

**LPG:
INCREASING THE ENERGY
OPTIONS BENEFITTING
WOMEN WORLDWIDE**

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ENERGIA **NEWS**

NEWSLETTER OF THE ENERGIA INTERNATIONAL NETWORK ON GENDER AND SUSTAINABLE ENERGY



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This magazine is published by the ENERGIA International Secretariat, based at ETC Foundation.

ENERGIA is an International Network of like-minded organisations and professionals, active in 22 countries in Asia and Africa. Our vision is that women and men have equal and equitable access to and control over sustainable energy services as an essential human right to development. To achieve this, we:

- contribute to energy access for all by scaling up the delivery of energy services through women-led micro and small businesses,
- advocate for and provide technical support to mainstream gender approaches in energy policies and programmes,
- provide the evidence base for improving energy investment effectiveness through research, and
- raise awareness and enhance knowledge of gender and energy related issues through networking and knowledge products.

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Cover photo: Indian girls share a light moment as they carry liquefied petroleum gas cylinders for cooking purposes in Hyderabad, India

Credits: AP. Purchased by the Global LPG Partnership, co-author and editor of this newsletter.

In 2014, ENERGIA and the World LPG Association (WLPGA) worked together in gathering evidence on linkages between gender and LPG. What followed was the report ***Cooking with Gas: Why women in developing countries want LPG and how they can get it***. This experience taught us many things. Among them, that there is need for more evidence on how LPG contributes to achieving women's needs including empowerment. We realised that, in many cases, LPG is not seen as a solution for household energy and certainly not for the poor. Rather, it is seen as a fossil fuel, and an expensive fuel - what we termed 'the LPG problem'. Yet our experience with the WLPGA/ENERGIA report led us to believe that this 'LPG problem' is based on a myth and that women do want LPG. They do benefit from LPG and they do find ways of accessing and using LPG because of its many benefits. Part of the 'LPG problem'

its high usage in households and in informal and small businesses. A consequence is that women in particular, because they are the main cooks in households and often participate in informal and small businesses, rarely experience the benefits of LPG, which in turn excludes them from its numerous economic and social benefits. In those countries and regions where LPG use is growing, women are experiencing benefits and LPG is being seen as a solution to many energy challenges rather than as a problem. Thus, in this edition of ENERGIA News, we look at LPG and gender.

Our research in 2014 found that women are severely underrepresented at all points in the LPG value chain: in decision-making, in supply chains, and even as users although detailed statistics are unavailable. Despite the gender imbalance in the LPG sector, there are many



Street theatre in Peru helps educate low-income families about how the type of cooking fuel can influence their quality of life.
Photo: Fundación Repsol

we believe is that there are few initiatives that address barriers associated with LPG access and use, such that LPG is at the stage where improved biomass cookstoves and other renewables were about 15 years ago: as desirable and important but with barriers that needed to be surmounted. In developing countries, policies and initiatives focused on improved biomass because of

women who are breaking through barriers and making inroads in the LPG sector: as decision-makers in the sector, as LPG users in their businesses or in their households, or as participants in LPG supply chains. These women illustrate that LPG does benefit women and can contribute to their empowerment. There are also upcoming initiatives to support women in the LPG sector



Woman cooking outdoors on LPG stove.
Photo: WLPGA

including in decision-making roles. Thus, in this edition of the ENERGIA newsletter, we showcase the various ways in which women are benefiting from LPG and, by doing so, illustrate what can be done – at various points in the LPG value chain - in order for LPG to support women's needs and goals and hence contribute to wider gender equity.

Given that issues relating to energy in developing countries, and especially relating to gender, have focused on biomass and improving its use, LPG is often misunderstood. As such, we start with an introduction to LPG and some of its benefits. In the first article, **Alison Abbott** of the WLPGA discusses the lack of women in decision-making positions in the LPG subsector. She looks at a new global network that is being established by the World LPG Association. Inspired by the Women in Propane Network, a US network, the global Women in LPG network (WINLPG) has been established in response to the lack of women in decision-making roles in the LPG sector and to enable better and more effective responses to the LPG market. It aims to promote the inclusion of women in the LPG sector, and improve education related to the LPG industry, especially by attracting and retaining women in the fields of science, technology, engineering and mathematics (STEM) by possibly working with Departments of Education as well as by providing role models for current and future students. The network will provide a platform for women in the LPG sector to network, share experiences and support each other.

Next, we turn to LPG and livelihoods, and **Margaret Matinga** looks at the role of LPG in women's food businesses in Accra city in Ghana. Women have a strong presence in food-related businesses, especially in the informal sector but, increasingly, in the formal sector as well. Although in many African cities, such as Accra, charcoal is an important fuel, LPG has unique advantages and is a much desired energy source. Women food sellers in Accra cited speedy cooking and portability as benefits that make LPG a valuable fuel for their businesses. LPG was especially seen as enabling business growth because it is less stressing and tiring, and because it responds to customers' needs for a quickly-prepared meal. Although the women food sellers in Accra face problems with LPG, particularly in terms of reliability of supply and costs, all the six women in the case study preferred to cook with LPG. For these women, having a more reliable supply would be one of the largest enablers of a more sustained use of LPG.

The third article, an interview with the Hon. Emmanuel Armah-Kofi Buah, the Ghanaian Petroleum Minister, helps understand Ghana's strategy for LPG promotion. Mr Armah-Kofi Buah explains that initiatives such as the Rural LPG Promotion Programme launched in November 2013 are increasing demand for LPG in rural areas. The initiative has been launched in eight districts, distributing 6kg LPG cylinders and related accessories in order to kick-start LPG demand in rural areas. The minister also explains the efforts that the Ghana government is making to promote women in the LPG sector by specifically gender-mainstreaming the LPG policy and through training and awareness promotion. He also points out that the fact that women who use LPG give birth to heavier and healthier babies means that LPG has critical benefits not just to women but to entire countries and regions.

In *Networking around the World*, **Christina Yu** from the Global LPG Partnership and **Alison Abbott** from the World LPG Association examine the global efforts of their respective organizations in promoting the use of LPG, and in supporting the careers of women in the LPG industry.

Next, **Anita George**, Senior Director Global Practice on Energy and Extractive Industries at the World Bank Group, discusses how LPG can support women's needs. She discusses the evidence on the time lost and security issues that women face when collecting firewood and on air pollution from cooking with traditional biomass. She discusses the role that LPG, one of the cleanest-burning fuel options for households, can play in delivering health benefits. LPG, she points out, has few GHG impacts when it replaces inefficiently produced charcoal. Ms George highlights barriers to LPG use including costs, poor distribution resulting in shortages and inadequate regulation. Policy and regulatory improvements can lead to safer, more reliable and affordable LPG which could make LPG more accessible. She also cites a lack of information and low consumer awareness as barriers to LPG adoption. She calls for improved gender equity throughout the LPG value chain, including consulting women at all stages of designing modern energy programmes.

A case study on Women in Supply Chains discusses the women LPG entrepreneurs in Accra, Ghana. As in many other countries, LPG supply is dominated by men but women are slowly but surely making inroads. **Margaret Matinga** starts with a discussion on the women LPG entrepreneurs in Ghana. She then interviews Mrs Ivy Manly-Spain who is a bulk supplier of LPG in Accra. She discusses the challenges she faced when she first attempted to enter the market. Despite the strides the government of Ghana has made in creating a conducive environment for LPG supply, Mrs Manly-Spain explains that, with interest rates several times higher than profit margins, access to capital remains the major challenge facing women who want to participate in the sector. She also explains that women entering the LPG sector have to prove themselves and need a lot of confidence to penetrate what she calls “the old boys network”. She suggests networking at an international level and study tours as being crucial for women learning from others in the sector and from each other.

In the final article in this newsletter, **Alison Abbott** describes a pilot project by WLPGA and GenteGas, a social enterprise in Guatemala. GenteGas is engaged in supplying comprehensive packages (including cylinder, stove and funding), consumer education and awareness-raising campaigns linked to safety, thus simultaneously addressing several challenges of ‘the LPG problem’. The article highlights the GenteGas efforts and the success of their way of working.

The articles in this edition of ENERGIA News show that LPG is a useful and important fuel that can and does contribute to women’s empowerment. There are strategies both in formal initiatives and from women’s own efforts that have shown success. Major gaps also exist, particularly in terms of evidence and best practices. This, and the fact that LPG is not a renewable energy source, perpetuates the belief that LPG is not a relevant fuel for the poor and especially for women. Another preconception is that LPG is inevitably expensive – an assumption that leads to LPG being ignored in policy and practice and excludes women in developing countries from the LPG chain. The successes illustrated in these articles show that ignoring LPG in energy policies and initiatives in developing countries disadvantages women, both those that are poor and those that are economically and socially upwardly mobile. Indeed, it hampers gender equity in energy access by continuing to make LPG, a highly efficient and convenient energy source, a product exclusively for the rich. The successes illustrated in this newsletter need to be scaled up and adequately supported to achieve a larger and more sustainable impact. New ways of looking at the ‘LPG problem’ have to be found and applied through a gender lens. It is only then, when all categories of women and men are allowed a role in decision-making, can participate in the value chain and use all energy sources, including LPG, that gender equity in energy and in the wider economy can be achieved.

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Ms. Magi Matinga is founder and managing director of Dunamai Energy which works on energy access. She graduated from the University of Twente with a PhD.

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ABOUT THE INDUSTRY

WHAT IS LPG?

Liquefied Petroleum Gas (LPG) is a portable, clean and efficient energy source. LPG is a co-product of natural gas and crude oil production; its unique properties make it a versatile energy source that can be used in more than a thousand different applications.

LPG is a clean energy solution that emits 50% less CO₂ emissions than coal and 20% less than heating oil, making it ideal for use in heating

and cooking applications. When it replaces traditional biomass or coal, LPG improves both indoor and outdoor air quality by substantially reducing pollutants that are hazardous to health, such as SO_x, NO_x and particulate matter.

LPG, as a clean-burning, sustainable, efficient, portable and convenient fuel, plays a pivotal role in the transition towards a more secure, sustainable and competitive energy world.

WHERE IS IT USED?

LPG is used in over 1,000 applications, such as:



TRANSPORTATION



COMMERCIAL
BUSINESS



INDUSTRY



FARMING

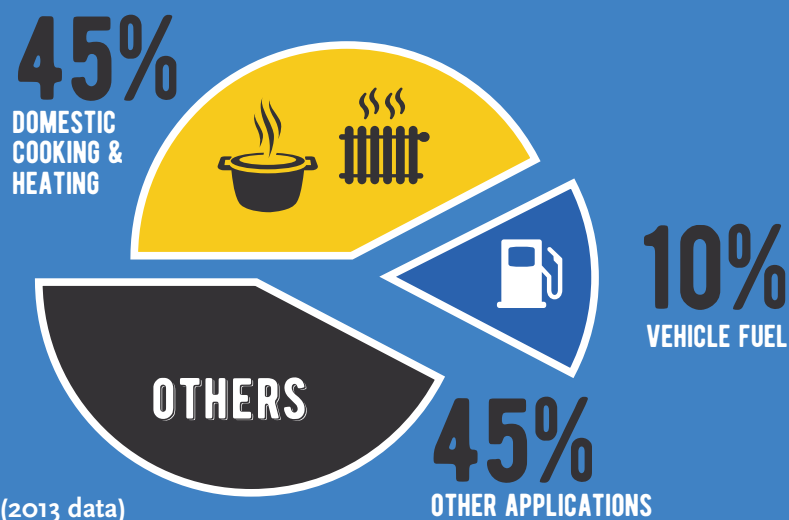


RECREATIONAL
PURPOSE



DOMESTIC COOKING & HEATING

has some of the most popular applications for LPG, with almost 45% of the global demand for LPG coming from residential cooking and heating demands.



GLOBAL DEMAND FOR LPG AS



24,5 | **25,8**
MILLION TONNES | MILLION TONNES
(2012 data) | (2013 data)

INCREASE OF 5.3%

LEADING MARKETS

IN 2013
GLOBAL LPG
PRODUCTION
REACHED
A RECORD HIGH OF

280
MILLION TONNES

NORTH AMERICA GROWING BY

8.6%

**THE GLOBAL
LPG MARKET
IS EXPECTED TO
INCREASE SUBSTANTIALLY
IN THE NEXT DECADE**



LPG SUPPLIES



EXPANDING MARKET

VALUE OF LPG

**THE LPG INDUSTRY
PROVIDES WORK FOR OVER**



2 MILLION

WITH APPROXIMATELY 3 BILLION
PEOPLE USING LPG

LPG



EFFICIENCY

NATURAL GAS

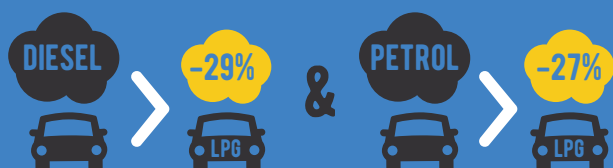


EFFICIENCY

MAKING IT
IDEAL FOR



**WELL-TO-WHEEL EMISSIONS
FOR LPG FUELLED CARS ARE**



25

**THERE ARE NEARLY
MILLION
VEHICLES RUNNING
ON AUTOGAS**

The latest data on the LPG market are available in the WLPGA Statistical Review of Global LPG 2014.

WOMEN IN DECISION-MAKING:

a new global network for the World LPG Association



Cooking with clean-burning LPG. Photo: WLPGA

By Alison Abbot, World LPG Association, with support from Nikki Brown, Managing Director of Cavagna Group UK Ltd.

According to ENERGIA's research, up to 49% of LPG consumption takes place at the household level, primarily for cooking and to a lesser extent for heating. This represents the largest share of LPG consumption, followed by the use of LPG in the petrochemical industry (21.6 %) and for other industrial uses (11.8 %). Other uses account for 11.3%. Given that, in almost all countries, women are the primary cooks in households, this makes women the biggest users of LPG. However, within the LPG industry itself, there are few women, not only at the executive level, but at all levels. This phenomenon is shared with many sectors of the energy industry and indeed in other areas of business. The World LPG Association (WLPGA) has recently launched a new global network to assess the current situation and to look at short, medium and long-term initiatives to address this.

WLPGA firmly believes that there is an opportunity for the global LPG industry to take medium and long-term actions that can address the issue of attracting, retaining and developing women in the industry. As

the authoritative global voice for LPG, WLPGA is uniquely positioned to develop and implement these actions.

WHY WOMEN?

A survey by the UK government has shown that having more women in management positions can improve a company's financial performance and boost company returns¹. Evidence shows that companies with women on their boards outperform their rivals, with a 42% higher return on sales, by enhancing company decision-making through using diverse perspectives, ideas and skills that reflect the gender diversity of customers and employees.

The LPG industry, and indeed the oil and gas industry as a whole, also suffers from strikingly negative perceptions. It is seen as old fashioned, male dominated, uninteresting and not attractive for women. Indeed a survey of 4,364 graduates across 75 countries undertaken by PricewaterhouseCoopers (PwC 2011) showed that the oil and gas industry as a whole is one of the least popular career paths for undergraduates.

¹ <https://www.gov.uk/government/collections/women-on-boards-reports>

So, on the corporate level, the benefits to business of strong female representation at the board and senior management levels are stacking up, with evidence of links to better profitability and financial performance, stronger governance, better stakeholder management, improved risk management and better access to talent. Thus, as with other industries, the oil and gas sector, and the LPG subsector in particular, cannot afford to alienate itself from 50% of the talent pool.

In the LPG subsector, women can bring a particularly unique perspective because they are the main users of LPG - yet their representation in decision-making

any business. There is a need to encourage the industry to take positive steps to encourage more women to take an interest in technical subjects from school onwards, to keep them motivated throughout their career and to be flexible in providing a work - life balance.

WHAT DOES THE REST OF THE WORLD DO? CAN WE COPY?

Prior to the network being ratified, significant research was undertaken to seek out women's networks in similar industries: industries such as mining, nuclear, solar and coal have all established networks focused on promoting

"The industry can be more effective in expanding LPG access if it better engages with women's social and economic development and interest in developing countries".

Sheila Oparaocha, ENERGIA International Coordinator and Programme Manager, during the WLPGA Industry Council in Miami, October 2014

remains extremely low. The WLPGA/ENERGIA report 'Cooking with Gas: Why women in developing countries want LPG and how they can get it' highlights this distinct mismatch between customers and the industry, and offers specific recommendations to the industry to help overcome this. During the World LPG Forum in Miami in 2014, ENERGIA gave clear recommendations to WLPGA to support independent comparisons of various cooking fuels from a gender perspective, to partner with women's organisations, to include gender as a relevant issue in all WLPGA programmes and policies and to support women's networking in the industry.

CHANGING THE FACE OF THE INDUSTRY?

The World LPG Association (WLPGA) is led by an Industry Council that represents the top thirty companies in the industry. The Industry Council unanimously supported a proposal by the WLPGA President, Kimball Chen, to set up a network dedicated to the support of women in the LPG industry. The global 'Women in LPG' network, known as WINLPG, was inspired in part by the US network 'Women in Propane' which was launched in 2012 and has been successful in networking and promoting women in the US LPG industry. The 'Women in Propane' initiative was created to provide a network for the American LPG industry and holds networking meetings several times a year, the flagship meeting taking place at the South Eastern Expo every April organised by the National Propane Gas Association.

The green light to proceed with the launch of a global network was given during WLPGA's most recent Industry Council meeting that took place in Berlin in May 2015.

The network's mission is to support and help empower women in the global LPG Industry by promoting leadership, coaching, mentoring and promoting role models to enable a change in organisational attitude so as to become more inclusive of all genders at all operational levels by promoting the sound belief that women have a unique set of qualifications and abilities that can contribute to

women in their respective industries. The nuclear industry is of particular interest as this sector also faces perception challenges. Its dedicated network, the Women in Nuclear Global Network (WIN), recently celebrated 20 years of success and welcomes over 25,000 members from over 40 geographical chapters. WLPGA met with the head of this group to understand how they have developed their network, and these meetings have been of great help in setting up WINLPG.

HOW WILL WINLPG WORK?

WINLPG is a network for women and men who have a professional interest in the LPG sector and support the network's objectives. The network will work to advance three pillars of objectives, namely:

Support and retain

Supporting women already in the LPG world is an immediate priority. WINLPG will provide a strong global network through which women can further their professional development and access colleagues with



Alison Abbott, WLPGA Communications Director and WINLPG Coordinator. Photo: WLPGA



Women in India standing in line to get their LPG cylinders filled. Photo: Outlook India

shared interests. The WINLPG team will work with WLPGA members to ascertain what measures are already in place to nurture women in the industry. It also plans to conduct a gap analysis to understand where the gender balance needs to be adjusted or improved. As a global association, we understand that the needs will be distinct in different parts of the world and various segments of the business. WINLPG will also carry out a review of existing affirmative policies to encourage the participation of women in the business, with examples sought from within the industry and external to it.

Promote and advocate

The second pillar of objectives is to promote the network. WINLPG aims to continue to coordinate with similar network groups, such as the Women in Nuclear Network, to align initiatives and potentially hold joint workshops. Case studies and role models will help promote the issue.

Educate and attract

The third, long-term, pillar of objectives concerns education. Depending on the outcome of the gap analysis and the activities of partner organisations, we will identify which levels of education need to be addressed. Do schoolchildren need to be encouraged to study science, technology, engineering and mathematics (STEM) subjects? Do university students from a range of subjects need to be directed towards considering joining the LPG industry? What can the industry itself do to encourage

and attract women into the industry? Can we work with national Departments of Education to understand how representatives of the network can be represented at appropriate events or in appropriate studies? Answering these questions will help us understand what education needs should be addressed.

The network's set-up will itself mirror successful existing WLPGA networks and will initially meet three times a year with a flagship meeting coinciding with the World LPG Forum. Regional workshops will be scheduled to tie in with other industry events in order to ensure the worldwide outreach needed to succeed. WINLPG will be chaired by Nikki Brown, Managing Director of Cavagna UK, and will be coordinated by Alison Abbott from WLPGA.

WHAT NEXT?

The inaugural WINLPG meeting will take place during the World LPG Forum in Singapore on Tuesday 29 September (from 15:00 to 17:00, followed by a networking cocktail). Certainly a great way to kick off what promises to be a positive step forward in the industry!

An ambitious project? Certainly, but WLPGA has the full support of the industry and media. We are excited and confident about this major initiative!

“The issue is that the gender-balance is not optimised in the LPG industry and WLPGA is in a unique position to start to make a change, this change to be driven by a network that will recommend actions and activities as part of the WLPGA strategic-planning process.”

Alison Abbott, Marketing and Communications Director WLPGA

LPG AND LIVELIHOODS:

Women in food processing in Accra

By Margaret Matinga

In many cities and towns, small-scale food sellers provide a much-needed service by cooking food and selling it to workers, travellers, shoppers, tourists and others. These businesses can be either formal or informal and situated on the street or within buildings, either informal buildings such as temporary shacks or more-permanent ones. There are also ambulatory food sellers who sell prepared food and beverages from wheeled carts. Women tend to dominate informal food preparation and selling, particularly that sold from fixed places rather than ambulatory sales. Women are also increasingly involved in other food processing endeavours beyond street-food selling including bakeries, catering for events, cereal processing and dairy products. This provides much needed incomes for themselves and their households. In most African cities, firewood and charcoal remain key energy sources for thermal applications in food processing enterprises, but LPG use is on the increase in urban areas such as in Dakar, Khartoum and Accra. In many cases, LPG is the energy source that food-processing entrepreneurs aspire to. This article provides a snapshot of the role of LPG in supporting women's livelihoods in food-based enterprises as well as the challenges faced as reported by the women entrepreneurs themselves. It makes suggestions for what needs to be improved to support the use of LPG in women's enterprises and support women's empowerment.

FOOD PROCESSING AND PREPARATION: WOMEN'S INCOMES, CITIES' NUTRITION AND THE NEED FOR LPG

In many developing countries, women face barriers to participating profitably in economic activities although they are often used as free labour. Barriers such as a lack of technical skills and capital means there is a limited number of economic activities in which they can engage. The food preparation and processing sector, especially within the informal sector, is one area in which women have a substantial presence. This is especially true for street-food selling, in part due to the informal nature, which circumnavigates prohibitive regulations and the need for large capital investments, but also due to women's inherent skills.

Food processing and preparation enterprises in cities are an important source of income, especially for urban women. However, the sector is also highly gendered and differs from one region to another depending on economic and cultural factors. In Senegal, for example, complete meals tend to be sold by women, while men



In Ghana, selling snacks and home-cooked meals is an important source of income for women. Photo: Margaret Matinga

tend to dominate the selling of grilled meat (in dibiteries or barbeque shops etc.), coffee and tea. In Tanzania, men also sell tea, coffee and grilled meat, while women tend to operate small food outlets known as mamantilie. In India, men dominate street food selling whereas, in Thailand, over 60% of the street-food sellers are women. Women also tend to operate from a fixed point and are less likely to engage in ambulatory food selling.

In almost all urban cities and towns in developing countries, street food provides an important source of nutrition for city workers and travellers. Street-food vendors provide breakfast, lunch, dinner and snacks for many of those in the city for economic or social activities. They are considered more affordable than formal restaurants and, because they often offer traditional "home meals" and also often pre-cook the food before clients arrive, they are preferred, seen as convenient and provide comfort food familiar to their clients. With increasing urbanisation and limited workplace food provision (e.g. through canteens), food vending is likely to increase and remain an important livelihood strategy for urban and peri-urban women. In Ghana, for example, the growth in food vending has been exponential (FAO, 2012). Moreover, food vending can offer a stable livelihood. According to FAO (2012), most street-food sellers in Bamako and Accra, who are mostly women, had spent an average of 10 years selling street food, while in Abidjan the average was 7.5 years. To many, this is viewed as a permanent source of income that they

expect to engage in until “their health no longer allows it” (FAO, 2012: 8). As such, informal food processing and preparation is important not only as a source of affordable nutrition for workers and residents but also as a stable livelihood for the sellers and particularly the women involved.

Despite its important place in urban life, food preparation and processing is inadequately addressed in development debates and planning. Those engaged in informal food preparation and processing face a range of problems including access to inputs and prohibitive regulations. One of the most important inputs is energy for the thermal processes involved (cooking, baking, preparing cereals for dehulling etc.). The majority of entrepreneurs preparing and processing food are dependent on wood and/or charcoal, which are time consuming in both processing and use, and have negative health impacts for processors and users. As such, many entrepreneurs in this business aspire to use LPG. Bottled LPG is more convenient than electricity for informal entrepreneurs because it is portable and enables food to be sold on the open street or in multifunctional kiosks that lack an electricity supply.

THE STUDY METHODOLOGY

This study is a snapshot of food processing and preparation businesses in Accra, Ghana. It included interviews with six women business owners. Of these, four sold complete meals along the sides of roads in permanent and semi-permanent premises, one cooked at home and took the food to construction-site workers and one owned a bakery. A questionnaire was used to solicit information including business focus, age of business, reasons for using LPG and, where valid, reasons for using LPG as well as charcoal and/or wood. The respondents were all opportunistically selected. The meal sellers were all from the Bawaleshi area near East Legon, Accra while the bakery was located on the Baatsona Highway Extension, Spintex Road also in Accra. The limited number of respondents means that one should be cautious in assuming that the findings are representative of the national situation. However, the study does provide useful insights into the role of LPG in women's enterprises and the challenges that they face.

FOOD SELLING IN ACCRA AND ENERGY USE

There is a wide range of food services on offer in Ghana's informal market but street food is among the major ones. One study found that 94% of food sellers are women with limited education, one of the reasons they cannot access formal employment or major enterprises. Informal food selling is convenient and almost a natural alternative given its lack of regulations, ready-at-hand cooking skills and flexibility. The food can be cooked on site or at home and reheated at the point of sale. In other cases, food, and often beverages, are kept hot on a trolley as the trader travels about – a trade almost exclusively undertaken by young men. In a few cases, the food is cooked at home



Ms. Eve in her 'chop shop'. Photo: Margaret Matinga

and taken not to just one selling point but to customers where there are large workforces such as construction sites.

The six women interviewed for this study had an average age of 43. The five women that cook food at the side of the road had been working in this subsector for between 7 and 20 years. As such, selling cooked food is not some transient livelihood strategy but a major sustained one. The enterprise owners also provide livelihoods for others they employ. In total, the five women together employed 29 women and 2 men, indicating that street-food selling predominantly provides employment for women. The bakery owner employs one man and has three unpaid female assistants.

Energy is the main input in food preparation and processing and is the costliest ongoing input. Given that informal restaurants, or chop bars as they are called in Accra, are often open from 5 am to 11 pm, many have electricity for lighting. Medium sized chop bars will also sell cold drinks and use electricity for cooling these drinks, charging the staff's mobile phones and, in some cases, providing TV entertainment for both staff and customers. For cooking, they tend to use charcoal and LPG.

Apart from street-food selling, there are also other food-related businesses serving city residents. These include bakeries, catering services and specialised cake businesses. These are predominantly owned by women and, in many cases, are situated close to or in their homes. As with the street food businesses, energy is a key input for these other food-related businesses. Those that have access to a range of modern energy sources will typically use electricity, possibly from their own diesel-generator, for mechanical needs such as mixing ingredients and grinding grain, and firewood, charcoal or LPG for thermal applications.

USER PERCEPTIONS OF THE BENEFITS OF USING LPG IN ENTERPRISES

Fast and clean cooking

All the respondents who used LPG, whether as their main fuel or a complement to charcoal, said that an advantage of LPG was that it is fast and clean. The women explained that this meant that their work was less tiring as they did not need to go through the tedious process of lighting and tending their heat source as they did with charcoal. Using LPG also reduced the time involved in scrubbing pots. For Mrs Sakina, one of the ladies who sells food on the roadside, using LPG means she can spend more time with her family. All the food sellers also pointed out that LPG allows them to cook faster because it is highly efficient, which is good for them but also for the customers who are often in a hurry to return to work or home. Both chop shops and food vendors typically use locally made LPG stoves with two to four burners, allowing them to cook several dishes at the same time. This further speeds up the cooking process as charcoal stoves only cook one dish at a time, so several have to be lit to produce a similar offering. For the bakery owner, Mrs Grace, having an LPG oven allows her to start baking as soon as the bread dough is ready, and avoids the need to preheat her oven which was the case when she used charcoal or firewood. In addition, she is now able to produce a consistent quality product.

LPG as a fuel for growth and business enabler

All six food sellers commented that they saw LPG as a fuel for growth. Three of the chop shop owners started with micro-businesses, selling a few snacks on a small table on the street. Four of the five chop shop owners reported that using LPG was important as the business grows because charcoal becomes expensive. Moreover, the more customers they have, the faster they need to prepare additional meals to meet customer requests. LPG allows them to do this as they do not have to wait for the stove to “get hot enough”. This gives them a competitive edge in a market where there is little difference between the food sold by one chop shop and the next. The combination of lower marginal costs and cooking speed, responding to customers’ needs, allows their businesses to grow. Meanwhile, Mrs Victoria, a low-income business owner who cannot yet afford to have a “proper chop shop”, cooks with charcoal at her home and carries the cooked food to construction sites where she sells it. She takes a 6kg LPG canister with her and reheats the food just before selling it, thereby providing hot meals for construction workers. According to her, without LPG this would not be possible. Mrs Victoria plans to expand her business by buying more and bigger gas cylinders. Ultimately, she aspires to have her own chop shop.

Similarly, for the bakery owner, Mrs Grace, LPG has allowed her to grow her business and provide a modern product of consistent quality.

Challenges to using gas in food-selling enterprises

All the entrepreneurs cited gas shortages as the main challenge to using LPG consistently in their businesses. Supply, distribution and other planning constraints have

resulted in shortages that have lasted anything from two days to several weeks in the past few years. However, the business owners reported that the situation had improved and, so far this year, LPG shortages have not been an issue.

Another barrier that was often cited was the high costs of LPG. However, the larger enterprises such as the bakery did not mention LPG costs, perhaps because their higher turnover enables them to absorb such costs easier than smaller ones. The price of LPG has been especially felt because, in 2013, the Government of Ghana removed fossil fuel subsidies which resulted in an increase of around 76% in LPG prices, impacting on small businesses as well as households. Here, it should be noted that Ghana imports about 30% of its LPG and the weakening Ghanaian currency (GHS) has added to the high cost of LPG. Interestingly, programmes such as the free cylinder promotion were unknown to the interviewees. All of the women interviewed said they had bought their own cylinders and not benefitted from such schemes, but suggested that such programmes could be useful for starter business.

One businesswoman tried to source cheaper gas (GHS 45 compared to the regular GHS 54) and found that she was cheated as the canister was not fully filled. This woman called for better regulation and surveillance to stop retailers under-filling canisters.

The high costs of LPG are compounded by the high costs of transporting refilled cylinders from LPG stations to the places of businesses. Although the number of LPG stations has increased, all the women reported spending GHS 20 per return trip, which clearly adds to the cost of accessing LPG. The husbands of two of the six women have cars and collect LPG cylinders for them and one of these two can also use the bakery delivery vehicle to collect gas cylinders.

Another issue that influences the use of LPG in such businesses is that many traditional foods require long slow cooking. Although, according to the women, cooking these meals on LPG does not lead to customer complaints about taste or flavour, some of the businesses still prefer to use charcoal. The dishes, which are prepared in large 20 - 30 litre pots because of the quantities required, take several hours to cook and the associated high fuel usage makes cooking with LPG less attractive. However, growing businesses, such as those of Sakina and Faustina, do use LPG and have locally made LPG stoves that can accommodate large pots. This suggests that there is a potential high demand for LPG that is, in turn, sparking developments to respond to local cooking needs.

The businesswomen also commented on the lack of an indicator to show how much LPG is left in the cylinder. This was not seen as a barrier as such, but as an inconvenience for businesses. This is especially an inconvenience for smaller businesses that cannot afford to have several LPG cylinders. Larger (high-growth) businesses typically purchase more than one gas cylinder in order to cope with this situation.

Only two of the six women cited safety as a concern, and this was because children sometimes came to the business premises. All the women claimed a general awareness of how to use LPG safely. Further, none of the business owners had been aware of any information campaigns encouraging businesses to switch to LPG use.

POTENTIAL WAY FORWARD

It is clear from the interviews that the women business owners do not want to return to using charcoal and want to increase LPG use. The main barriers to this were shortages and, for the smaller businesses, the costs of LPG. As the number of LPG stations and production levels increase, it is likely that shortages will be reduced but other distributional issues, including monopolies, must also be addressed. Increasing refinery capacity will be required as will increasing the number of LPG stations in low-income neighbourhoods.

Microfinance was an important contributor to enabling business growth. Providing LPG-focused financing could boost the uptake of LPG among women's businesses. This could be further supported by information campaigns promoting the benefits of LPG for businesses and demonstrating the business case for it.

The introduction of gas cylinders with indicators showing how much gas is left could also support LPG use in food preparation and selling, and in other businesses, by taking the guesswork out of refill-timing decisions. This would be especially useful for micro- and small businesses that cannot afford standby LPG cylinders.

Overall, there is very little information on LPG use in businesses and specifically in businesses that are critical to women's livelihoods. As such, LPG policy and actions are gender-blind and not built on solid evidence. Similarly, the impact of initiatives such as the cylinder distribution programme or the impacts of subsidy removal on women's LPG-using businesses and livelihoods are unknown. It is important that research in these areas is conducted and this should inform advocacy efforts, policy and actions. Another observation during the study was that all the women had diesel-powered generators that they use extensively due to persistent and extensive power cuts. Many of these are crude and produce considerable black smoke. LPG generators could be explored as a cleaner alternative source of back-up power.

The women encountered in this study, despite their low levels of education and income, were critical and proactive, and not simply passive users of LPG. Their experiences in negotiating LPG access and use, and even in getting the stove market to react to their business needs, are crucial to informing policy as well as promoting LPG use among other women-owned businesses. Their experience could also be harnessed to ensure monitoring and compliance by LPG retailers, thereby reducing incidences of under-filled cylinders and tracking safety issues in the sector.

LPG retailers have played a role in educating users on LPG safety. Their interaction with women can and should be enhanced to not only continue with safety education and awareness but also to extend communications beyond safety and ensure that the LPG market responds to women's needs.

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Mrs Grace, a 50 year old woman, started her bakery business about 20 years ago with a single mud oven fuelled with firewood. Using firewood, she says, was problematic in almost every way: it polluted her environment, it produced so much heat that working conditions were poor, it was expensive because the wood was sourced from rural areas far from Accra and it was unpredictable leading to variable and often poor quality product: "With firewood, you put the product in and you close the oven. You cannot see what is going on and sometimes, when you open it, the bread is already burnt!"

About ten years ago, using a bank loan, Mrs Grace bought a locally made stove that uses both LPG and charcoal. With this change, she now can time the oven and look through the glass to see how the products are baking. This has decreased processing time and allows her to bake more and better quality goods. Despite the dual-fuel design, she never uses charcoal in the stove:

"There is no way I would use charcoal. Not, unless I was really desperate and had looked everywhere, I mean everywhere, for gas and could not find it. There is just no way I am going back to that!"

Mrs Grace uses one 54 kg cylinder of gas every two weeks. This is enough to bake dough made with 500 kg of flour, a big change from when she used a mud oven, when she was able to process less than 50 kg of flour. She attributes part of the success to switching to LPG.

The success of her business, enabled in part by switching to LPG, allowed her to buy a dough rolling machine and a mixing machine. With her typical business ingenuity, she offers other bakeries kneading and rolling services. She also sells baking ingredients and is sometimes contracted to cater for events like weddings and conferences. Mrs Grace makes a profit of GHS 10,000 (approximately EUR 2,200 or USD 2,400) on each 54 kg LPG cylinder and 500 kg of flour that she uses. Through this business, she directly supports her two children, as well as eight other relatives. She employs one man, providing much needed stable employment for a male youth. Three unpaid women assist at the bakery, gaining important skills for future employment.

AN INTERVIEW WITH... HON. EMMANUEL ARMAH-KOFI BUAH

Ghanaian Petroleum Minister



The Government of Ghana has included LPG targets in its energy policy, why have you chosen to include LPG in your energy policy?

The Government of Ghana, through the Ministry of Energy, began the promotion of LPG in 1989. LPG has been included in the energy policy because it is presently the fuel of choice worldwide. LPG is an environmentally friendly, relatively safe and healthy form of cooking fuel. It can be used for domestic and industrial purposes among many others. The Government is therefore promoting LPG to become the first choice cooking fuel in Ghana.

What policy incentives do you think are needed on the national level to meet these goals?

The main policy incentives needed to drive these goals are the right regulatory framework and a defined market structure. Investors require the market to be well defined so they can identify roles and opportunities. They also require regulations that ensure their investments are secure.

How would you try to ensure that LPG is not just fuel of the urban rich but that ultimately it reaches other Ghanaians?

The Government of Ghana, through the erstwhile Ministry of Energy and Petroleum, launched the Rural LPG Promotion Programme in November 2013 to promote the use of LPG in low access rural areas. The launch was held in the Garu-Tempane district where 1,500 6kg cylinders, cookstoves and related accessories were distributed on a pilot basis. The exercise has been rolled out in eight districts, with the total number of cylinders and related accessories distributed so far amounting to 21,000.

The Government continues to promote the use of LPG in very low access rural areas and also motivates LPG dealers to set up mini refill plants in these areas.

Women are key users of energy, especially at the household level, and the household sector in Ghana is one of the major energy consumers. Despite this, women are often missing from policy and actions. How does the Government plan to encourage women to be included at all levels in policymaking, exploration, production, distribution and use of LPG?

There is a section on Gender Mainstreaming in the Draft National LPG Promotion Policy. This is aimed at encouraging women to play active roles in the LPG value chain, promotion and usage. An entrepreneurship programme has been proposed under which women's organisations and networks can work together with LPG companies and governments to promote LPG.

There are a number of myths or misconceptions about LPG, how do you think women can engage and be engaged?

The Rural LPG Programme educates women, and communities in general, in districts where distribution exercises are carried out. Women are engaged and encouraged to form small groups within their communities and share information and experiences.

There are specific programmes being developed that are aimed at using women, who are the primary users of LPG, to promote the use of LPG to other women and neighbours in their communities. This programme will be implemented when the National LPG Promotion Programme is in effect.

LPG is clean and efficient for cooking, but it is often maligned. What would be your answer to critics of Ghana's LPG ambitions especially in terms of gender? What can improved access to LPG do for women in Ghana and in Africa as a whole?

Research by the Kintampo Health Research Centre in Ghana has shown that pregnant women who use LPG give birth to heavier and more healthy children than those using wood fuels.

The adverse effects of using wood fuels are mainly felt by women and children who collect firewood and are engaged in cooking. Usage of LPG would ensure improvements in the health of women and children.

Improved access to LPG will bring economic and social development for women in Ghana and in Africa as a whole.

NETWORKING AROUND THE WORLD

How the World LPG Association and the Global LPG Partnership unite the LPG World, Governments and Public Sector Organisations

The World LPG Association is the global association for the liquefied petroleum gas (LPG) industry. The Global LPG Partnership is a public-private partnership of leading international LPG companies, governments and public sector organisations that aims to counteract household air pollution (HAP), one of the most important health, environmental and women's problems in the developing world.

THE WORLD LPG ASSOCIATION

Mission and goals

The World LPG Association (WLPGA) is truly at the heart of the LPG industry's global networking. Based in Paris, France, the WLPGA has more than 200 members in over 125 countries giving it a worldwide reach.

The WLPGA is the authoritative voice of the global LPG industry and represents the entire LPG value chain. Its vision is to promote the use of LPG worldwide to foster a cleaner, healthier and more prosperous world. The association was established in 1987 and granted Special Consultative Status with the United Nations Economic and Social Council in 1989. The association has a four-point mission: to demonstrate the benefits of LPG and inform, educate and influence stakeholders; to support the development of LPG markets; to promote compliance



with standards, good business and safety practices; and to identify innovation and facilitate knowledge transfer.

WLPGA unites the LPG industry in one strong, independent and credible organisation that is driven by its members and whose members receive a host of benefits.

Benefits for our members

One of the main benefits is the powerful networking opportunities. Member companies can be from any sector of the LPG industry and have access to the largest LPG industry-focused network in the LPG world. This enables them to present their position to the entire industry and beyond – to media, government bodies and the wider public. With members strategically located around the globe, and by organising regular regional and global events, WLPGA is an exceptionally effective platform for members to meet, exchange information and explore new business opportunities in both mature and developing LPG markets.

WLPGA has highly focused member-driven global networks. These networks allow companies involved in very specific sectors of the industry to share ideas for developing their particular businesses. The three current networks address the cylinder market, the autogas industry and new technologies. A new fourth network will look at promoting women in the industry.

Exceptional events

WLPGA organises the annual World LPG Forum, arguably the most important event in the LPG industry's calendar attracting hundreds of exhibitors and thousands of participants each year. The Forum comprises a major exhibition and a high-level conference and travels the globe to a different continent each year. Following the most recent successful World Forums in Miami, London and Bali, the upcoming 28th World LPG Forum will take place in Singapore on 28th September – 2nd October 2015 (www.worldlpgforum2015.com).

WLPGA also organises regional summits that regularly welcome over 300 delegates and focus on one specific geographical area. Regional summits enable participants who might not be able to attend the World LPG Forum, often the future leaders of the industry, to attend and benefit from the knowledge available and networking. Recent regional summits have been in South Korea, Colombia and India, and the next will be held in Australia in 2016.

Reports and major global campaigns

WLPGA also produces regular reports and publications that become industry-standard global references. Reports can cover LPG business and safety best-practices, or



Inaugural address of the 26th Annual World LPG Forum in London by HRH the Princess Royal. Photo: WLPGA

more-specific subjects such as deforestation. WLPGA recently worked with ENERGIA on a report investigating the need for access to clean cooking energy by women and girls. Entitled 'Cooking with Gas: Why women in developing countries want LPG and how they can get it', this major study explores the gender aspects of access to energy, including the health improvements for the family and women by increasing access to LPG as a cooking fuel. It is freely available from the WLPGA website.

One of the most important campaigns run by WLPGA is the flagship Cooking For Life campaign. Cooking For Life aims to facilitate the transition, by one billion people, from cooking with traditional fuels, and other dirty and dangerous fuels, to cleaner-burning LPG by 2030. Burning solid fuels releases soot into the air, causing respiratory infections, pulmonary disease, lung cancer, malnutrition, low birth weights and other conditions. Roughly three billion people, largely the world's poorest and most vulnerable, breathe in this deadly air. Each year, 4.3 million people die from HAP-caused illnesses - more than the deaths from malaria, HIV/AIDS and tuberculosis combined. Despite this, HAP has received far less attention to date than these better-known killers. The focus is on three main regions: East Asia, the Indian Subcontinent and Sub-Saharan Africa.

WLPGA recognises that indoor smoke from solid fuels is the tenth leading cause of avoidable deaths worldwide, and that this entirely preventable problem disproportionately affects women and children, that is the ones collecting, cooking with and breathing in emissions from solid fuels.

The Cooking For Life campaign unites governments, public health officials, the energy industry and global NGOs to expand access to LPG and bring this modern alternative fuel to the people who need it most. We also work to increase public awareness of how traditional fuels negatively affect everyday life among the world's most vulnerable. Cooking For Life puts the necessary tools and resources for success in the hands of energy policy decision-makers in developing countries. India, Brazil and Indonesia offer shining examples of successful countrywide conversion to LPG, proving that large-scale adoption is possible. The campaign provides leaders in other countries with the best practices and lessons for implementing successful LPG conversion programmes.

<http://cooking-for-life.org>

An exceptional association

Finally, to further unite the industry, WLPGA manages the global 'Exceptional Energy' brand. WLPGA developed this unique and powerful brand to raise awareness of the exceptional features of LPG amongst not only the industry itself but also policymakers, consumers and media. The Exceptional Energy brand is exclusive to WLPGA members and includes a series of practical messaging tools and communication materials.

The WLPGA addresses all these areas to facilitate a global family of LPG stakeholders and welcomes new members to the community. For more information visit www.wlpga.org.

THE GLOBAL LPG PARTNERSHIP



Mission and goals

The GLPGP is a public-private partnership (PPP) formed in 2012 under the UN Sustainable Energy for All Initiative, and announced by the UN Secretary-General at the Rio+20 Conference. It has approximately 35 participating organisations including public sector institutions such as the European Union (EU), World Bank and KfW (the German government development bank); UN agencies such as UNDP; NGOs and foundations such as the UN Foundation and OPEC Fund for International Development; and leading international LPG companies such as Energy Transportation Group (USA), Total (France) and Kosan Crisplant (Denmark).

The GLPGP's mission is to help prevent the 4.3 million annual premature deaths and morbidity caused by intensive HAP from cooking with solid fuels, and the substantial forest destruction and loss of women's and children's labour time from wood-fuel gathering. The GLPGP does this by partnering with host country governments and other local and international actors to lead the planning of, arrange financing for, and manage the implementation of rapid, large-scale transitions of viable populations to clean, modern liquefied petroleum gas (LPG) as an alternative cooking fuel.

The GLPGP's overall goal, shared with its partner the WLPGA, is to transition 1 billion people from traditional fuels to LPG by 2030, on a commercially and environmentally sustainable basis.

LPG, as a by-product of natural gas production and oil refining, is clean burning and highly efficient, and has a minimal carbon footprint.

Among what the World Bank has identified as the truly clean energies for addressing HAP - electricity, natural gas, biofuel and LPG - LPG is the least capital intensive and most rapid to scale up and make affordable and accessible to developing country consumers on large scales, provided appropriate national enabling environments are in place. With the right enabling environment, interventions and investments, LPG can - and in many developing countries already does - dominate household cooking in cities, banishing HAP, and can have a substantial positive impact in rural areas as well. LPG is globally abundant, already safely used by about 3 billion consumers worldwide for cooking, heating and other thermal applications. The GLPGP initiative focuses on bringing these benefits to the next billion people over the coming decade and a half, working at country and regional levels to remove main barriers to LPG use through policy innovation, business innovation and financial innovation.

¹Through the EU Infrastructure Trust Fund for Africa

²The German government development bank

³LPG is a near-term, medium-term, and if necessary long-term transitional solution until greener/more efficient energies for household cooking, such as bio-LPG or piped natural gas, become sufficiently viable, cost-effective and scalable to serve large, energy-poor populations.

for both the suppliers and consumers of LPG and LPG equipment, and by mobilising substantial public sector and private sector capital in support of these transitions.

Progress

In 2012, the GLPGP completed a global pre-feasibility and country prioritisation study, assessing the need and impact opportunity for large-scale LPG transitions across some 30 developing countries. The study identified Kenya, Uganda, Tanzania, Ghana and Cameroon as initial priority countries with an urgent need and high potential impact. The GLPGP has since partnered with the governments of these five pilot countries for policy and regulatory reform and investment planning.

In Ghana, the GLPGP co-drafted the LPG section of the Ghana government's Sustainable Energy for All Action Plan, including LPG market reforms, fuel subsidy reforms and approximately USD220m of planned LPG investments and interventions. Based on this plan, the phasing out of distorting LPG fuel subsidies began in Q1 2013. In Q4 2013, the GLPGP established and co-chaired a joint working group with the government to evaluate starting conditions for national LPG market expansion. In Q3 2014, the working group transitioned to a new, presidentially-mandated National Implementation Task Force (NITF) for LPG promotion. The NITF is using GLPGP's Terms of Reference, experts and funding to plan the policy and regulatory reforms, interventions and investments for safe, sustainable expansion of LPG demand, supply and distribution to achieve a target 50% penetration of Ghana's population by 2020, up from about 20% today. Other Ghana-related actions include assisting Columbia University with in-country preparations, including inter-ministerial coordination, for the first major, randomised controlled health study of clean LPG cooking vs. solid-fuel cooking in Kintampo, and the completion of an LPG market and supply chain assessment in collaboration with the University of Pennsylvania's Wharton School of Business. The study identified limited retail access to LPG as the top constraint on LPG demand and consumption among low-income consumers, even after the removal of LPG subsidies.

In Kenya, the GLPGP completed a national LPG assessment in collaboration with the Kenya government and the Global Alliance for Clean Cookstoves. The study findings showed viability for LPG transition of up to 8 million consumers and identified necessary regulatory reforms, investments and interventions to provide them with LPG at a sustainable price at least 25% below what the market had previously been able to deliver.

In Cameroon, the GLPGP has partnered with the government to plan and implement a national LPG expansion to nearly 60% of the population by 2030 from around 10% today. GLPGP is also expanding an existing Cameroon LPG distribution pilot programme to serve an additional 20,000 – 25,000 households during 2015, and is testing the impact on consumer LPG switching and use at low income levels, based on providing consumer financing for LPG equipment and refills and improving local retailing of LPG fuel and equipment. Health and environmental impact monitoring and evaluation are being guided by the US Centers for Disease Control and Prevention (CDC) and other leading research institutions. In South Africa, the GLPGP advised the government on short-term LPG interventions to offset electricity demand for cooking in order to mitigate the country's severe nationwide electric power outages, and on medium- and long-term strategies for developing LPG into a large-scale, socially and economically inclusive alternative to household electricity in the national energy mix.

In India, the GLPGP has partnered a national women's entrepreneurship and financing organisation with 2 million members, the Self-Employed Women's Association, to pilot innovative distribution models for providing up to 20 million additional rural Indian households with LPG by 2020.

GLPGP is presently active in eight focus countries in Africa and Asia and will expand its work to several more countries in 2016 and beyond.

Help change the world

With your help, GLPGP will bring clean, modern energy to millions of families in lower-income countries in Africa, Asia and elsewhere. Your support, large or small, will join that from thousands of others, and from governments, foundations and industry, to bring life-saving clean energy to families living in energy poverty. You will improve their health, empower them with time they can use to pursue education and entrepreneurship, create sustainable jobs and save our planet's forests.

To donate to the GLPGP, please visit:

<http://www.glpgp.com/HelpChangeTheWorld>

To learn more about our organisation, please see:

<http://www.glpgp.com/>



GLPGP and SEWA teams visit rural villagers in India. Photo: GLPGP

AN INTERVIEW WITH... ANITA GEORGE

Senior Director of the World Bank Group's Global Practice on Energy and Extractive Industries



The World Bank Group and its Energy Sector Management Assistance Program (ESMAP) are key players in efforts to improve sustainable energy access, especially in the developing world. Can you please tell us how clean cooking, and especially LPG, is part of these efforts?

As part of its support for the Sustainable Energy for All goal of universal access to modern household energy services, the World Bank Group is undertaking a number of initiatives related to energy access, including supporting the development of sustainable cooking and heating solutions. This includes ongoing regional programmes in Africa, Central America and East Asia. We are also scaling up our efforts in South Asia.

In these efforts, the World Bank Group largely remains technology- and fuel- neutral. In some cases, biomass may make sense, given local conditions and affordability, whereas, in other areas or countries, national priorities are moving to LPG and improving supply chains.

One of the main strengths of the World Bank Group in providing this support is its multidisciplinary expertise cutting across poverty reduction, health, environment, household energy, forestry, natural resource management, climate change and gender. Currently, we are developing a programmatic approach for working across practices in order to provide a coordinated platform and targeted support for clean and efficient cooking and heating.

In the last few years, there has been increased interest in women in energy with a lot of attention being given to biomass cookstoves. What new opportunities would LPG bring to women that would add to achievements from other fuels?

Many of our efforts on clean cooking focus on improved fuels, technologies and adoption and, as I mentioned, we are for the most part fuel- and technology- neutral in our approach. However, evidence shows the adverse impacts on women of fuel collection, including time lost and security issues including exposure to gender-based violence. Moreover, if traditional biomass or inefficient stoves are

used, women and children suffer disproportionately from health impacts from the resulting air pollution.

As a recent report developed by Sustainable Energy for All, ENERGIA and the Global Alliance for Clean Cookstoves notes, switching from traditional biomass to modern fuels such as LPG for cooking can reduce women's work and time burden, improve health and decrease deaths.

A knee-jerk reaction when discussing the need to increase access to LPG in developing countries is often that it is not a renewable energy source, despite studies showing that increases in greenhouse gas (GHG) emissions would be minimal and that lives would be saved as a result of reduced indoor air pollution. What would your response be to such critics from the perspective of benefits for women?

LPG is one of the cleanest-burning fuel options for households ready to switch from cooking with biomass, and can greatly reduce indoor air pollution related to cooking with resulting health benefits. Expanding the use of LPG for cooking is certainly one of the options to be considered in addressing the significant health impacts associated with emissions from cooking and heating with traditional fuels and stoves. Moreover, in cases where efficient use of LPG replaces inefficient production and use of charcoal, the GHG impact may be very small.

However, the cost of LPG is often a limiting factor. Experience with ongoing fuel subsidies has generally not been positive, placing a significant burden on public resources, and often resulting in shortages or unreliable supply to households. Other barriers include an inadequate distribution infrastructure and regulations. Policy and regulatory improvements can lead to safer, more reliable and affordable LPG, which could make LPG more accessible. However, for many households, affordability will remain a barrier for some time to come, so work on alternatives, including cleaner, more efficient solid fuels and stoves, is very important.

We should also note that policymakers sometimes overlook the negative effects that charcoal use has on the environment. Given the increasing prices of charcoal, there is an urgent need to find suitable alternatives. The World Bank is committed to facilitating this transition in client countries where this is a priority.

What can governments do in order to improve LPG access in a manner that benefits women and especially poor women?

One of the key barriers for women, especially poor women, is the lack of access to information about new fuels, technologies and financing. Governments can integrate consumer-awareness programmes and informational campaigns that address some of these barriers. It is also important for the sake of adoption and sustainability to demonstrate the efficiency of modern fuels, both in

terms of timesaving and fuel efficiency. At the same time, affordability needs to be addressed and supply chains strengthened to improve access to LPG as a cooking fuel.

Are there any examples that you can share of women's engagement in the LPG sector, not just as consumers but as entrepreneurs and decision-makers? Given the low levels of women's involvement in the sector, how have these unique cases come about?

In Senegal, the Second Sustainable and Participatory Energy Management Project focuses on increasing female participation in decision-making bodies, particularly forest management systems, and on ensuring that women benefit more equitably from income-generating activities. There has been a considerable focus on training women – in building both technical capacity on charcoal production and commercial gardening, and leadership capacity to help women serve as effective leaders in community committees. These lessons can be applied to the LPG sector: engaging women in the various roles and activities within the sector can provide economic empowerment for women, while also enhancing the LPG market with improved consumer awareness and distribution channels. The World Bank Group is working hard to mainstream gender in our energy programmes and policy dialogues, including by supporting teams to carry out gender assessments and baseline work and developing gender action plans with client countries. Under our global gender and energy programme, support has been provided to several countries, including Senegal, to work with the government and the rural energy agencies to develop entrepreneurial or financial literacy training to help improve access to and use of energy services.

In your opinion, what key components are needed in projects, policies and business models to increase women's participation in the LPG sector?

As in the rest of the energy sector, gender equity must be improved throughout the value chain. This means not only thinking about how women and men are using and accessing energy services, but also how to improve the inclusion of women in areas such as research, development, marketing, distribution and policymaking. Given that women are often in the leading role in the kitchen and in using cooking fuels, having them be part of consultations, design and distribution can improve adoption of modern fuels.

For more information about the World Bank, please visit: www.worldbank.org

WOMEN IN THE LPG SUPPLY CHAIN

An interview with Mrs Ivy Manly-Spain, Chief Executive Officer, Hills Oil Marketing Company

By Margaret Matinga

INTRODUCTION

Half of the human population are female. Women are also major users of energy, especially at the household level. Moreover, in developing countries, they are an important part of energy supply chains, and are the ones chiefly involved in collecting firewood for household and community use. Yet, when it comes to LPG supply, there are very few women involved. Data on women participating in LPG supply chains are not easy to obtain as there appears to be very little gender-disaggregated data. Anecdotal evidence however points towards there being very few women in the supply chains, both in wholesale/bulk supply and in the retail sector. A list of LPG suppliers in Ghana obtained from the website of the National Petroleum Association showed that only 6 (14%) of 42 suppliers were female .

Women's involvement in LPG supply chains is important due to the value that gender equity brings for LPG company owners and shareholders, LPG users and society as a whole. Increasing the numbers of women in LPG supply chains will increase the range of skills and perspectives that they bring to decision making. When it comes to users, women are more likely than men to reach out and convince other women to make the transition to LPG. For society, involvement allows women to earn relatively high levels of income, and research has shown that increasing women's incomes contributes to improved socioeconomic outcomes. Women are more likely than men to invest their incomes in education, nutrition and overall household wellbeing, and hence contribute to societal wellbeing. A question for the energy sector is then how do women get to participate in LPG supply chains? Mrs Ivy Manly-Spain is one of the few women in Ghana who has succeeded as an LPG entrepreneur in one of the hardest sections of the LPG supply chain to penetrate: bulk supply. She is Chief Executive of Hills Oil Marketing Company, which was established in June 2010 with the aim of "supplying LPG and Oil to end-users". The company has a fleet of 35 LPG and oil trucks and employs 45 professionals. We therefore sat down with her in her offices in Accra, Ghana to find out what her experiences have been and to learn from her what the sector can do to support women's participation in LPG supply chains.

Firstly, Mrs Manly-Spain, let me thank you for taking the time out of your busy schedule to talk to me. First of all, how did you come to enter the LPG sector?

I was in the frozen food business [importing into Ghana] and had been back in Ghana for some time. I had been in Ghana since the discovery of oil. [Ghana discovered

commercial quantities of oil in 2007 and started pumping commercially in 2010.] At that time, I was looking to promote agriculture because I was importing frozen food and wanted to support local agriculture or find other ways to help Ghanaians. I wanted to do something locally. The [oil and gas] sector was new and I could see there were opportunities there.

The frozen food sector is very different from the LPG sector and you did not have experience in that sector. What opportunities did you see that made you want to enter the sector?

Every time I was in the city, I would see "No gas", "No gas". Shortages. The no gas syndrome. So I asked myself "why is it that there is no gas anywhere when we have gas [in the country]". So I went to the Ministry and requested their directory. This is where they list what the government needs. However, I was always asking myself "why is there no gas?" So I put my own money together and did a feasibility study. What I found was that this was a very closed sector. It was a man's world. I kept going to the Ministry, saying I could help resolve the shortage. I was trying to penetrate the sector but it was closed.

One day I got a call from the Ministry. They were looking for gas trucks to work in the west of the country. I said I could supply ten. They could not believe it, and so I said what about fifteen? They were astounded and I said thirty. I would do it. I was given the specification documents and then realised I had four months to meet the order. It was a big challenge to get the order, and then to meet it!

So what challenges did you face to meet that first order?

The main one was that, because of the poor roads, the specifications for the hoses were specific to Ghana. I looked everywhere, around the world, and they did not have the 15 mm hoses required by Ghana, with many countries only making 8 mm and 10mm sizes. So I had to have them manufactured. The next challenge was that there were issues with the shipment of my trucks. They were being held up in Las Palmas [Gran Canaria, Spain] due to unresolved issues between the shipping company and one of their service providers. I hired a lawyer, flew to Las Palmas and spent two months there until I got a court to release my trucks. Then I had to hire another shipping company. I finally met the order eight months later.

You wanted to help address the shortages in LPG supply. What exactly was the problem, and did you contribute to its solution?

One of the issues in Ghana is that we have concessionaires for LPG who own a number of outlets. Then they sponsor others – like a franchise system. I discovered that some were not effectively supplying their satellite stations. Supplies would be delayed for two or three weeks. So I went to the NPA [National Petroleum Authority] and asked why we had shortages when there was gas in Tema [Tema is a harbour city on the Atlantic coast, in the southeastern part of Ghana]. After persisting for some time, I was given special dispensation to supply gas. I started supplying gas and talking to those outlets that had shortages to find out what the issues were. I then talked to the concessionaires and told them I was there to help them meet their goals, and was not against them. Once I started helping them out, they realised my business was supportive and not competing against their own businesses. It took a year to see results but, after that, the “no gas syndrome” was eradicated.

You came from the frozen food industry so you already had a substantial business. Did you need to borrow to enter the LPG sector?

I was lucky because, with my business, I had the capital necessary to start without resorting to the banks. For many women, even more than men, access to finance is a problem. You see, profit margins in this sector are not massive. They are 6% to 7% yet, when you borrow, the interest rates are around 30% - so how can you run a business when financing is several times the profit margin? They [interest rates and profit margins] do not reconcile. I wouldn't borrow from the banks here unless that [the interest rates] changed. Men also face this issue but it is slightly different, they tend to have more financial networks to depend upon.

Based on your experiences, what do you think would help get more women into the supply sector, from bulk supply to retailing? What made the difference?

As you have heard, affordable finance would help women enter the sector. This is an important issue that needs to be addressed. I also had to keep fighting. I had to show the value of what I wanted to do and how that would help others achieve their own goals. Once they realised the value I was adding to their businesses, they were more open. There are still some old-timers who stick to their ways, but many now realise that I have similar goals and that I'm not there to displace them. Now they know that, they pick up the phone and call us if they have shortages. We have 30 trucks and they go all over the country. We meet our supply deadlines and so people know we are dependable.

What else can be done to promote women in the sector?

To be fair, the government has worked hard to support and improve LPG usage. Every day and every year we see an increase. Many people in urban areas in Ghana now use LPG, and, slowly, in rural areas too. This is helping reduce environmental degradation, smoke inhalation,

and is making cooking easier and faster. One day I hope gas will be known by everyone.

Talking about everyone using LPG, the government has in the past distributed LPG cylinders. I noted they are doing this again now - distributing about 50,000 cylinders. How do you see this policy?

This has been a good policy. It has helped people to try LPG and, once they do, they keep using it. This has helped increase the use of LPG. Just a day or two ago I said to my manager, look!, because we can already see the increase in LPG demand since this new campaign started. Some people would never otherwise have tried LPG, but with this campaign they do, and they like it.

Are there other networks supporting the government with awareness campaigns?

Well, other than the government, the NPA is also working hard, especially on the issues of safety. They have held many sensitisation events, including workshops. They train us Oil Marketing Companies, and we train the users. There has been nationwide sensitisation, and this is why you see an increased uptake. Ghanaian women have tended to fear gas and this has been the main barrier, but this is now improving. As a guess, I would say probably 50% to 60% now know how to use LPG safely. There is also some networking through the NPA and the LPG Association but this is not gender-specific. Women in the sector are networking within this as well.

Any recommendations you would like to make about encouraging women in the supply sector?

The first is that women already in the sector have to be supported. They can then act as role models for other women. Then there is a need for support financing as I have said. Another need is for technical support with equipment and understanding specifications. These are not easy to understand when one is starting out in the sector. Visits [study tours] to other countries are also needed. This would build capacity as most of us women are new to this. Such visits would give us the opportunity to look at their systems, what they are doing differently, new techniques and how they are dealing with challenges. You see, there is a lot we can learn from Nigeria, Equatorial Guinea, Angola and others. As I said before, this industry requires one to be confident and persistent. If not, you can be pushed out. It is not an easy area. It is a truly male-dominated sector.

Going forward, tell me what your plans are?

I would like to expand and have more LPG tanks. However, we are not self-sufficient in LPG here: we import about 30% as I am sure you know. This contributes to costs and shortages. I want to see Ghana become self-sufficient and even export, and I am sure we will get there. And, I want to be ready for that. I want to be involved in refining, in the building of plants, and I want to be an exporter. I have learnt a lot and I am always observing. So this is what I want to do.

I would like to thank you for your time. As we close the interview, any last words?

I want to emphasise that the benefits of LPG for women are enormous. Just being able to cook without so many worries is a big and positive change for women. So, the government should continue to do what they do. In introducing yourself, you talked about the World LPG Association, and this is something we are not aware of. We need to connect with such associations, solve problems together and learn from each other. We need to get LPG out there and stop the destruction of forests and stop women cooking in a polluted environment - and it can be done.

CONCLUSION

The LPG sector in developing countries is growing, and the lack of women in its supply chains means that women are missing out on income-generating opportunities. Further, the industry is missing out by not enabling women to contribute their unique perspectives on solving challenges encountered in the sector. While some barriers to women are seen in many energy supply chains, the LPG sector has some unique ones. Unlike

the biomass and biomass stove subsectors for example, the LPG sector is highly formalised and institutionalised. Thus, having the networks and the confidence to interact with official institutions is vital if women are to enter and remain in LPG supply chains. Another key issue is capital. There remain too few opportunities for accessing affordable finance and the high levels of finance required for participation in LPG supply chains. While microfinance has been used to improve women's access to finance and facilitate their entry into biomass and portable solar supply chains, it is likely that, in the LPG sector, the financial requirements are too high. Thus, there is need for energy finance that goes beyond the limitations of microfinance. Last, but not least, the role of role models cannot be over-estimated. Role models provide inspiration and can mentor new entrants to the sector. Women like Mrs Ivy Manly-Spain show that it is possible for women to participate in LPG supply chains at the highest levels, but that they will remain a rarity without concerted efforts to reduce the entry barriers.



Portable LPG cylinders help address distribution challenges. Photo: WLPGA

HELPING FAMILIES TO CONVERT TO COOKING WITH CLEAN BURNING STOVES AND FUELS IN GUATEMALA

The GenteGas Pilot

By Alison Abbott of the World LPG Association (WLPGA) and Christina Espinosa, Co-founder and CEO of GenteGas

GenteGas, a WLPGA member, is a high-impact social enterprise dedicated to improving the quality of life of families in Guatemala. GenteGas' mission is to reduce the entry costs of clean burning stoves and fuels as well as to provide income-generating opportunities to women with the purposes of eradicating toxic cooking smoke and the associated diseases and death, increasing public awareness about health risks from solid fuel use, alleviating the pressure on local forests, promoting local economic development and, ultimately, increasing the quality of life for families in Guatemala.

IDENTIFYING THE ISSUE

In the context of global health, cooking smoke is the fifth largest 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. Toxic cooking smoke is responsible for over **four million deaths a year**, that 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, household air pollution from solid fuels causes 80,000 deaths annually and 2.7 million disability-adjusted lives lost¹. In Guatemala, fifteen Guatemalans die every day from cooking with wood and a staggering **9.6 million people** are affected by HAP². Guatemala has the highest percentage of disease attributable to solid fuel use in Central America³. Wood fuel, used by 94% of rural households in Guatemala (ENCOVI 2011, Guatemala National Institute of Statistics), is responsible for deaths and major health issues such as acute respiratory infections, chronic obstructive pulmonary disease, low birth weight, perinatal mortality, asthma, tuberculosis, cataracts and cardiovascular disease⁴. Acute respiratory infection is the single most common cause of morbidity and mortality in Guatemala⁵ 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 of acute respiratory infections such as

pneumonia⁶. HAP from solid fuels is the second highest risk factor for disease in Guatemala. A further effect of cooking with wood is deforestation and Guatemala lost 23% of its forest cover between 1990 and 2010⁷.

Fuels such as LPG can address problems associated with HAP because they emit fewer pollutants. According to Smith (2012), who compared the use of LPG with fan stoves, chimney/rocket simple improved stoves and open fires, LPG was the only one where emissions were below the critical level of 10µg per m³, which is the level required to yield observable health benefits. Despite this, LPG use remains low, to an extent due to the perceived costs and safety concerns. Studies however often show that such perceptions of costs and safety are misplaced and result from consumers being ill-informed.

THE LPG MARKET IN GUATEMALA

With an estimated population of around 15.8 million, Guatemala is the most populous state in Central America. Despite, there being an estimated 2.1 million households that could afford to adopt LPG, Guatemala has only a 3%-4% annual growth rate for new LPG adoption. About 71% of all households still use firewood for cooking, and Guatemala's annual consumption of dry firewood stands at 14.5 metric tonnes. As such, there is a large potential market for LPG adoption. The three main national gas companies do not have a market penetration strategy for the critical bottom of the pyramid, and increasing and fluctuating gas prices have inhibited customer sales and heightened consumers' distrust of the LPG industry. The Guatemalan LPG industry needs to address safety concerns and the reputation of the sector. LPG users and potential LPG adopters constantly report major safety issues with the gas cylinders. In addition, LPG users have major concerns about poor cylinder quality, partially filled cylinders, leaks and LPG price volatility, which has led to consumers distrusting the LPG retailers and suppliers (Labriet et al., 2015, PHI).

WHY LPG?

Cooking with wood has been the norm in Guatemala for generations, and one concern was that the population would, for cultural and historical reasons, be reluctant to give up traditional methods and switch to LPG. To investigate this, GenteGas conducted a comprehensive

¹ <http://apps.who.int/gho/data/view.main.HAPBYCAUSEBYREGIONANDWORLDv>

² <http://cleancookstoves.org/country-profiles/focus-countries/2-guatemala.html>

³ <http://apps.who.int/gho/data/view.main.HAPBYCAUSEBYREGIONANDWORLDv>

⁴ <http://ehp.niehs.nih.gov/1306639/#tab2>

⁵ http://www.healthdata.org/sites/default/files/files/country_profiles/GBD/ihme_gbd_country_report_guatemala.pdf

⁶ <http://ehsdiv.sph.berkeley.edu/krsmith/publications/2011/lancet2011.pdf>

⁷ <http://rainforests.mongabay.com/deforestation/2000/Guatemala.htm>

market survey to understand the population's interest in and appetite for what could ultimately be a lifesaving switch. Interestingly, the results of the survey showed that respondents did not value wood highly as tradition would suggest, and most respondents saw the increased cooking speed as a key reason for using LPG.

The other most compelling reasons offered for adopting LPG were related to safety, health issues, lack of smoke, no need to wait for the fuel to ignite and become hot and no need to gather wood. When discussing wood, the survey showed that the main reasons families continue to use wood are due to its accessibility, its relatively inexpensive cost, an element of tradition, and also that gas is perceived as somewhat scary.

Although LPG was perceived as scary, it was also seen as healthy and reliable. GenteGas is confident that good training materials will be able to show that LPG is not only healthy but a safe cooking alternative.

While the survey identified several barriers to the adoption of LPG cookstoves, many of these barriers or doubts over converting could be decreased or even eliminated by an effective awareness campaign on the benefits of the fuel. One major barrier is the large capital outlay required to purchase a stove, and therefore access to microcredit, plus an increased understanding of how to manage household savings and finances, is a very important part of the project.

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.

In a 2015 report commissioned by the Public Health Institute entitled 'Scaling Up Demand for LPG in Guatemala: Motivators, Barriers and Opportunities', the five main barriers to transitioning to LPG were identified as: 1) safety concerns and poor quality LPG cylinders; 2) reputation of LPG retailers and suppliers; 3) lack of knowledge on how to cook with LPG; 4) lack of knowledge on how to use a pressure cooker, which is essential for cooking foods like beans that take a long time; and 5) absence of easy cost comparisons between LPG and firewood cooking. The critical lack of consumer access to information and their distrust in the LPG market are the barriers that GenteGas focuses on in its business model. In a 2014 study of 3,593 households in Alotenango by the Universidad del Valle (UVG) and the University of California San Francisco (UCSF), 81% of wood users were women who purchase all or a portion of their wood fuel. These wood users spend an average of \$10 per month more on cooking fuel than gas users do. A GenteGas market study of 300 households in 2011 found that 90% of wood users would be interested in switching to a gas stove, and that 76% would be able to afford monthly stove payments and fuel costs.



*GenteGas promoter explains how to install an LPG cylinder
Photo: GenteGas*

The UVG/UCSF study found that 71% of families that were interested in owning LPG stoves would prefer to buy a stove using credit rather than purchasing outright. These households' incomes were predominantly generated in the informal sectors. In the 1,021 households surveyed, 84.7% of primary income and 66.7% of secondary income was generated in the informal economy (cultivation, household help, temporary work etc.). These findings support GenteGas' view that while many of its target customers are interested in product finance, most will be unable to obtain credit because of their reliance on the informal economy, which often results in the inability to supply the income documentation required by local banks. As such, the GenteGas in-house financing option will be crucial to the success of the pilot.

Another interesting finding is that while several families often live within a single household, many purchase and cook their food separately, and then all eat together. As such, a household may require a separate stove for each family unit, indicating that the market is potentially larger than it first appears.

THE GENTEGAS SOLUTION

GenteGas is one of the first social enterprises to offer market-based affordable gas stoves to low-income families exposed to toxic levels of wood smoke. The project's unique approach deploys community sales agents to sell gas stoves and provide advice on avoiding HAP for a healthier and safer environment.

The GenteGas solution is to use clean burning and reliable LPG stoves organised through a community engagement programme that teaches entrepreneurship, empowerment and leadership. The recruitment model identifies, engages and trains community sales agents. GenteGas offers the stove, tank, tubing and regulator in a single package along with the option of financing the

entire package over twelve months. GenteGas also offers community education and maintains a partnership with the local municipalities in which it works to provide free classes on cooking with pressure cookers, which include consumer safety and health education topics. These classes are currently supported in four municipalities through the local Office for Woman's Affairs. The Association of Guatemalan LPG Companies works with Orwal Gas S.A., a local Guatemala LPG distributor, to provide LPG tank maintenance and deliveries of refilled tanks to GenteGas for direct distribution to its customers, who expect full and well-maintained quality cylinders. The biggest barrier to LPG adoption is the lack of access to credit mechanisms to finance the stove package. Due to the lack of interest from large banks and local microfinance institutions, GenteGas has developed an in-house credit mechanism to serve these families.

WHAT IS IN THE GENTEGAS STARTER PACKAGE?

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

- The stove (with a variety of options for the consumer)
- 25lb filled LPG cylinder
- Cylinder regulator, tubing and clamps
- Stove delivery and installation by GenteGas
- Cylinder maintenance, provided 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

THE BENEFITS OF THE GENTEGAS APPROACH

By shifting to cooking with LPG, the consumer soon experiences 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 savings associated with the healthcare and medicine costs needed to treat these toxic cooking-smoke-related illnesses. GenteGas offers



Community sales agents sharing a light moment during technical training. Photo: GenteGas

Key findings of 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 create health problems.

76% of wood users would be able to afford monthly stove payments and fuel costs.

Only **16%** of respondents had a solid understanding of loan management.

public education on safety and the correct handling of LPG, which in turn increases public awareness of the health risks associated with solid fuel use and empowers consumers to demand safe cylinders from providers. Education on finance and loan management is typically given to the female heads of households, increasing their financial literacy. Identifying local women or unemployed youth to become sales agents provides new economic opportunities that generate income for these sales agents, provides local job training and experience, and promotes local business development. Poorly served families gain access to financial services and assistance during the loan application process. The time saved by cooking with LPG creates time for other income-generating activities and education. Finally, cooking with clean-burning LPG decreases pressure on local forests with deforestation being a serious concern in Guatemala.

WHAT NEXT FOR GENTEGAS?

The project plan was put into action in October 2014 with secure investment and strategic alliances with the Universidad del Valle Guatemala, the US Centers for Disease Control and the University of California, San Francisco. This was closely followed by the launch of operations on a district-by-district basis. Currently, the main barriers to GenteGas scaling up its model include consumer financing and the recruitment, training and retaining of sales agents. While GenteGas is still in the proof-of-concept phase, the hope is to expand operations in 2016 with the goal of 50,000 additional households using clean burning fuel by 2020, with annual revenues estimated at USD 15.5 million.

GenteGas is creating a community of healthier families, training sales agents to generate income for their families and increasing health education in the households. Most importantly, the families benefit from using this clean burning fuel that reduces the incidents of disease and death linked to solid fuel use. Families can be confident that their new LPG stoves will deliver these benefits. There is a global recognition that cooking should not kill, and so this is a project to be watched and a model that could be rolled out in meeting the worldwide challenge to cook safely.

NEWS FROM THE SECRETARIAT

Greetings!

Since our last issue of ENERGIA News, in December 2014, we have made quite some progress in our programmes. This is of course thanks to our partner organisations in the programme countries, who are fully on board and committed to achieving the targets set and delivering high quality products and outputs. We would like to share with you the major accomplishments in the ongoing programmes and projects.

WOMEN'S ECONOMIC EMPOWERMENT

Between 2014 and 2017, ENERGIA is implementing the Women's Economic Empowerment programme (WE) through its partner organisations in Kenya, Uganda, Tanzania, Senegal, Nigeria, Nepal and Indonesia. The programme promotes access by poor rural populations to clean energy technologies and supports over 3,000 women's micro- and small energy enterprises, building their capacities through business development support, technical training and assistance, and hand-held support. WE facilitates links with financial institutions and clean energy product supply chains, and strengthens distribution and marketing chains. The WE partners are creating leaders - women that start with small energy businesses but, through consistent support and mentoring, may go on to become social leaders in their communities.

In December 2014, during an inception meeting, the partners had a chance to meet, share experiences and exchange information. Together, we discussed the different business models that the partners are using, identified capacity-building needs, developed a common vision and work programme and identified synergies.

In early 2015, all the partners had identified the first group of women entrepreneurs that the programme would work with, and started in assessing their needs, profiling them and supporting them through training in business development, bookkeeping, market analysis and related topics. Currently, 1600 women in Indonesia, Kenya, Nepal, Nigeria, Senegal, Tanzania and Uganda are receiving training and technical support.

In April this year, based on the gaps identified during the inception and follow-up meetings, a tailor-made business development support (BDS) training programme was organised. Twenty technical staff participated. The training was facilitated by two experienced staff members of our partner organisation GVEP, who were well versed in business development services, gender and entrepreneurship issues. The training covered: market scanning, selecting clients, identifying training needs, basic skills for entrepreneurs (including marketing,

customer care, costing & pricing, record keeping, business planning and business financing), mentoring, market development interventions, access to finance, monitoring and evaluation, and understanding value chains. At the end of the training course, each participating organisation drew up a BDS action plan, identifying areas that still

Reaching over 2,000,000 consumers through strengthening, with training and technical support, 3,000 women-led businesses delivering energy services

needed to be strengthened in order to effectively provide the best BDS services to the women entrepreneurs. Based on their needs, each organisation receives, for a period of six months, bi-monthly mentoring through Skype calls.

Under the WE programme, partners will this year also have the opportunity to participate in training on the empowerment of women entrepreneurs who work in the household energy value chain. This training will be conducted by Anita Shankar and Genevieve Smith, authors of the Empowered Entrepreneur Training Handbook (see the Resources section), and consists of an introductory webinar, a face-to-face workshop, a practicum and monitoring activities.

Expectations for the rest of 2015 and early 2016 are to have all 3,000 entrepreneurs on board and supported through training in technology use and maintenance, sales and marketing, bookkeeping and public speaking. Another partner meeting is also planned to enable the partners to exchange experiences and learn from each other.

WE partners:

Kopernik in Indonesia; Practical Action Eastern Africa (PA Eastern Africa) and Sustainable Community Development Services (SCODE) in Kenya; Solar Sister in Tanzania, Nigeria, Uganda and Kenya; Centre for Rural Technology, Nepal (CRT/N), National Association of Community Electricity Users, Nepal (NACEUN) and Practical Action Consulting in Nepal; Global Village Energy Partnership International (GVEP International) and Social and Ecological Management Fund (SEM Fund) in Senegal.



The BDS training participants
Photo: Maurits van Tongeren/ENERGIA

GENDER AND ENERGY RESEARCH PROGRAMME

The Gender and Energy Research programme, funded by DFID, is now up and running. From the start of 2015 until the end of 2018, five teams will be carrying out research to generate empirical evidence on the links between gender, energy and poverty, and will disseminate this evidence to support policy and practice, covering the following themes:

1. *Exploring Factors that Enhance and Restrict Women's Empowerment through Electrification*
Lead partner: University of Oslo (UiO), Norway
With: The Energy & Resources Institute (TERI), India; Seacrest Consulting, Kenya; Dunamai Energy, Malawi; collaborating partner: Alternative Energy Promotion Centre (AEPIC), Nepal
2. *Productive uses of energy in informal food preparation and processing sectors*
Lead partner: University of Twente, the Netherlands
With: University of Cape Town, South Africa; MARGE Energy Environment and Sustainable development (MARGE), Rwanda; Environment Development Action in the Third World (ENDA), Senegal
3. *The political economy of energy sector dynamics;*
Lead partner: M.S. Swaminathan Research Foundation, India
With: Center for Rural Technology (CRT), Nepal
4. *Gender and Energy Sector Reform*
Lead partner: Global Subsidies Initiative of the International Institute for Sustainable Development (IISD)
With: Integrated Research and Action for Development (IRADe), India; Bangladesh Institute of Development Studies (BIDS), Bangladesh; Spaces for Change, Nigeria

5. The role of the private sector in scaling up energy access

Lead partner: Environment Policy Research Unit (EPRU) of the University of Cape Town, South Africa
With: Innovations for Poverty Action (IPA), Rwanda; NURU East Africa Ltd. (NURU), Rwanda

The research will initially be carried out in India, Nepal, Bangladesh, South Africa, Senegal, Rwanda and Nigeria, and probably expanded to include other countries.

Apart from the five research themes, a study has been commissioned entitled: *Lessons learned from gender approaches in the energy sector*. The lead partner is the University of Twente, the Netherlands, with contributions from ENDA Tier Monde, Practical Action East Africa and the Centre for Rural Technology, Nepal. This study will be finalised in December 2015.

The Scoping Phase of the research started with an inception meeting in Geneva in February 2015, hosted by the Global Subsidies Initiative of the IISD. The exchanges at the inception meeting were valued by all members of the Programme Consortium, with discussions between the members of the research teams' consortia, the experts from the Research Programme's Technical Advisory Group including DFID, the Principal Investigator and the ENERGIA International Secretariat (ENERGIA IS). The open feedback and advice, and the interactive exchanges, were used to adapt the proposals and work plans for the scoping phase of the research, and identify priorities for coordination by ENERGIA IS.

To generate and analyse empirical evidence on the links between gender, energy and poverty; and to translate this evidence into recommendations for energy policy and practice.

Over the recent months, the research teams have been carrying out literature reviews, field visits and consultations with key stakeholders in order to develop scoping reports presenting the state-of-the-art and insights into the respective themes and to fine-tune their research plans for the remainder of the research programme.

The programme management, in cooperation with external experts, has organised two webinars on topics that had been identified as key priorities for coordination and cooperation within the programme. The first webinar was on Indicator Development and the second on Gender Approaches in the energy sector. Both webinars contributed to cooperation and exchange between research teams.

The Research Consortium will meet again in November, when the findings from this first year will be discussed to finalise the Scoping Phase, and plans for Phase 2 of the research will be detailed. This meeting will be hosted by the University of Cape Town, who will also arrange for a field visit to women entrepreneurs. The reports from the scoping study, as well as other outputs with the latest findings on gender and energy, will be published on ENERGIA's website: www.energia.org/research.

GENDER AND ENERGY ADVOCACY PROGRAMME

Our partners implementing the Women's Economic Empowerment programme in Indonesia, Kenya, Nepal, Senegal and Tanzania are also engaged in our Gender and Energy Advocacy programme that aims to include gender objectives in SE4All country action plans and investment prospectuses. As with the two aforementioned programmes, this programme is now fully on the go.

In all five countries, advocacy teams are in place, engaging with national and regional governments, CSOs and other stakeholders in meetings and workshops, aiming to get all stakeholders on the same page regarding the importance of including gender in energy policies and practices. The partners participate in SE4ALL processes at national, regional and global levels aiming to elevate the profile of gender and energy and stress its importance.

National awareness-raising campaigns are aiming to provide information and educate over fourteen million people on energy access and women's economic empowerment through energy entrepreneurship. These campaigns are rolled out in different ways in the various countries. In Indonesia, nationally known TV presenters will engage with the campaign as spokespersons, together with one of Kopernik's Wonder Women (<http://www.kopernik.ngo/page/wonder-women-indonesia>). Solar Sister's WE Shine campaign in Tanzania will include a photo exhibition, a video and targeted print,



Josephine Ngumba, small-scale charcoal business owner in Kenya, addresses the audience during SE4ALL's Second Annual Forum in New York. Photo: ENERGIA/Show the Good

TV and radio outreach; while, in Senegal, the GVEP and SEM Fund partners have met with various senior government officials and are focussing on establishing a media presence.

Advocacy programme partners:

Kopernik, Tulodo and Prodigy+ in Indonesia; PA Eastern Africa and Sustainable SCODE in Kenya; CRT/N, NACEUN and the Nepal Forum of Environmental Journalists (NEFEJ) in Nepal; GVEP International and SEM Fund in Senegal; Solar Sister, Tanzania National Gender and Sustainable Energy Network (NGSEN), Show the Good and Ripple Effect Images in Tanzania

Getting cooking energy right in the Post-2015 Indicators

ENERGIA and the Global Alliance for Clean Cookstoves are contributing to the work of the Inter-Agency and Expert Group on the Sustainable Development Goal Indicators (IAEG-SDGI) by standing together for the consistent and accurate inclusion of cooking energy, a particularly important concern for women in the developing world, throughout the Post-2015 indicator framework. The joint memo reviews the present indicators related to cooking energy, and proposes three modified indicators that we consider essential to getting cooking energy right in the Post-2015 indicators: for Goal 7 on sustainable energy; Goal 3 on health; and Goal 5 on gender equality.

ENERGIA's advocacy efforts also support the umbrella statement, in the list of proposals for SDG indicators, that "All indicators should be disaggregated by sex, age, residence (Urban/Rural) and other characteristics, as relevant and possible." ENERGIA plans to be closely involved in later stages in the conceptualisation and definition of disaggregation by sex for all energy-related indicators, in particular the indicator on energy access including electricity, but also indicators on renewable energy and energy efficiency.

For more information, please see: <http://energia.org/2015/08/getting-cooking-energy-right-in-the-post-2015-indicators/>

IMPROVING GENDER-INCLUSIVE ACCESS TO CLEAN AND RENEWABLE ENERGY IN BHUTAN, NEPAL AND SRI LANKA

In February 2012, ENERGIA engaged with the Asian Development Bank (ADB) in a three-year project to improve gender-inclusive access to clean and renewable energy in Bhutan, Nepal and Sri Lanka. ENERGIA implemented this project in partnership with national NGO partners in the three countries. The project consisted of three components:

- A gender review of the energy sector in the three countries.
- Increasing energy-based livelihood opportunities for rural women and strengthening women-led operations and maintenance systems for small-scale energy technologies.

- Designing and implementing a Project Performance and Monitoring System (PPMS) to track and document social and gender-related processes and the impacts of interventions.

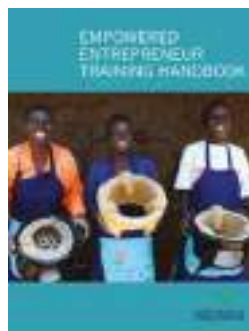
A number of activities were implemented including the following:

- a. Gender assessments of the energy sector in Nepal, Bhutan and Sri Lanka, documenting good practices in incorporating pro-poor and gender-related aspects in energy sector policies, laws and regulations. The assessment included desk reviews, stakeholder interactions at provincial, state and national levels and national-level learning workshops.
- b. A regional review and comparative gender-assessment of energy sector policies in the South Asia region, resulting in a policy brief.
- c. Supporting 2,133 people, including 1,637 women, in newly electrified communities to strengthen energy-based livelihoods through the systematic scoping of women as potential entrepreneurs; a set of capacity-building measures starting with technical training, an introduction to enterprise development, advanced skills training and training on aspects related to finance, accounting and business management; followed by ensuring linkages for loans and marketing and long-term hand-holding support. Training covered business skills, energy efficiency and skills development in various areas including assembly of LED bulbs, fruit processing, farm management and poultry.
- d. In newly electrified communities, designing and implementing awareness-raising campaigns, through women, to educate electricity users about energy saving and conservation, the safe use of electricity and energy-related livelihood opportunities. Gender-sensitive educational and campaign materials were designed in collaboration with the utilities, local women and men were trained as motivators, and large-scale campaigns were undertaken for households, offices and institutions. A total of 27,644 individuals were reached through awareness-raising activities related to the efficient and safe use of electricity. Groups attending the awareness-raising activities included school students, Buddhist monks, electricity user cooperatives and communities recently connected to the grid.
- e. Conducting management training for community-based institutions involved in rural electrification such as the electricity user cooperatives in Nepal.
- f. Developing and implementing a monitoring and evaluation plan including key performance indicators and baseline and final surveys to track and document social and gender-related processes and the impacts of interventions.
- g. Systematic documentation of the processes and results through gathering country-level information and developing case studies as well as educational and communication materials in local languages.



Community awareness-training in Bhutan. Photo: Royal Society for Protection of Nature (RSPN)

EMPOWERED ENTREPRENEUR TRAINING HANDBOOK



The "Empowered Entrepreneur Training Handbook" provides six-days worth of business skills, empowerment and leadership training curricula and tools. It is designed to support an organisation and its trainers in empowering women micro-entrepreneurs, small enterprise owners and sales agents who work throughout the value chain in the household energy sector. While the Handbook has been developed by the Global Alliance for Clean

Cookstoves and is designed to empower women to scale up adoption of clean cooking solutions globally, it has applicability throughout the household energy sector.

Authors: G. Smith and A. Shankar

Published by: Global Alliance for Clean Cookstoves Year: 2015

Download the full version of this publication at: <http://cleancookstoves.org/resources/342.html>

BOILING POINT 66: WOMEN, ENERGY AND ECONOMIC EMPOWERMENT



This issue's theme is Women, Energy and Economic Empowerment and shines light on the role of women in delivering energy products and services to the poor and 'difficult to reach' consumers. The issue also explores the impact that women-led micro- and small enterprises (MSEs) selling energy services can have with respect to household spending, poverty, gender equality and local markets and economies.

Editors: Hedon and ENERGIA

Published by: Hedon Year: 2015

Download this publication at:

<http://www.hedon.info/View+issue&itemId=13693>

COOKING WITH GAS: WHY WOMEN IN DEVELOPING COUNTRIES WANT LPG AND HOW THEY CAN GET IT



The World Energy Outlook estimates that almost 1.3 billion people, mostly living in rural areas of developing Asia or Sub-Saharan Africa countries, are without access to electricity. Reports estimate that 2.6 billion people rely on traditional use of biomass for cooking and heating purposes which causes them to inhale carcinogenic smoke resulting in over 4 million premature deaths per year worldwide, mostly women and girls. This new publication

explores the gendered aspects in energy access, including the health improvements for the family and for women by increasing access to LPG as a cooking fuel.

Author: E. Cecelski and M. Matinga

Published by: WLPGA Year: 2014

Download this publication at: <http://wlpga.org/uploads/Modules/Publications/2014---cooking-with-lp-gas-women-report.pdf>

GENDER AND LIVELIHOODS IMPACTS OF CLEAN COOKSTOVES IN SOUTH ASIA



This study measured the use of improved cookstoves in India, Bangladesh and Nepal, and found that women spend the equivalent of more than two weeks each year collecting firewood in India. Households using cleaner, more efficient cookstoves saved significant amounts of time and used less fuel than those using traditional stoves. Women who saved time in this way reported spending more time becoming involved in social and family

activities, including spending time with their children and monitoring their studies.

Author: Practical Action

Published by: Global Alliance for Clean Cookstoves Year: 2015

Download this publication at: <http://cleancookstoves.org/binary-data/RESOURCE/file/000/000/357-1.pdf>

Clean Energy is Life Campaign Portal: www.cleanenergyislife.org



The Sustainable Energy for All (SE4All) initiative is working to ensure universal access to modern energy services by 2030 - while also ramping up renewable energy and efficient energy use to help fight climate change.

Partners in the SE4All family, from governments and international institutions to private businesses, banks and NGOs, are working together to deliver concrete practical solutions to these problems.

Join the Energy for Life campaign
Join the Sustainable Energy for All Movement

UPCOMING EVENTS

Event	Date	Place
United Nations Sustainable Development Summit 2015	25 – 27 September 2015	New York, USA
28th World LPG Forum	28 September – 2 October 2015	Singapore
South Africa International Renewable Energy Conference (SAIREC)	4– 7 October 2015	Cape Town, South Africa
Second meeting of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs)	26 - 28 October 2015	Bangkok, Thailand
Achieving Sustainable Hydropower – Social Impact Assessment Course	26 – 30 October 2015	Hanoi, Vietnam
Clean Cooking Forum 2015	10 – 13 November 2015	Accra, Ghana

ENERGIA

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