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LPG PROMOTION PROGRAM

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ABSTRACT

Energy has a direct bearing on the growth of any nation's economy. The significant contribution of access to clean, cheap and reliable energy resources to every nation cannot be overemphasized. The LPG Promotion Program was established in 1990 as government's intervention to reduce overdependence on wood fuels for domestic use. However, due to many setbacks, the promotion was discontinued. The failure of the promotion can mainly be attributed to the inefficient guidelines and regulations implemented to monitor its progress.

Consequently the government has begun a new Rural LPG Promotion Program to improve LPG access in the rural areas from 3% as recorded in 2012 to 15% by 2016. Much effort must be made to make this new program sustainable and yield better results. One such way is to review past policies to identify shortfalls of the old promotion program and implement better strategies. It may be necessary to reintroduce LPG subsidy component for households who benefit from the new program since cost of LPG purchase is a major factor of low LPG patronage.

INTRODUCTION

Wood fuel is the main source of energy for averagely 70% of households in Ghana (Republic of Ghana et al., 2012). Households either lack access to or cannot afford modern fuels. Access to modern forms of energy sources is an integral part of the development agenda of any country, especially, developing countries. According to the United Nations Development Program (UNDP) and the World Health Organization (WHO) the term modern fuels refers to electricity, liquid fuels such as kerosene, and gaseous fuels such as liquefied petroleum gas (LPG), natural gas, and excludes traditional biomass and coal (Faisal et al., 2013).

To address the overdependence on traditional wood fuels for domestic applications, the government of Ghana in 1990, introduced an LPG Promotion Program with the long term goal of ensuring that households substitute the use of wood fuels for LPG for domestic activities. The rationale was to safeguard the forests from depletion. The short term goal of the promotion was aimed at eliminating the flaring of LPG at Tema Oil Refinery (TOR) (Quaye-Foli, 2002).

The promotion targeted urban households, public catering facilities and small-scale food sellers. Extensive promotional and educational campaigns were carried out to ensure that environmental, health and safety regulations were adhered to. The campaign also elaborated the benefits of switching to LPG (UNDP, 2004).

Since the inception of the promotion in 1990, there has been a gradual increase in LPG consumption by an average of 80%. LPG consumption increased from 5,000 tons in 1990 to 34,000 tons in 1994 indicating an 85% increase. Annual LPG consumption also grew from 45,000 tons in 2000 to 220,000 tons in 2009. As of 2013, LPG consumption was recorded at 251,800 tons (Energy Commission, 2014).

The promotion was discontinued after being buffeted by so many challenges. One major challenge was the frequent shortages of LPG mainly due to TOR's inability to meet the growing demand of consumers. For example, LPG consumption dropped from 220,000 tons to 178,000 tons in 2010 mainly due to a long shutdown of TOR. These frequent shortages have pushed many households to revert to the use of charcoal and firewood for most domestic chores.

Over the years, there has been a consistent effort by the government of Ghana to implement strategies that will further advance the promotion and curb some of the challenges faced. In 2010, the National Energy Policy indicated government's intention to increase household access to LPG as the main cooking fuel to 50% by 2015. However, as of 2015, this target has still not been achieved. According to Mensah et al., (2013), a 50% access for LPG was more realistic in 2020 than 2015.

The government also initiated revised policies to promote effective strategies to achieve better results. To this effect, the government launched a program in 2014 to distribute 350,000 LPG cylinders and stoves free of charge in rural districts by the end of 2016 (GraphicOnline, 2015).

LPG ACCESS – WHO USES LPG?

According to the Ghana Living Standards Survey (GLSS) in 2005/2006, 55.06% of Ghanaian households used wood as their main fuel for cooking while 28.72% used charcoal, 8.94% used gas, and 7.28% of the population used other cooking fuels or did no cooking (Brew-Hammond et al., 2013). LPG access has increased steadily since and in 2010, national LPG access was recorded at 18%.

It has been found that the selection of modern fuels, especially LPG for household use is intrinsically linked with these two factors below:

- **Household income levels:** income earnings of households determine their expenditure. Households which fall within the lowest income quintile tend to depend on firewood and charcoal for cooking purposes. As household's income increases, patronage of gas (LPG) also goes up (as shown in Figure 1).
- **Household educational levels:** educational levels of households, especially those headed by women, influence

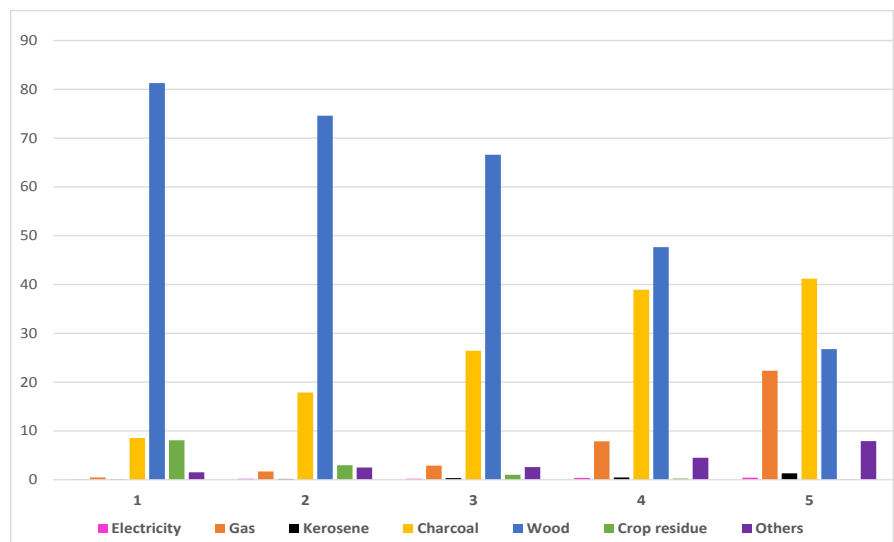


Figure 1: Relationship between income quintile level and household fuel selection. Redrawn with permission from Faisal et al., (2013)

the fuel selection for household use. Households tend to have strong preferences for or are mentally committed to the use of specific fuels based on their educational levels. In Ghana, only 29% of women have secondary schooling or higher (Women in Social Enterprise, 2015) and this has contributed to the low patronage of LPG.

THE LPG PROMOTION PROGRAM

The LPG Promotion Program was introduced in 1990 as government's intervention to reduce the overdependence on traditional wood fuels for cooking and other household applications. To this effect, the promotion was characterized by certain features put in place to ensure delivery of its intended goal. The promotion chalked some successes and also faced some downsides as outlined below.

Features of the LPG Promotion Program

The main features of the promotion were:

- Free distribution of 14.5kg and 5kg LPG cylinders to the public;
- LPG delivery service to registered private individuals for LPG retailing;
- Upgrading of TOR;
- LPG subsidy and other fiscal incentives;
- Free plant and equipment installations for educational institutions, hospitals and prisons;
- Establishment of the LPG Fund to fund the purchase and maintenance of LPG cylinders and kitchen equipment for institutions
- Construction of the Ghana Cylinder Manufacturing Company (GCMC) factory in Accra

As a promotional strategy, 14.5 kg and 5 kg LPG cylinders were distributed freely to the public. Consumers were either given free cylinders on request or were given cylinders filled with gas and only required to pay for the cost of the gas only. Additionally, to enhance quick distribution and delivery of LPG to consumers, the Ministry of Energy purchased pick-up trucks with 50 cylinders each to registered private individuals, to retail LPG. The trucks operated "door-to-door" services to increase access and bring LPG closer to consumers conveniently (Sustainable Energy for All Action Plan, 2012).

Government also set up a gas cylinder manufacturing company in the country, Ghana Cylinder Manufacturing Company (GCMC), to make them available to the public at affordable prices. The LPG Fund was also created to assist the purchase and maintenance of LPG cylinders and kitchen equipment for educational institutions, hospitals, prisons and to finance local component of the cost of constructing the GCMC factory.

The promotion included other components such as expanding domestic LPG supply by upgrading TOR and using gasoline sales to cross-subsidize LPG. To promote LPG patronage to the rural areas, financial incentives were provided through the establishment of the Unified Petroleum Price Fund (UPPF) scheme to motivate transporters who travel to rural and distant locations, outside a radius of 200km from TOR. All operations, activities, policy and planning

with respect to the promotion were regulated by the Ministry of Energy, Ministry of Transportation and the Drivers, Vehicle and Licensing Authority (DVLA) and the Energy Commission. The Ministry of Environment, Science and Technology and the

Environmental Protection Agency was responsible for its environmental aspects (Acharibasam & Apatinga, 2014). TOR and other bulk distributing companies are responsible for LPG supply in the country. LPG is sourced from TOR during refinery of petroleum products and through imports.

Achievements of the Promotion

The promotion of LPG was successful as Consumption increased significantly between 1992 and 2013 (Figure 2). Prior to LPG Promotion Program, only 4.8% of the population in Accra used LPG, 0.8% in other urban areas and 0% in the rural areas (GLSS, 1988). As of 2000, LPG usage in Accra increased from 4.8% to 22.7%, 0.8% to 5.2% for other urban areas and 0% to 0.6% in rural areas (Quaye-Foli, 2002). Currently, Ghana's domestic consumption of LPG is over 100,000 tons per annum, which is about sixteen times higher than the quantities consumed before the LPG Promotional Program was launched. Annual consumption of LPG reached a peak of 251,800 tons by 2013 (Energy Commission, 2014).

The setting up of GCMC led to an increase in the number of cylinders from 80,000 in 1989 to 600,000 in 1997 circulation and made them available to the public at affordable prices (Quaye-Foli, 2002). The government has resuscitated the free LPG cylinder distribution program and has since distributed over 5000 cylinders in the rural areas (WorldNews Network, 2015).

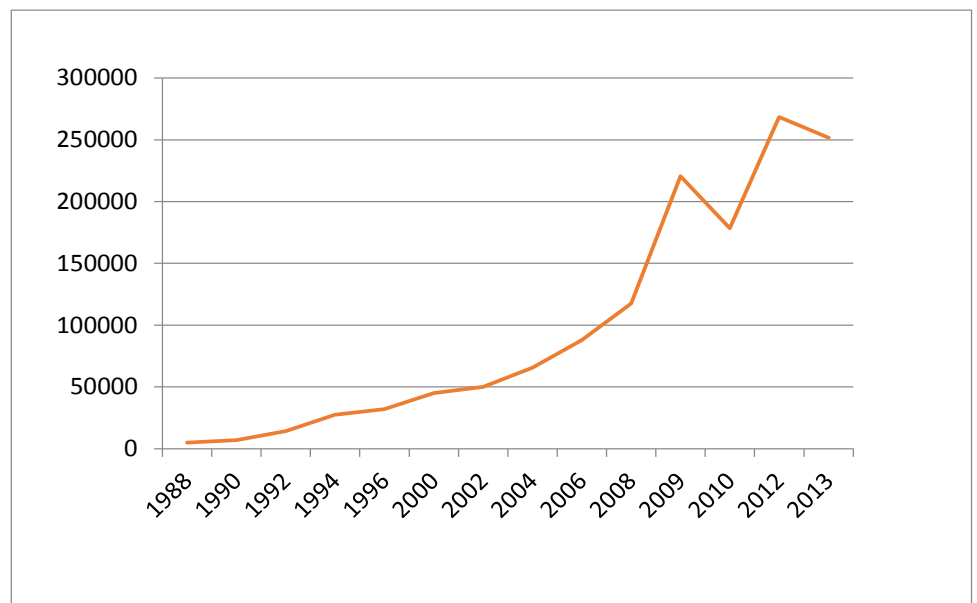


Figure 2: Trend in LPG consumption over a 25-year period (1988 - 2013)

Finally, the promotion of LPG by government led to the setting up of over 400 private gas refilling stations and in the process created employment to many Ghanaians (Broni-Bediako & Dankwa, 2013).

Challenges and Current Status of the Promotion

Although the LPG Promotion Program achieved some successes, it was fraught with many challenges for which it was discontinued. This incident led to an increase in wood fuel usage by almost 3% since 2010. Many Ghanaians prefer wood fuel and charcoal which are relatively cheaper and more reliable in supply. Institutions including schools that initially used LPG have reverted to charcoal due to the shortages (Acharibasam & Apatinga, 2014). The inability of the promotion target of 50% LPG access by 2015 is due to periodic fall in charcoal prices, centralized promotion only at the urban areas and consistent shortages of LPG.



Plate 1: Distribution of free LPG cylinders and cook stoves in the Central Gonja District

In spite of the UPPF Scheme, penetration of LPG in the rural areas is still not encouraging. Out of the 6% of Ghanaian households using LPG as their primary source of fuel for cooking, 70% reside in the Greater Accra and Ashanti Regions (Brew-Hammond et al., 2009). In contrast, LPG access in the rural areas accounted for only 3% as of 2012.

To combat this urban bias, the government of Ghana through the Ministry of Energy and Petroleum in March 2015, launched a Rural LPG Program; an initiative to reintroduce the free LPG cylinder distribution program and improve LPG access in the rural areas. Under the program, government distributes free cylinders, cook stoves and all related accessories to beneficiaries in low access and low income areas in districts across the country (see Plate 1). This was done to enable rural dwellers switch easily from wood fuels to LPG without paying for the initial investment costs. The government seeks to create demand in these low access areas to incentivize private LPG marketing companies to set up.

The launch saw the distribution of 5000 pieces of 6 kg cylinders and cook stoves at Axim in the Nzema East District of the Western Region (WorldNews Network, 2015). The Rural LPG Promotion Program was first launched at Garu-Tempame in the Upper East Region in November 2013, where 1,500 pieces of 6 kg cylinders and cook stoves were distributed on pilot basis. The roll-out of the program was started in 2014 with distribution of cylinders and cook stoves in Tano South, Ajumako-Enyan-Essiam, Tolon and Central Gonja districts. In all, 14,500 pieces of 6 kg cylinders, cook stoves and related accessories have been distributed in 5 low access

districts. The program is expected to intensify its distribution exercise in low access and low income rural areas nationwide in 2015 and beyond (WorldNews Network, 2015).

One major component of the promotion was the cross-subsidy of LPG with petroleum products in a bid to make it more affordable for households. However, this did not prove to be economically viable. Most commercial transport vehicles, especially taxis, switched from the use of petrol to LPG due to the relatively lower subsidized prices (Acharibasam & Apatinga, 2014). Subsidy was therefore withdrawn in 2013. Subsidies are expensive and governments especially those in developing countries find it difficult to finance and sustain them. However, the effect of this subsidy withdrawal has caused many Ghanaian households, schools and other public institutions to make economic adjustments by reverting to the use of charcoal and firewood for their cooking and heating purposes.

Since income level of households influences household fuel selection, LPG patronage is largely limited to households with high disposable income. In the midst of economic hardship, most households tend to go for cheaper cooking fuels to meet other economic needs. Additionally, the wood fuel industry employs many rural folks making it difficult to prevent its use by not providing alternative jobs. Although the establishment of the promotion created jobs for some Ghanaians via the establishment of LPG filling stations, it was mostly dominant in the urban areas.

The Ghana Cylinder Manufacturing Company (GCMC) also encountered some infrastructure deficit and which ultimately affected the distribution of free LPG cylinders in the country and consequently gas cylinder prices. The Minister of Energy and Petroleum as of March, 2015, held discussions with the management of GCMC to consider effective measures to make LPG cylinders and cook stoves available to many Ghanaians, in order to curb overdependence on wood fuels for household applications.

The increasing demand for LPG over the years, have outstripped the supply end from TOR. The promotion was not able to fully upgrade TOR's refining capacity to supply enough LPG as required. In 2010, TOR was shut down due to technical and operational challenges as well as financial constraints. This reflected in a decline in LPG consumption from 220,600 tons in 2009 to 178,400 tons in 2010 (Energy Commission, 2014). Currently, TOR produces 25,600 tons of LPG annually as compared to the 252,000 required and coupled with storage capacity constraint (Energy Commission, 2014). LPG supply is projected to increase as the Atuabo gas processing plant is expected to produce about 240,000 tons of LPG, enough to meet about 70% of domestic demand.

EFFECT OF THE PROMOTION ON GENDER

The type of fuel consumed has an effect on the health of people. Continual usage of wood fuels for cooking have detrimental effects on the health of women and children, as illustrated in Plate 2. It is estimated that 4% to 5% of global diseases are a consequence of this indoor pollution (UNDP, 2004). According to a report by WHO, about 16,600 lives are lost annually in Ghana as a result of exposure to air pollution caused by use of charcoal and firewood.



Plate 2: Picture showing a woman suffocating in a smoke polluted environment, from the burning of fuel wood

Women in the rural areas, are the most affected, as they spend about 1 to 5 hours daily in search of wood fuel. Rural women and young girls are therefore constrained with the amount of time they invest in income-generating and educational activities daily (UNDP, 2004).

The National Energy Policy (2010) identifies limited involvement of women in the planning and management of energy services as well as the limited capacity of women in management positions in the Energy Sector.

The LPG Promotion was therefore a good intervention program meant to relieve women of the burdens associated with the use of wood fuels. Access to LPG for most women, would mean improvements in their health and sufficient time to engage in income-generating activities.

WAY FORWARD (RECOMMENDATIONS)

To improve LPG access and make the new Rural LPG Promotion Program sustainable, some corrective measures must be put in place.

Firstly, government must create jobs in the rural communities, since most rural folks work in the wood fuel industry. When income earnings of a population improve, patronage of LPG also increases.

Secondly, the cost of LPG must be subsidized for rural communities, since a significant number of them have low disposable income and hence cannot afford to refill their cylinders. To compete with the preference for charcoal and firewood, the price of LPG must be relatively low to

encourage its patronage in these communities. In view of this, government must employ policies such as price differentials to regulate subsidy schemes that will ensure households, rather than commercial vehicle operators to benefit from these subsidies.

Most households, especially in the rural areas, are not aware of the health dangers associated with the continual usage of wood fuels. Intensive educational forums must be embarked on to sensitize the local people on the benefits of switching to the use of LPG and safe handling of LPG, in order to avoid damage to life and property. Finally, another measure is for government to encourage private sector participation by way of investment in the storage and distribution network of LPG and other petroleum products throughout the country.

When these measures are implemented, the nation's dream of improving LPG access and patronage will be realized.

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