

PARAFFIN STOVES: COUNTING THE COST OF CONVENIENCE

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ABSTRACT

Domestic paraffin use is widespread, but is associated with numerous challenges including the availability of unsafe paraffin appliances and the high rate of paraffin-related injuries. In essence, the safety needs of paraffin-users have largely been neglected. The projected rapid expansion of urban cities in Africa and the expected increase in informal, substandard housing emphasises the need for increased focus on domestic energy safety. Safer, more reliable, energy efficient paraffin stoves and a better regulated paraffin system is clearly needed.

1. INTRODUCTION

Energy inequality has recently dominated energy conversations in South Africa. Government's response to this discussion remains their accelerated electrification programme. While progressive in approach, it is short-sighted considering the current ESKOM debacle. It neglects the role played by other energy types in South African households and endorses access to electricity as a conclusion to energy poverty. The non-recognition of the prominent role played by paraffin, also described as the 'fuel of the poor', devalues government's efforts at addressing energy poverty.

Access to electrical energy has many advantages; however, it remains an increasingly expensive fuel and its availability can be notoriously erratic. In addition to the high costs associated with electricity, the prevailing levels of poverty in the country may undermine the impact of this energy type at household level. When considering these grounds, it is surprising that paraffin, a leading household fuel [1,2], has not been considered a key player in alleviating the electrical energy demand. Paraffin is a widely used domestic energy fuel and much of its popularity can be attributed to its affordability, convenience and versatility. In addition, despite access to grid electricity, many of the urban poor continue using paraffin for cooking [3]. Regrettably, paraffin's many advantages often come at a price, and paraffin consumers, taxpayers and government are bearing the brunt. Fortunately, the challenges associated with paraffin use can be addressed if the correct priorities are set, and appropriate policies, resources and actions are in place.

2. THE CHALLENGE OF DOMESTIC PARAFFIN USE

Domestic paraffin use is widespread, but is associated with numerous challenges, including the prevalence of unsafe paraffin appliances and the high rate of paraffin-related injuries. The severity and high incidence of preventable paraffin-related morbidity and mortality establishes paraffin safety as a human rights issue. Health outcomes associated with domestic paraffin use include poisoning, chemical pneumonia, respiratory illness, burn injuries and death [4]. In essence, the needs of paraffin consumers have largely been neglected. Paraffin-related incidents cost the economy billions of rands annually [5], yet little is done to alleviate the problem of unsafe paraffin use. Furthermore, the resolve to decrease harmful paraffin incidents by introducing and promoting electricity may not address the problem. Government attention and resources should be focused on addressing the leading barriers to paraffin safety. Paraffin use could be made safer by "*...improving the system of delivery, both of the appliances and the safe pre-packing of the fuel to avoid human contact or fuel contamination*" [6]. In addition, well-designed paraffin appliances are necessary in reducing the prevalence of harmful incidents and improving energy efficiency. Below-standard and defective paraffin appliances are associated with fires, and highlights the urgent need for the development and implementation of mandatory safety and quality standards [7]. Retailers also play a role in promoting paraffin safety. There is a lack of concern regarding safety precautions relating to paraffin and many continue to sell paraffin to households in inappropriate containers as a direct result of a policy vacuum to address this risk. The safe and health-promoting use of paraffin appliances is dependent on the achievement of the above-mentioned items.

3. A HOUSEHOLD SURVEY ON PARAFFIN APPLIANCES

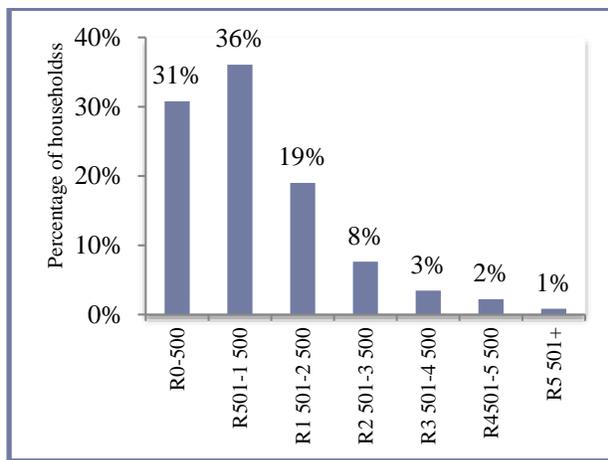
The Paraffin Safety Association of Southern Africa (PASASA), commissioned by GTZ and BECCAP, recently conducted a national survey on the market potential of paraffin appliances in over 4,400 low-income households across seven provinces. The study revealed important results on the expenditure and

consumption of domestic energy, paraffin-using behaviour, and the needs of paraffin consumers.

3.1 Description of sample

Two-thirds of the sample was female (66%) living in households with five or fewer household members (80%). The income level of the sample was low (see fig. 1 below); 86% earned less than R2, 500 monthly (2/3 earned R1500 or less per month). Households were mainly constructed from zinc (65%), while other materials such as brick (17%), wood (8%), and mud (5%) were used less widely used. The housing standard was described as ‘moderate’ (43%) or ‘poor’ (37%).

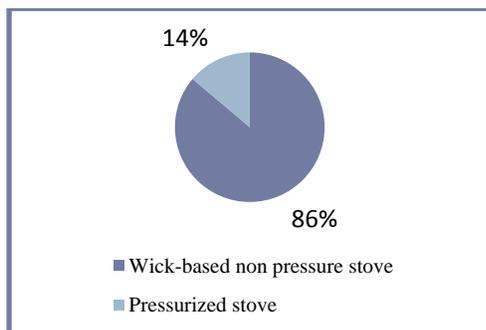
Figure 1. Distribution of monthly household income



3.2 Type of paraffin-fuelled appliance

The results highlighted a high proportion of wick-based stoves (86%) used by the sample (see fig. 2 below); this may be attributed to the affordability, convenience, low noise levels, energy efficiency, and ease and safety of ignition of this type of paraffin appliance.

Figure 2. Type of paraffin stove



3.3 Cost of current paraffin stove

The findings indicate that 75% of households spent less than R100 on their paraffin stove. This highlights the dependence of resource-poor households on affordable paraffin stoves.

Nearly half of the sample (48%) reported waiting for paraffin stoves to show signs of unsatisfactory functioning before replacing the appliance. Slightly less than a third (31%) of the sample reported excessive smoking of paraffin appliances as motivation for purchasing a new stove. Moreover, only 14% of households considered the age of the appliance when deciding to purchase new paraffin stoves. The findings indicate that a large proportion of paraffin-using households continue using paraffin appliances beyond their appropriate and safe usage; this unsuitable and risky behaviour increases the potential for harmful and destructive incidents in the home.

3.4 Important attributes of paraffin stoves

When questioned on the important attributes of paraffin stoves, quality, safety and affordability were identified as the leading attributes of paraffin stoves (see table 1 below). Energy efficiency was also ranked as important. The importance of quality and safety in paraffin stoves illustrates that households are aware of the potential risks associated with paraffin use and are interested in appliances that promote health and safety.

Table1. Paraffin stove attributes ranked by importance

Attribute	% of households
Quality of stove	94%
Safety	92%
Affordability	84%
Energy efficiency	76%
Brand	65%
Durability	55%
Stability	49%
Availability	48%
Appearance	39%

3.5 Interest in safer, energy efficient paraffin stoves

The majority of households (88%) were willing to increase their current expenditure on paraffin stoves for safer, energy efficient appliances. Households’ projected expenditure on improved paraffin stoves was not considerably higher than the prices they were currently paying for paraffin stoves; it highlights the financial constraints these households find themselves

in. While the need for safe and energy efficient appliances is urgent, many cannot afford the associated costs. This suggests that there is a role for local government to donate or subsidise safe paraffin appliances in resource-poor communities.

4. CONCLUSION

Paraffin safety is an important public health challenge given the high rate of poor health outcomes associated with malfunctioning or substandard paraffin stoves. An important question remains: Whose responsibility is it to make paraffin a safe household fuel? Does the responsibility lie with government, the oil industry, appliance manufacturers, retailers, or any of the other domestic energy role players? The lack of ownership on this issue remains a leading barrier to addressing energy poverty. One thing is certain: urgent attention on household energy safety is required to ensure the health and safety of households with limited energy choices.

Government's energy efforts have largely focused on increasing electricity access, but more attention is needed on addressing cooking energy in poor households. The electrification initiative, while a sound foundation to eradicating energy poverty, underestimates the complexity of domestic energy use. In addition, the assumption that access to electrical energy will significantly alter energy consumption in low-income households is debatable. In many cases, households may adopt electricity for lighting and entertainment purposes, but will continue using other fuels for cooking and heating. It is likely that mixed energy use will continue despite access to electricity.

As urbanization increases, the need for accessible, clean, safe and affordable household energy for the poor will intensify. Safer, more reliable, energy efficient paraffin stoves and a better regulated paraffin system are needed. The task of addressing domestic cooking energy in low-income households is complex, but is necessary to address the problems related to cooking.

5. REFERENCES

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6. AUTHOR

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The Paraffin Safety Association is a non-profit organisation. It was started in 1996 by petroleum companies operating in South Africa. It is the only industry-sponsored, paraffin safety programme in the world.

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