

Safety & Consumer Education – The GenteGas Pilot



Converting Families to Clean Burning Stoves and Fuels in Guatemala

WLPGA member GenteGas is a high-impact social enterprise dedicated to improving the quality of life of families in Guatemala.

This case study looks at GenteGas' project to deliver affordable gas stoves and household health education to low-income families exposed to toxic levels of wood smoke.

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1. Identifying the Issue

In a global context cooking smoke is the fifth worst threat to public health in the developing world. Household air pollution (HAP), from burning wood, charcoal, dung, agricultural waste and other solid biomass cooking fuels, affects 2.7 billion people worldwide which is some 38% of humanity. This toxic cooking smoke is responsible for over **four million deaths a year** which is more than deaths from malaria, HIV/AIDS and tuberculosis combined.



HAP is also associated with pneumonia, chronic obstructive pulmonary disease, lung cancer, tuberculosis, cardiovascular disease and adverse neonatal outcomes.

In Latin America, indoor smoke from solid fuels annually causes 10,000 deaths and 298,000 years of life lost (WHO). In Guatemala, fifteen Guatemalans die every day in the country from cooking with wood and a staggering **7.7 million people** are affected by HAP. Guatemala has the highest percentage of disease attributable to solid fuel use in Central America (WHO). Wood fuel, used by 97% of rural households in Guatemala, is responsible for death and major health issues such as acute respiratory infections, chronic obstructive pulmonary disease, low birth weight, perinatal mortality, asthma, tuberculosis, cataracts, and cardiovascular disease (WHO). Acute respiratory infection is the single most common cause of morbidity and mortality Guatemala (WHO) and many of these deaths are associated with solid fuel use. Research has also shown that efficient wood burning stoves do not in fact reduce the risk for acute respiratory infections such as pneumonia (Smith 2011). HAP from solid fuels is the second leading risk factor for disease in Guatemala. A further effect of cooking with wood is deforestation and from 1990 to 2010, Guatemala lost 23% of forest cover (World Bank).

FACT: Household air pollution (HAP) from burning wood, charcoal, dung, agricultural waste and other solid biomass cooking fuels affects **2.7 billion people** worldwide - 38% of humanity - and causes **over 4 million premature deaths a year**.

2. The GenteGas Solution

GenteGas is the first social enterprise to offer market-based affordable gas stoves to low-income families exposed to toxic levels of wood smoke. The project's unique approach deploys women entrepreneurs to sell gas stoves and provide education about avoiding HAP for a healthier and safer environment.

The proposed solution is to use clean burning and reliable LPG stoves via a micro-enterprise development programme that teaches entrepreneurship and financial literacy. The recruitment model continuously identifies, engages and trains women entrepreneurs for the GenteGas women entrepreneur network. GenteGas offers the stove, tank, tubing and regulator in a single affordable package along with the ability to finance the entire package over one to three years. GenteGas also offers community education and maintains a

partnership with the local municipalities in which it works to provide free pressure cooker cooking classes, which include consumer safety and health education topics. The municipalities through the local Office of the Woman support these classes. The Association of Guatemalan LPG Companies works with GenteGas to provide LPG tank maintenance and refilled tank deliveries to the women entrepreneurs, and in turn GenteGas works directly with Guatemalan LPG providers to supply the refill of cylinders. Currently, the biggest barrier to adoption of LPG is due to lack of access to credit mechanisms to support financing the stove package. Due to the lack of interest from big banks and local microfinance institutions to offer credit, GenteGas developed an in house credit mechanism to serve these families.

3. The LPG Market in Guatemala

With an estimated population of around 15.8 million, Guatemala is the most populous state in Central America. The LPG market in Guatemala has less than 3% annual growth rate for new adoption, however there are an estimated 2.1 million households which can afford to adopt the fuel. The three main national gas companies have no market penetration strategy for this critical bottom of the pyramid and increased or fluctuating gas prices inhibit customer sales.



4. Why LPG?

Cooking with wood has been the norm in Guatemala for generations and so one concern was that the population would be uninterested and reluctant to change their traditional methods and switch to LPG for cultural and historical reasons. GenteGas conducted a comprehensive market survey to aim to understand the population's interest and appetite in what could ultimately be a lifesaving switch. Interestingly, the results of the survey showed that respondents did not particularly highly value wood for its tradition and most respondents mentioned increased cooking speed as a key reason to use LPG.

The other most compelling reasons stated to adopt LPG were safety, health issues, lack of smoke, no need to wait for the fuel to burn and become hot, and no need to gather wood. When looking at wood, the survey showed that the main reasons families continue to use wood are that it's accessible, cheap, there is nevertheless an element of tradition and also that gas is perceived as scary.

The other main perceptions of LPG were found that whilst it is perceived as scary it is also recognised for being healthy and reliable. GenteGas is confident that good training materials will provide the opportunity to show that LPG is not only healthy but a safe cooking alternative.

Whilst the survey identified several barriers to adoption of clean cook stoves, any barriers or hesitation to convert would be decreased or even eliminated following a high level of awareness of the benefits of LPG. One major barrier is the large capital outlay to purchase a stove therefore access to micro-lending, plus an increased understanding of how to manage household savings and manage finances, is a very important part of the project.

In a 2014 study of 3,593 households in Alotenango recently completed by the Universidad del Valle (UVG) and the University of California San Francisco (UCSF), 81% of wood



users are women that purchase all or a portion of their wood fuel, spending an average of \$10 more per month on cooking fuel than gas users. A GenteGas market study of 300 households in 2011, determined that 90% of wood users would be interested in switching to a gas stove and 76% would be able to afford monthly stove payments and fuel costs.

The UVG and UCSF study on families that were interested in purchasing LPG stoves, shows that 71% of households would prefer to buy a stove using credit rather than purchasing outright. Income for these households was predominantly generated in the informal economy. Of the 1,021 households surveyed about income, 84.7% of primary income and 66.7% of secondary income were generated in the informal economy (cultivation, household help, temporary work, etc.). These findings support the conclusion that while many of GenteGas' target customers are interested in product financing, most will be unable to obtain credit because of their participation in the informal economy, which often results in the inability to supply the required income documentation to local banks. Therefore the GenteGas in-house financing option is crucial to the success of the pilot.

Another interesting finding is that often several families live in the same household, and whilst they purchase and cook their food separately they then all eat together. Each household may require a different stove for each family unit, indicating that the market is potentially larger than originally thought.

5. How GenteGas Works

GenteGas begins by recruiting local community leaders from different communities to become GenteGas sales agents. The GenteGas sales agent participates in a micro-enterprise development programme that teaches sales techniques, customer service, empowerment and leadership. Typically GenteGas tries to identify and engage women as the primary sales agents. Any time a sales agent visits a potential customer the family will receive education about the health consequences of cooking with wood and learn behaviour modifications to reduce health risks.

Families interested in financing participate in a household financial analysis and household savings plan, before their loan is approved by GenteGas. At the time of the installation, GenteGas provides LPG safety training and explains ways that they can reduce fuel consumption. After the customer receives their stove package the GenteGas sales agents are paid a commission and sales goal bonuses. Traditionally with women sales agents this income is invested in education, healthcare and better nutrition for the family.



6. What's in a Starter Package?

A comprehensive starter pack includes all the basics necessary to switch to clean burning LPG:

- The stove with a variety of number of hobs
- 25lb filled LPG cylinder
- Cylinder regulator, tubing and claps
- Cylinder maintenance provide by GenteGas LPG partners
- Uncollateralised financing of the LPG Starter Package (12 monthly payments)
- Household education and awareness information concerning toxic cooking smoke
- LPG safety and handling education
- Optional pressure cooker

7. How does GenteGas Help?

By adopting the exceptional energy that is LPG there is a wealth of direct and indirect benefits.

Chronic and acute illnesses are reduced and the number of deaths associated with household air pollution is lowered. Indirectly there are cost savings associated with the healthcare and medicines needed to treat these toxic cooking smoke related illnesses. This also increases public awareness of the health risks associated with solid fuel use and offers public education on safety and correct handling of LPG. Education on finance and loan management given typically to

the female head of households increases their financial literacy. Identifying women sales agents at a local level provides for new economic opportunities, which generates income for these sales agents and promotes local business development. Under-served families have access to financial services and assistance during the loan application. The time saved by cooking with LPG makes time for other income generating activities and education. Finally, cooking with clean burning LPG decreases harmful emissions and pressure on local forests. Deforestation is a serious side effect of cooking with wood.

8. What's Next for GenteGas?

The project plan commenced in October 2014 with secure investment and strategic alliances with Universidad del Valle Guatemala, the U.S. Centers for Disease Control, and University of California San Francisco. This was closely followed by the launch of operations on a district by district basis with the goal that by 2019 65,000 households will be using clean burning fuel; 650,000 households will have received house-hold air pollution education; \$12.5 million USD annual revenue.

As the project has progressed a number of changes have been applied to the model, mostly the fact that most consumers do not qualify for credit with the banks and MFIs so special special

loan products have been created for them.

GenteGas is creating a community of healthier families, training sales agents to generate income for their families and increasing health education in the household. Most importantly the families benefit from using this clean burning fuel which reduces the incidents of disease and death related to solid fuel use. Families can trust that their new LPG stoves can indeed produce these increased benefits. What is globally accepted is that cooking should not kill and so this is a project to be watched and a model that could be rolled out further in the worldwide challenge to cook safely.



Key figures in the GenteGas Survey:

- 69% of respondents said that gas would be their preferred fuel of choice.
- 90% of wood users expressed an interest in switching to gas after learning of the health benefits.
- 82% of respondents thought that it was very important to have a cooking method that does not produce health problems.
- Only 16% of respondents had a solid understanding of loan management.
- 76% of wood users would be able to afford monthly stove payments and fuel costs.

7. The Teams and Acknowledgements

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