

Focus on Converting Families to Clean Burning Stoves and Fuels



The GenteGas Project in Guatemala - A WLPGA Case Study

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.

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**. That's more than HIV/AIDS, malaria, and tuberculosis (TB) combined. Exposure to HAP is associated with pneumonia, chronic obstructive pulmonary disease, lung cancer, tuberculosis, cardiovascular disease and adverse neonatal outcomes. This project is the first social enterprise to offer market-based affordable gas stoves to low-income families exposed to toxic levels of wood smoke. This project's novel approach deploys women entrepreneurs to sell gas stoves and provide education about avoiding HAP for a healthier and safer environment.

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1. The Mission

GenteGas' mission is to reduce the entry costs of clean burning stoves and fuels as well as provide income generating opportunities to women with the purpose of eradicating toxic cook smoke and the associated disease and death, increasing public awareness about health risks from solid fuel use, alleviating the pressure on local forests, promoting local economic development, and increasing the quality of life for families in Guatemala.



2. The Issue

Cooking smoke kills over four million per year and toxic cooking smoke is the fifth worst threat to public health in the developing world, causing two million premature deaths per year. Women and children are most at risk (WHO).

In Latin America, indoor smoke from solid fuels annually causes 10,000 deaths and 298,000 years of life lost (WHO). 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 Guatemala's single most common cause of morbidity and mortality (WHO). From 1990 to 2010, Guatemala lost 23% of forest cover (World Bank).

Research has shown that efficient wood burning stoves DO NOT reduce the risk for acute respiratory infections such as pneumonia (Smith 2011).



The LPG Market in Guatemala

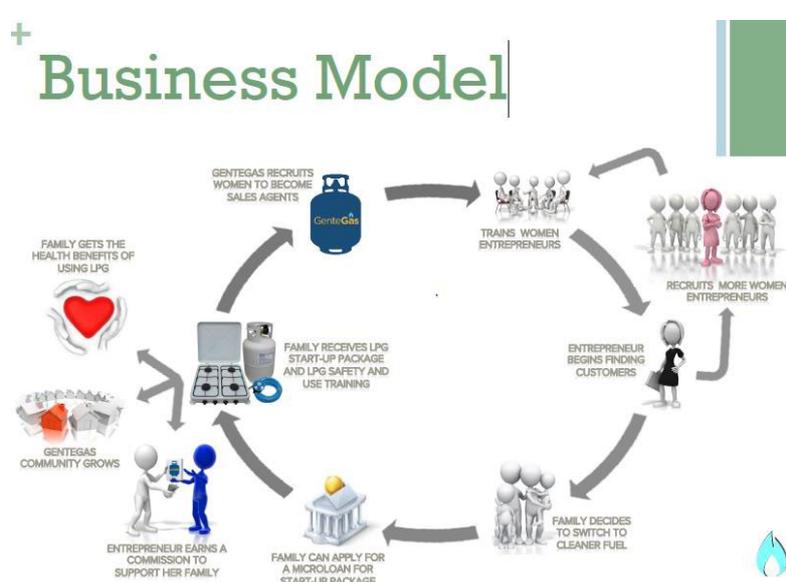
- Has a less than 3% annual growth rate for new adoption BUT **2.1 million households** which can afford to adopt the fuel
- The three main gas companies have no market penetration strategy for the bottom of the pyramid
- Increase and fluctuation in gas price inhibit customer sales
- An estimated **seven million** cylinders exist in the market from Zetagas, Grupo Tomza, DA-GAS and others
- **7.7 million** people are affected by HAP in Guatemala (WHO)

3. The GenteGas Solution

- Use clean burning and reliable LPG stoves and gas.
- Offer the stove, tank, tubing, and regulator in an affordable package.
- Offer the ability to finance the entire package over 1-3 years.
- Sell LPG in smaller tanks to make it more affordable and accessible to families with low cash on hand Use a woman-to-woman sales force to educate communities about the health risks (social marketing) and build and extend the supply chain.
- Use advertising revenues to subsidise the cost of the stove package and give the women entrepreneurs a higher profit margin.
- Partner with local Guatemalan corporations to source the products.

4. A Unique Business Model

- The Association of Guatemalan LPG Companies works with GenteGas to provide LPG tank maintenance and refilled tank deliveries to GenteGas women entrepreneurs.
- GenteGas works directly with Guatemalan LPG providers to supply the refill of LPG tanks and secure a separate inventory of GenteGas tanks.
- GenteGas trains women entrepreneurs to run and manage their own LPG dispensaries.
- Women entrepreneurs sell 10 and 25 lb refilled LPG tanks to families who have adopted LPG.
- LPG sales become another source of a woman to support her family.



5. The Benefits

- Reduce acute and chronic illnesses and lower the number of deaths.
- Cost savings associated with healthcare and medicine needed to treat toxic cooking smoke related illnesses.
- Increase public awareness of health risks associated with solid fuel use.
- Create economic opportunities at the local level and generate income for women entrepreneurs.
- Time saved cooking and the ability to start other income generating activities.
- Decrease harmful emissions and pressure on local forests.
- Provide access to financial services to underserved families.
- Promote local business development.

Household Fuel Use

The target market is current wood only users who purchase wood.

21 million households

Strategy is woman to woman sales and community based household health education sessions.

Only 19% is LPG only

22% LPG and wood

59% wood only

6. What's in the LPG Starter Package

- Two or four Burner Table Stove or three or four Burner Industrial Stove
- 10lb or 25lb LPG Tank
- Regulator and Tubing
- Optional: Pressure Cooker
- LPG Refills for 10lb or 25lb tanks
- LPG "Expendio" managed by women entrepreneurs
- Maintenance provided by GenteGas LPG partners
- Uncollateralised financing of the LPG Starter Package Social Marketing
- Provide Household Education & Awareness Regarding Toxic Cooking Smoke
- Provide LPG Safety & Handling Education

7. A Comprehensive Market Survey Undertaken by GenteGas

Cooking with wood has been the norm in Guatemala. One potential concern was that the population would be uninterested in switching away from wood for cultural reasons.

However, the survey showed that respondents did not highly value wood for its tradition and most respondents mentioned increased cooking speed as a key reason to use LPG.

Interesting finds:

Top 8 reasons to adopt LPG were

1. Cook faster
2. Safer
3. Healthy
4. No smoke
5. No waiting for wood to burn
6. Makes more food
7. Cheaper
8. No wood gathering

Top 8 reasons to use wood were:

1. Accessibility
2. Cheap
3. Free
4. Large quantities of food
5. Gas is scary
6. Faster for cooking
7. Traditional food
8. Tradition

Top 4 Perceptions of LPG

The top perception of LPG was scary albeit very closely followed by healthy. Whilst this is a short term concern, GenteGas is confident that good training materials will provide the opportunity to show that LPG is safe and reliable.

1. Scary
2. Healthy
3. Reliable
4. Costly

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.

5. Survey Conclusions

The survey identified several barriers to adoption of clean cookstoves, however this willingness is greatly increased after a better level of awareness of the benefits of LPG. A 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 an important part of the project.

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

6. The Project Growth Plan

The project plan commences in May 2014 with secure investment and strategic alliances with Universidad del Valle Guatemala, Center for Disease Control, and University of California San Francisco.

This is 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 in annual revenue.

7. The Teams and Acknowledgements

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