increasing LPG prices over time. Although it might prove to be a useful strategy, there is no guarantee that people will switch to cooker use, especially in the near future.

Consumer Knowledge & Attitudes

As expected, Findings from the survey suggested that most people do not use or own solar cookers. A survey completed in various parts of India under Indian climatic conditions showed that people were not concerned with cooker use even though environmental benefits existed (Pohekar and Ramachandran 2006). People mentioned that ease of operation was an important factor when ranking their preferences for cooking devices. This can deter cooker use for people

uneducated in the various functionalities of solar cookers. Even though the study cited above assesses the parabolic solar cooker, ease of operation needs to be prevalent amongst all cooking devices. Cultural obstacles were not a factor in my study because 0% of respondents said that use by lower classes would not affect their own use. This might be due to the fact that respondents were generally well-spoken, which led me to assume they were well educated even though I did not formally ask for such information in my survey.

Government Subsidies

70% of survey respondents did not know about any government subsidy programs currently in place suggesting that the programs are not well advertised. Even though people did not explicitly express their opinions about the lack of subsidy knowledge, it could be attributed to inefficient involvement by the government, the entity responsible for advertising its programs to the public. In the study by Poherkar and Ramachandran , people who were aware of government subsidies and environmental benefits still said that they found cooker use to be inconvenient. In my survey, people were willing to pay an average of $14 for a cooker, which suggests that people are not yet willing to pay close to the market rate of $30. The lack of the willingness to pay poses a potential problem for diffusion given that cookers have become more expensive over time. Based on my survey results, which is what a good portion of respondents expressed in one of my open-ended questions, the government needs to become more involved and increase subsidies to over 50% of the cooker cost (Panwar et al. 2012).

Vendor Profitability

Findings from my interview data suggest that cookers have become more expensive over time and that the government does not subsidize all types of cookers. Most customers of the vendors I interviewed were members of the rural community, which shows that members of urban communities were not actively purchasing cookers. Based on the sales data showing the types of cookers sold, box type cookers were the most commonly sold and were the least expensive, so diffusion of this type of cooker might be easier than diffusion of other types of cookers (Panwar et al. 2012). Dish-type cookers were found to be more expensive because the parts were more

expensive than those of box-type cookers (Cuce and Cuce 2013). Box–type cookers generally take up less space than dish-type cookers, making it easier for smaller vendors to keep larger inventories.

Limitations

The experiment was designed to test cooker use amongst a specific group of people within a retired community, so the survey data might only reflect the opinions of this specific group and can vary elsewhere. My study site was chosen based on the proximity to an army base, so the army background of respondents might have had an influence on results. The Human Development Index was above 80% in the study site meaning that residents of the area are generally well educated. Well-educated retirees may be more willing to use cookers than less educated retirees/residents. I only looked at 142 surveys so my results might not be an accurate representation of the entire population's opinions. Additionally, I asked a limited number of questions, so adding more detailed questions would have provided me with more accurate responses. I only asked one question relating to cultural obstacles so the result might inaccurately prove my hypothesis to be correct. I expected cookers to be cheaper than what they were currently priced at; this was probably because some of the literature I reviewed looked at data from the early 2000's.

The Indian rupee has also been devalued relative to the USD since then, so prices of cookers might seem distorted. I did not ask many questions regarding government subsidies, so the hypothesis results might also be slightly inaccurate. With regards to vendor profits, they varied but the reliability of the data is doubtful because I was not allowed to see the actual sales data due to the privacy concerns of the vendors. Overall, I was still able to get a good sense of why most people did not use cookers despite the limitations presented above.

Future Directions

Looking into improving cooker use within the retired community can help diffusion of cookers into younger generations because of large interactions between the older and younger generations that are common in India. Looking at a larger area and surveying more people to get a more

accurate reflection of people's opinions on cooker use can improve the study. Conducting surveys in different areas of the country can also provide a larger outlook on the major problems with cooker diffusion. More detailed questions about why people did not want to use cookers would have helped in the analysis of my hypotheses. More organized information on cooker sales would have also allowed me to figure out where most cookers are being sold and whom they are being sold to. After analyzing the specifics of my study, I would want to analyze retired communities in different parts of India to see if their perceptions about solar cooking are similar or different. Given that the population in my study site had higher literacy rates, studies in areas with varied literacy rates will give me a better picture of retiree perceptions about cookers in the country. Looking at retirees who have different staple diets would also be relevant because the cooking times might increase or decrease, depending on the specific type of food. Conducting surveys in other areas would also allow me to see how involved other local governments are when it comes to advertising subsidy programs. More detailed surveys that could be mass distributed would also aid in providing more accurate results because my study was relatively small. Having access to specific sales and profit information from vendors would also allow for a more accurate sample of whom the cookers are currently being sold to.

Conclusion

My most important findings were that efficient government awareness and subsidy programs can likely improve cooker use, especially amongst the retired community. My findings exposed some of the major flaws in how solar cookers are sold to the general public. Out of the three hypotheses I tested, the knowledge gap and government subsidy hypotheses proved to be most accurate; many people are still unaware of cooker existence and the benefits they provide. If the energy demand continues to grow, alternative energy sources will become increasingly critical to meet these growing energy needs. My results suggest that one potential method to increase usage is the government needs to provide larger subsidies to incentivize retirees and other members of the population to use cookers. The LPG price hikes can steer people away from use of gas stoves but that does not mean solar cookers will become the immediate alternative, unless the government takes the necessary steps to improve cooker dissemination. Even though the most optimal methods of cooker diffusion are yet to be discovered, my study shows that cooker use amongst retirees can

not only make it a more economical method of cooking for retirees, but also make passing down the knowledge of cooker use to younger generations easier. Solar cookers have a large diffusion potential amongst retirees in India because many of those I surveyed expressed a positive attitude towards cookers, even though some were not yet ready to commit to using them.

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APPENDIX

Survey Questions

Please circle the most relevant answer and provide any additional information where required

1. How many meals does your household consume on a daily basis*?*

   Less than 2 meals 2 meals More than 2 meals

2. Which of the following ingredients do you use on a regular basis? (You may circle more than one response)
   - Rice
   - Lentils
   - Potato
   - Meat (Poultry)
   - Other (Please Specify)_____

3. On average, how long does it take you to cook meals?

4. What device do you use to cook your meals?

   Electric Stove Gas Stove Solar Cooker

5. Do you know what a solar cooker is?

   Yes No

6. Do you know how a solar cooker works?

   Yes No

7. Do you own a solar cooker?

   Yes No

8. Would you ever consider buying/using a solar cooker? Why or why not?

   Yes No

   _____
   _____
   _____

9. How much are you willing to pay for a solar cooker?

   Less than Rs. 1000 Between Rs. 1,000 – 3,000 More than Rs. 3,000

10. Do you know of any government programs in place that subsidize cooker use? If so, please describe the details

    Yes No

    _____
    _____
    _____

11. Would you be more likely to buy a solar cooker if the government subsidized it? If yes, how much of the cooker would you want them to subsidize?

    Yes No

    _____
    _____
    _____

12. Will knowing that the people who typically use solar cookers belong to poorer, rural communities affect your decision to buy/use a cooker? Why or why not?

    Yes No Maybe

    _____
    _____
    _____

13. Would knowing that there are environmental benefits affect your decision to buy/use a solar cooker? Why or why not?

14. Additional Comments:

Interview Questions

Please circle the most relevant answer and provide any additional information where required

1. On average, how many solar cookers do you sell every month*?* Every Year?

   _____
   _____
   _____

2. How many rupees do you sell your cookers for?

   _____

3. Are there any government subsidy programs in place that incentivize cooker use?

   Yes No

   If so, please explain how the government advertises its subsidy programs to the public:

   _____
   _____
   _____

4. What types of solar cookers do you make/sell? *Please circle the most relevant answer*

   - Box-type
   - Parabolic
   - Dish-type

5. How much profit do you make from cooker sales?

   _____
   _____
   _____

6. Additional Comments:

   _____
   _____
   _____
   _____