



Women and clean cook stoves

Energy Briefing Paper

This briefing paper explores the opportunities and challenges for women of switching from inefficient wood-burning cook stoves to clean cook stoves, based on primary research conducted in rural Chin State, Myanmar.

"We would like to learn the technical knowledge on clean cook stoves and use the materials that are available locally. We want you to share the knowledge with the local people."

Dr. Phway Phway, Kanpetlet

Introduction

Over 90% of households in rural areas of Myanmar rely on firewood or charcoal for cooking.¹ In many cases, inefficient wood-burning cook stoves are used. Using an inefficient wood-burning stove is expensive, time-consuming (since wood collection is a time-consuming activity) and can have negative impacts on health and the local environment. These negative impacts generally fall disproportionately on women.

The problems created by inefficient wood-burning stoves are linked to various issues such as gender inequalities, health problems, safety and food security, but also national and international issues such as deforestation and climate change. Policies are needed that promote a shift towards cleaner and more efficient cooking methods.^{2,3}

Several different types of clean cook stove have been developed. These include efficient wood-burning stoves, electric cook stoves or rice cookers, and gas-burning cook stoves. Using clean cook stoves can help to reduce negative health impacts and decrease the strain that wood collection places on the environment.⁴

Methodology

This briefing paper summarises the findings from primary research conducted in the township of Kanpetlet and in the surrounding villages in November 2017. Semi-structured interviews were held with five women in the villages who use inefficient cook stoves, one woman in Kanpetlet who uses an efficient wood-burning stove, and one woman in Kanpetlet who uses an electric rice cooker. Interviews were

also held with NGO representatives, clean cooking experts and a doctor. The interviews were filmed and used as the basis for a short video called "Cooking in the Clouds: Women and Clean Cook Stoves".⁵

Importance of clean cook stoves for women

Switching from inefficient wood-burning cook stoves to clean cook stoves such as efficient wood-burning stoves or electric cook stoves⁶ is a high priority for women in rural areas and such a switch is likely to have a strong positive impact on rural communities. In the villages surrounding Kanpetlet, all the households visited used inefficient wood-burning cook stoves. Kanpetlet itself was recently connected to the grid so some households there now use electric



Photo by Gregory Briner

rice cookers. In all of the households interviewed, women did the cooking regardless of which type of cook stove they used. In many cases it was also the woman of the household who decided what type of cook stove to use. Women are also often responsible for cutting and collecting firewood.

Cost

The women using inefficient wood-burning stoves estimated their annual household spending on firewood to be between 40,000 and 700,000 kyats. The price of a single bundle of firewood (4 ft x 4 ft x 1.5 ft) was between 30,000 and 40,000 kyats. One woman said she usually only needs to buy one bundle annually because she collects the rest of the firewood herself. A woman who switched from firewood to electricity for cooking estimated that she saves about 180,000 kyats every year, while a woman who switched from an inefficient to an efficient wood-burning stove estimated that she has reduced her firewood consumption by about two thirds. Further, her husband made the stove himself using mud so the initial cost was very low.

"I save at least two hours per day [by using an electric rice cooker]. Annually, for us, around 180,000 kyats is saved. We are able to do more donations and can have the meals we would like to have."

Daw Dawt Hnem, Kanpetlet

Clearly the potential cost savings depend on whether the household in question buys their stove and their firewood, or if they make the stove and collect all the wood themselves.

Economic models in women's minds

Interestingly, all seven women interviewed believed that their type of cook stove was the cheapest option. The women using inefficient cook stoves tended to look at the short-term cost of buying a new cook stove, while the woman that used an efficient cook stove argued that she now can use less firewood and that makes it cheaper in the long term.

"[The efficient wood-burning stove] saves a lot of time. We have more time for [food] preparation. By using this stove, we reduced our use of firewood by two thirds. I use the money saved from buying firewood for donations."

Daw Awe Htar Htang, Kanpetlet

The economics also look different if the cost of time is included. One woman mentioned that she would have more time to work and earn money if she could spend less time on collecting firewood. Firewood is collected several times a week and each trip typically lasts 2-5 hours. Another factor is the cost of healthcare for accidents and smoke-related illnesses. Inclusion of these economic externalities would provide an even stronger incentive for investing in clean cook stoves. Further valuable research is warranted on women's estimates of the value of indirect costs and lost opportunity costs associated with using inefficient cook stoves.

"As the place where we collect firewood is far away, we can only get one basket per day and it takes about four or five hours."

Daw Htin Naing, Saw Chaung village

Health and safety

The doctor interviewed in Kanpetlet explained how the smoke produced by inefficient wood-burning cook stoves can cause respiratory illnesses such as asthma and lung diseases. The worst affected are typically the women who do the cooking as well as children and people with existing medical conditions. Most households in Kanpetlet Township do not have a separate kitchen and cooking is done inside the house.

"Women stay in kitchens and breathe the smoke and get smoke-related diseases. Now some who don't smoke cigarettes are at the hospital with asthma and lung-related diseases."

Dr. Phway Phway, Kanpetlet

"I am concerned about using [inefficient wood-burning stoves]. I am worried about children cooking while their parents are away working in the fields."

Daw Naing Hlue, Ma Kyauk Ar

Wood-burning stoves can also cause burns (particularly for children) and accidents can happen while collecting, carrying and cutting firewood. The doctor estimated that around 50 people per year in Kanpetlet Township are treated for burns and other medical problems caused by cook stoves or firewood collection.

"In the last 20 years, the most common cause of fires has been cook stoves... In 2016, six children died in a fire caused by a cook stove."

Fireman in Kanpetlet

Electric cook stoves also have health and safety risks. The risk of electric shock was mentioned by the doctor as well as several of the women interviewed. It is important that electric cook stoves are safe so people feel comfortable buying them. One woman said she is afraid that the electric cable will cause burns. However, all women who currently use inefficient wood-burning stoves thought it would be safer to use electricity than their current cook stove. One woman said she would want to switch if electricity is proven to work fine.

Environmental impact

Not surprisingly, the households using inefficient cook stoves perceive them as dirty while the households using efficient wood-burning stoves

or electric cook stoves perceive them as clean. The women interviewed think that electric stoves are better for the environment than wood-burning stoves. They are concerned about loss of the surrounding forest and said that firewood collection is one of the main uses of the forest.

Reduced forest cover can have several negative consequences on the local environment, such as loss of animal habitats and increased risk of landslides. It also makes firewood collection more time-consuming because people need to go further afield to find firewood. Further, all households had heard of climate change and were concerned about its impact on the community.

"The consequences of cutting down trees are less forest, which used to be thick."

Daw Htin Naing, Saw Chaung

Taste

The type of cook stove that women think make the food taste best should not be neglected. Most of the women using an inefficient wood-burning stove said that the taste is better when using firewood and they are a bit sceptical of food cooked using electricity. One woman said that it feels good to pour out the water herself from the pot after cooking rice (using a wood-burning stove), though another said she thinks that rice tastes better using an electric rice cooker and the absorption method of cooking. One woman argued that the food retains more nutrients if an electric rice cooker is used and the water does not need to be poured out.

"Pouring out the water from the rice pot ourselves feels good."

Daw Hnin Hnin Aye, Saw Chaung

Both the woman using an efficient wood-burning stove and the woman using an electric rice cooker thought



Photo by Denny Edvinsson



that wood-burning stoves make the food taste best. Interestingly, the woman using an efficient wood-burning cook stove said she did not want to use electricity (despite the fact that her home was connected to the grid) because of the taste. The taste of the food is often overlooked when discussing how to promote clean cook stoves but it is an important consideration.

"I think wood-burning stoves makes the food taste best. Electric stoves are different. For instance, when cooking chicken, they reduce its taste."

Daw Awe Htar Htang, Kanpetlet

Future prospect

All the women interviewed who were using inefficient wood-burning stoves were aware of the existence of clean cook stoves. The woman using an efficient wood-burning stove said that she encourages others to switch to an efficient cook stove like hers. However, many women seemed to lack information about where and

how to buy efficient wood-burning stoves in Kanpetlet Township.

"I have seen other people using efficient wood-burning stoves. We have relatives who are using them. In the past, I never saw anyone using them but now I do."

Daw Hnin Hnin Aye, Saw Chaung

The doctor said the transition to clean cook stoves will be slow and he is worried that people do not know how to use the new technologies properly. Some households currently using inefficient cook stoves may be waiting to buy electric cook stoves later instead of buying efficient wood-burning stoves now (efficient wood-burning stoves are available in Kanpetlet for around 4,000-4,500 kyats).

"People in town use [clean cook stoves] as they have electricity but not here as we do not access to the power grid. If we get access, we would like to cook with electricity."

Husband of Daw Hnin Hnin Aye, Saw Chaung

All the women interviewed who were using inefficient cook stoves think that their cooking method will change within ten years. The ones using clean cook stoves think it will remain pretty much the same. Interestingly, when asked about the future, many women said they thought the biggest improvements in their kitchen would come from having better food options available and improving their cooking skills, rather than changing the type of stove they use.

Notes and references

1. Ministry of Labour, Immigration and Population (2015), *The 2014 Myanmar Population and Housing Census*.
2. IIASA (2012), "Energy Access for Development", *Global Energy Assessment*, Chapter 19.
3. UNDP (2013), *Accelerating energy access for all in Myanmar*.
4. Emerging Markets Consulting (2015), *Myanmar Cookstoves Market Assessment*.
5. The video will be made available on the Spectrum website once completed.
6. Natural gas stoves are another type of clean cook stove, but natural gas was not used for cooking in any of the households visited in Kanpetlet Township.



Recommendations

- Greater awareness among communities is needed of the negative impacts of inefficient wood-burning cook stoves, as well as where to buy clean cook stoves and how to use them.
- The development of quality and safety standards for electric cook stoves and efficient wood-burning stoves in Myanmar could greatly help to accelerate market uptake.
- Designing bamboo houses well is important – having a separate kitchen area can help to reduce the impacts of breathing smoke and reduce the risk of fire from inefficient wood-burning stoves.
- The taste of food cooked on different types of stove is an important factor and may be a larger than anticipated impediment of switching to either more efficient wood-fired stoves or alternative fuel use. Further research on this is needed to better understand the barriers for switching and how to overcome them.
- Further work on the economics of switching between cook stove types is warranted based on women's estimates of the value of indirect costs and lost opportunity costs associated with using inefficient wood-burning stoves.
- Supporting further research and development of alternative clean cooking technologies such as solar cooking using batteries could be highly beneficial.

Further reading

Gamos (2017), *Solar Electric Cooking*, <https://elstove.com/>.

Geres and EMC (2015), *Myanmar Cookstoves Market Assessment*, <http://cleancookstoves.org/resources/404.html>.

Mercy Corps (2016), *Envirofit Partner Spotlight – Mercy Corps Myanmar Stoves Campaign*, <http://envirofit.org/envirofit-partner-spotlight-mercy-corps-myanmar-stoves-campaign/>.

Acknowledgements

This briefing paper was written by Denny Edvinsson and Gregory Briner. The authors would like to thank David Allan and Natalie Fuller for their helpful comments. Financial support for this project was kindly provided by Tearfund. Cover photo by Denny Edvinsson.