

Clean cooking in Guatemala: Magnitude of the clean cookstove market and decision factors for LPG scale-up

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Objectives

- **Overview** of the cookstove sector of Guatemala and exploration of **future needs** in clean cookstoves
- **Focus on LPG in urban and periurban areas:** How to upscale LPG use and motivate households to complete the transition from firewood to LPG? Results from focus groups in Guatemala

The cookstove sector in Guatemala (1/2)

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Population and poverty

- 14.7 million people, **51% in rural areas**, 23 different languages
- **54% of the population under the poverty line** (13% in extreme poverty).

Fuel usage for cooking

- Around **70% of households use firewood** for cooking
- **45% use LPG** mostly in urban areas
- Total firewood + LPG > 100% since **fuel stacking** is frequent
- Around **60% of households buy** a part of the wood they consume (only 35% of households buy all the wood)

Annual wood deficit

- More than **5 million tons** of dry wood equivalent.

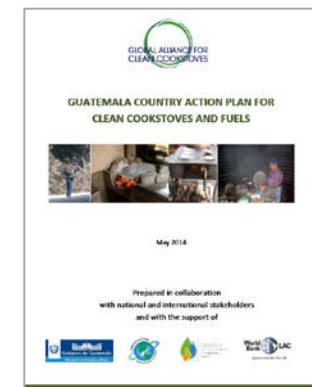
Health burden of solid fuel use for cooking

- Household Air Pollution (HAP) accounts for economic losses equivalent to around **1% of Guatemala GDP**.
- More than **5000 deaths (all ages)** in 2010 due to HAP.



http://www.cleancookstoves.org/resources_files/guatemala-market-assessment-1.pdf

http://www.cleancookstoves.org/resources_files/guatemala-market-assessment.pdf



http://cleancookstoves.org/resources_files/guatemala-country-action-plan.pdf

http://cleancookstoves.org/resources_files/guatemala-cap-annexes.pdf

The cookstove sector in Guatemala (2/2)

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Theoretical market potential

- From **0.7 to 1.4 million** households
- Main uncertainty: how to reach the **non-extreme poverty** segment?

Many projects and cookstoves

- Portable stoves and built-in plancha
- **Lack of coordination** and learning,
- Lack of **awareness** and **capacity-to-pay** of the population
- Many **donations**

Favorable energy policy framework

- **National Energy Policy (2013-2027)** : 100,000 efficient biomass stoves, substitution of firewood in 25% of households.
- **National Strategy for the Sustainable Use of Wood (2014)** : 65,000 efficient cookstoves per year over 10 years.
- **Inter-Institutional Wood and Energy Roundtable** : dialogue and consensus-building on public policies.
- No national standards, but **testing laboratory** under development
- **Focus country** of the Global Alliance for Clean Cookstoves since 2014 => Action plan available



NOYA (\$155)



ONIL (\$125)



ECOCINA (\$60)



IN-SITU (\$130-\$270)

Focus on numbers:

How many cookstoves are needed to reach the universal access to clean cookstoves?

1

Pessimistic

No specific action is taken, share of households that rely on traditional cooking practices remains constant

2

Wood Strategy

Goal of 65,000 cookstoves/yr over 10 years is reached.

3

Wood Strategy and LPG Target

Wood strategy + substitution of firewood by other fuels in 25% of the households

What is missing to reach SE4ALL by 2030?

2.8 million households
400,000 stoves per year

2.4 million households
328,000 stoves per year

1.7 million households
242,000 stoves per year

Focus on decision factors:

What are the motivators for LPG use in urban and periurban areas? (1/3)

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Picture Omar Alfaro - Guatemala

In Guatemala

- **70% of the urban** households use LPG.
- **Fuel stacking** is prevalent (open-fires).
- Annual LPG consumption: +3 to 4%.
- **Firewood** consumption increases faster.

Health benefits

of LPG: only when LPG is the primary fuel for cooking.

How to complete the transition from biomass to LPG in urban and periurban households?

10 focus groups, 61 women, Nov. 2014 to Feb. 2015 to understand LPG user's preferences and experiences, including reasons for not cooking exclusively with LPG

Focus on decision factors:

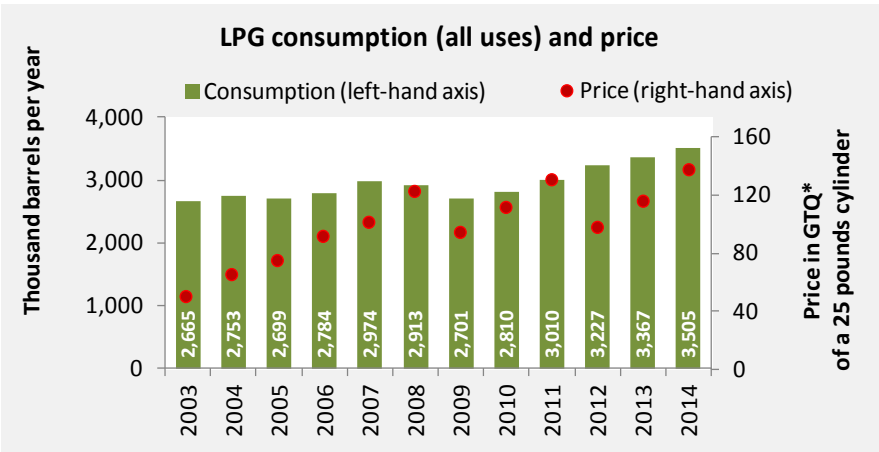
What are the motivators for LPG use in urban and periurban areas? (2/3)

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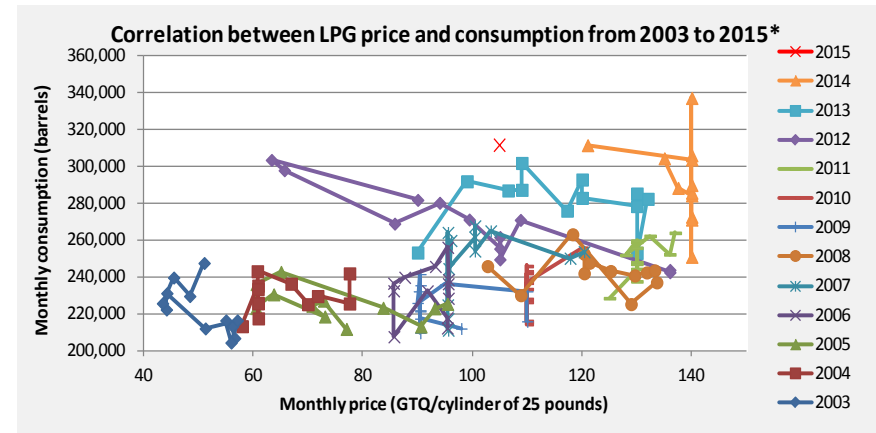
Characteristics of LPG users and practices

- Most common cylinder size : **25 lb***.
- **Wide range of incomes**, including below the poverty line*.
- **Resilience to price volatility** in both directions (increase/decrease)*.
- **Income instability** pose a more significant barrier than low income alone => firewood / fuel stacking gives a sense of **energy security**.
- Desire for the cylinder **to last as long as possible** => continued reliance on firewood.
- Dishes which take time (**beans**): LPG and firewood. Rest: LPG only.

* Supported by Focus groups and National statistics



Elaborated by authors with Statistics from the Ministry of Energy and Mines, Direction of Hydrocarbons (www.mem.gob.gt)



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Focus on decision factors:

What are the motivators for LPG use in urban and periurban areas? (3/3)

● Five key barriers

- **Safety concerns** and **poor quality LPG cylinders** (damaged, leaky).
- **Reputation** of LPG retailers and suppliers.
- Lack of knowledge of **how to cook** efficiently with LPG, including **pressure cooker**, essential for cooking food that takes a long time.
- Lack of easy **cost comparisons** between LPG and firewood cooking => biased perception.

● ○ Strong and weak motivators

- Numerous and powerful **benefits**: easy, practical, cleaner and faster than firewood.
- **Higher income, education and paid work**: associated with LPG adoption but not a pre-condition.
- **Health and environmental** benefits: acknowledged but not key to LPG preference.

○ Surprising non-issues

- **Taste, access to LPG refills and up-front cost** of LPG cylinder and stove.
- **Personal experience** : crucial to modify preconceived notions about LPG.
- **Smaller cylinder** : not required; relevant only as an “emergency reserve”.

Intervention avenues to broaden LPG use in Guatemala

1 Consolidate and complete the transition to LPG: consumer information and marketing

- Benefits.
- Cooking practices (including pressure cooker).
- Cooking cost comparison (in-situ experiments).
- Safe LPG handling and cooking, for consumers and retailers.

2 Adoption (early-stage LPG cooking): Facilitate stove and cylinder purchase

- Consumer finance.
- Smaller cylinder.
- Tree-trial period.



Give non-LPG users a chance to experience the benefits of LPG, modify biased preconceptions, and develop confidence in the use of LPG

3 Corporate social responsibility

- Research and analysis: diagnostic of employee's situation, monitoring of impacts.
- Raising awareness and building capacity of employees.
- Facilitating stove and cylinder purchases.
- CENTRARSE (Guatemalan Center for Corporate Social Responsibility), food industry, LPG industry.

4 Enabling environment: Engage industry and government

- Industry/Government Meeting: mutual interest in growing the market for clean stoves.
- Regulation of LPG cylinders (inventory, cylinder replacement, enforcement, ownership - centralized filling system without "physical" ownership).

Final report on LPG available soon.

Thank you!

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