21 A Burning Desire

Trying to Achieve SDG 7 and Improving Access to Cleaner Cooking Fuels in Rural Ghana

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21.1 Introduction

21.1.1 Energy and environment

As the global population increases, so does the demand for energy (UNDP, 2018). Energy consumption is, however, a major contributor to greenhouse gas emissions (UNDP, 2021; World Resources Institute, 2020). Hence, as the global population rises, an upsurge in GHG emissions from energy consumption is expected. This is the basis of the global call for cleaner energy as a catholicon to promote environmental sustainability (GPOBA, 2016; UNDP, 2021). Following this, energy, which was not explicitly considered in the Millennium Development Goals (MDGs), has been explicitly stated in the Sustainable Development Goals (SDG 7) (Shyu, 2014).

This notwithstanding, approximately one third of the world's population – about 2.8 billion people, still cooks without clean fuels and is thus excluded from the associated benefits. To achieve universal access to clean cooking fuels and efficient technologies by 2030, 130 million people will have to be transitioned from unclean fuels annually and a majority of these people live in Asia and Africa (International Energy Agency, 2022; UNDP, 2021). In Africa, 970 million people still lacked access to clean cooking fuels in 2021, and it is estimated that there should be a remarkable improvement in clean energy access across sub-Saharan Africa in the global drive to achieve SDG 7 (International Energy Agency, 2022). An increase in clean energy uptake in these regions is anticipated to be a major step towards reducing not only GHG emissions but also improving food security and promoting public health (Bisaga & Campbell, 2022; UNDP, 2021).

21.1.2 Focus on the energy situation of Ghana

In general, the adoption and investment in renewable energy in Ghana have been very slow (Bawakyilleno, 2017). While Ghana has a favourable landscape and is geographically well positioned to deploy wind and solar energy (Lin & Ankrah, 2019; Sun et al., 2020), there is a disconnect between the country's SDG7 aims of achieving clean cooking fuels and electricity-based technologies[1] (Newell & Daley, 2022). Using a political economy approach, Newell and Daley (2022) highlight intervention points for accelerating electricity-based cooking, specifically the need to realign governance and improve policy responses to tackle the issue, and they note: "this should be focussed less on individual behaviours and more on wider social and cultural settings and the gendered and other power dynamics that structure them" (Newell & Daley, 2022, p. 8). Cooking with electricity is more likely to be successful in urban areas due to the proximity of

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communities to electricity supply, but will be more challenging in rural areas, given the high energy requirements for cooking in comparison to other domestic uses. As of 2017, less than 1% of Ghanaian households used electricity as their main source of cooking fuel (Ghana Statistical Service, 2019).

In the specific context of cooking fuels in Ghana, similar to many countries in the Global South, the cooking fuel mixes in the country tend to be woodfuels (including firewood and charcoal), Liquefied Petroleum Gas (LPG), kerosene, and harvested crop residues (Bawakyillenuo et al., 2021). Although access to LPG has been increasing in Ghana, woodfuels are the traditional source of energy and still remain the dominant source of cooking energy (Bawakyillenuo et al., 2021; Ghana Statistical Service, 2019). Woodfuel (firewood [33.3%] and charcoal [34.1%]) accounts for more than 60% of the country's total energy use (Energy Commission of Ghana, 2019; Ghana Statistical Service, 2019). Woodfuels are the only energy source where cooking appliances and most production equipment are locally sourced in Ghana. It thus contributes significantly to the Ghanaian economy and, as such, supports the livelihoods of many Ghanaians (Brobbey et al., 2021).

Firewood is the principal woodfuel used in rural areas (63%), while charcoal (44.3%) and LPG (34.8%) are predominantly used in urban areas (Ghana Statistical Service, 2019; Karimu et al., 2016; Wiedinmyer et al., 2017). Even so, the production of charcoal takes place in rural areas and is a source of income for many rural dwellers due to their proximity to forested areas (Anang et al., 2011; Bawakyillenuo et al., 2021; Brobbey et al., 2015). The majority of rural women are engaged in the charcoal business and play roles such as collection and burning of firewood, and handpicking and packing of charcoal (Bawakyillenuo et al., 2021). This notwithstanding, consumption of woodfuels is a major contributor to environmental degradation as well as poor health and food insecurity (McCray, 2018; Omer, 2017; Omiti & Laibuni, 2015; Sulaiman et al., 2017). In Ghana, biomass fuels (including woodfuels) account for 16,600 deaths annually and are a major contributor to ambient air pollution (Ghana Statistical Service, 2014a, 2019; Inkoom & Crentsil, 2015).

To reduce reliance on woodfuels, the Government of Ghana and other stakeholders have been rolling out programmes to target the use of clean cooking fuels in rural communities (Asante et al., 2018; IMANI, 2017). For example, the Rural LPG Promotion Program (RLP) aimed to improve LPG access in rural areas from 3% (in 2012) to 15% (by 2016). The RLP was introduced to specifically target rural communities with the use of LPG for cooking. Launched in 2013, the RLP sought to contribute to the nation's goal of expanding LPG coverage to about 50% of the population by 2020 (ENERGIA, 2015; GhanaWeb, 2016). Under the RLP, beneficiaries were freely provided with 6-kilogramme cylinders, single-burner stoves, hoses, and regulators. The RLP was coordinated by the Ministry of Energy. Beneficiaries were selected based on their ability to make an initial payment of GHC 22.00 (USD 5 then) to fill the cylinder. This selection was done by the District Assembly Officers and focal persons in the beneficiary communities.

However, the RLP failed to achieve its stated goal as beneficiaries failed to exclusively use or sustain the use of LPG (Adjei-Mantey & Takeuchi, 2021; Asante et al., 2018; Carrión et al., 2020; Energy Commission, 2016). Thus, many rural dwellers failed to shift to LPG and clung to the use of woodfuels (Makonese et al., 2018; Njenga et al., 2019; Wiedinmyer et al., 2017). This poses a challenge towards achieving SDG 2 (food security), SDG 3 (good health and well-being) and particularly, SDG 7 which aims to ensure universal access to affordable, reliable, and modern energy services. Currently, all interventions to promote LPG use in Ghana (both rural and urban) have been revised and consolidated in the LPG for Development (LPG4D) Programme which aims to achieve 50% access to LPG by 2030 (Ahunu, 2015; Ministry of Energy 2022). It remains to be seen how successful the LPG4D Programme will be in shifting rural fuel use to LPG.

Using primary data, this chapter interrogates why rural dwellers resort to woodfuels in particular and suggests ways of promoting LPG use in rural Ghana. It builds on and expands on research to-date in the area of just transitions, particularly in the social sciences (Sovacool, 2014a, 2014b), and provides a valuable Global South perspective on low-carbon transition challenges. This chapter is therefore, vital for policy formulation and implementation geared towards SDG 7.

21.2 Methodology

21.2.1 The research project and case study

This chapter is part of a wider study on political ecology, low-carbon transition, and energy justice in Ghana[2]. Ghana is considered a less economically developed country, with an estimated 31 million people spread across its 16 regions, including six new regions that were formed following a referendum in 2018 (The World Bank, 2019; UNDP, 2020). Compared with its neighbours, Ghana has a relatively large labour force, and about 67.9% of the working-age population is engaged in employment. Since 2017, the country has experienced a decline in GDP, which has significantly hampered efforts towards poverty alleviation (The World Bank, 2021). As such, the proportion of the country's population (13.3%) that is living below the international poverty line of $1.90 a day is expected to increase, especially in the aftermath of the COVID-19 pandemic and the Russian-Ukrainian war in early 2022 (Bukari et al., 2021; The World Bank, 2019; UNDP, 2020). Poverty in the country is primarily a rural phenomenon, with rural poverty levels being about four times higher than urban poverty rates (Cooke et al., 2016).

The chapter is based on a case study of the Kwahu Afram Plains North and South Districts in the Eastern Region of Ghana. The Districts are noted for agriculture, primarily fishing and farming, due to the rich soils and proximity to the Afram River. The Districts are predominantly rural with a few scattered small urban communities (Ghana Statistical Service, 2014b, 2014c). Fieldwork was conducted in five (5) rural communities: 3 in Kwahu Afram Plains South (Kwasi Addae, Asimpanyin, and Mmradan) and 2 in Kwahu Afram Plains North Districts (Abotanso 1 and Adukrom). The data were collected between September and December 2022. This chapter draws on empirical findings from field observations and qualitative interviews with key stakeholders in the Districts (Figure 21.1).

21.2.2 Sampling and participants

The research involved 45 key informant interviews with key community leaders, District Assembly officials, and improved/cleaner cookstove providers. Key community leaders consisted of chiefs, elders, and local government officials in the communities (Table 21.1).

These participants are mainly household heads who have lived and worked in the communities for years and have in-depth knowledge of the energy situation in the communities. Interviewees were recruited using a non-probabilistic sampling technique – purposive, snowballing, and convenience sampling (Mweshi & Sakyi, 2020).

21.2.3 Data collection

Interviews were conducted in the houses and offices of interviewees using a structured interview format. This helped to keep the interviews in line with the subject matter, with discussion directed along key thematic lines while also allowing the opportunity for unexpected new information to emerge (Brinkmann, 2014; Husband, 2020). Interviews were audio-recorded with

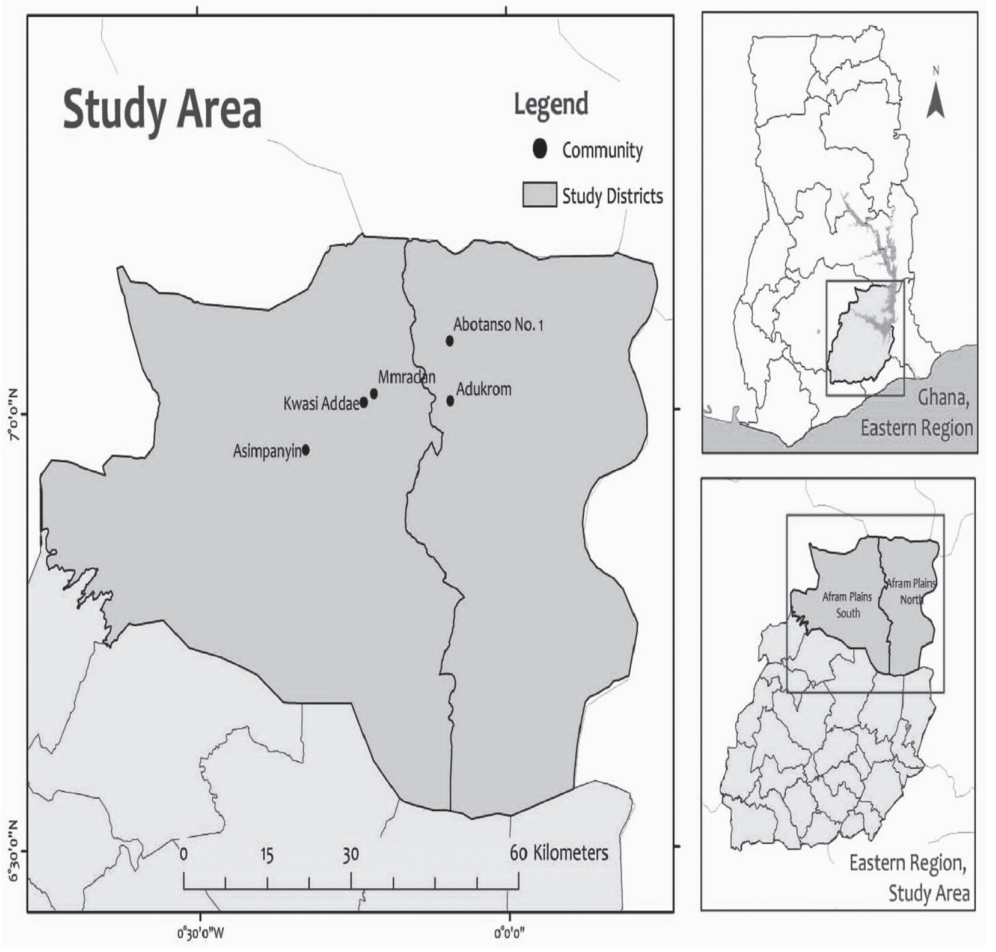

Figure 21.1 A map of Ghana showing the region, districts, and communities where the study was conducted.

Source: Authors' construct (2023) based on ESRI shapefiles using ArcGIS 10.6.

the consent of participants. Field notes were also taken to capture some relevant information during interviews. Since the majority of the interviewees were engaged in agriculture (farming and/or fishing), interviews were conducted early in the morning and late in the evening when interviewees had returned from the fields. Interviews were mainly conducted in Twi[3]. Each interview lasted approximately 45 minutes. Responses were written in English for validity and comprehension. All respondents were over 18 years old.

21.2.4 Ethical/Practical considerations

Since the study involved humans, ethical issues needed to be addressed prior to data collection. This was done in consultation with the Mary Immaculate College Research Ethics Committee (MIREC) with reference number "A21-056". Informed Consent (written or oral) was sought from all participants before engaging them in the study. Participants were informed about the

Table 21.1 Demographic characteristics of interviewees

Variables	*Category*	*Frequency*
Gender	Male	28
	Female	17
Age	31–40 years	12
	41–50 years	23
	51–60 years	8
	>61 years	2
Status	District Assembly officials	5
	Local Government official	3
	Chiefs	8
	Elders	27
	Improved cookstove providers	2
Size of household	<3	4
	3–5	15
	6–8	26
Education	Never schooled	11
	Basic	20
	Secondary	6
	Tertiary	8

Source: Authors' own construct (2023).

purpose of the study, and their voluntary involvement, and assured of confidentiality and anonymity. Audio records were put in a password protected folder on a secured laptop to prevent unauthorised access. Notes written during interviews were also compiled and stored securely. In the analysis of the data gathered, identifiers were used to ensure anonymity.

21.2.5 Data analysis

Audio-recorded interviews were transcribed and translated. After transcription, the analysis started with the reading of all the transcribed data and complementing it with the field notes by the first author. Every 45 minutes of recorded audio took approximately 7 hours to fully process and transcribe. A reflexive thematic analysis was conducted to identify emerging themes from the interviews. Reflexive thematic analysis was adopted because it is flexible, data-driven, and allows room to create new themes (Braun & Clarke, 2021). Data were inductively analysed by firstly, semantic coding – reading data and grouping relatable words or sentences. The codes were subsequently grouped into themes in relation to access to clean cooking fuels (Braun & Clarke, 2021). The codes and themes were discussed with the second and third authors, reviewed, and fine-tuned to reflect the views of respondents while ensuring anonymity. Excerpts of the responses by a few interviewees were used to support the findings using pseudonyms – common local names to ensure anonymity.

21.3 Results and discussion

21.3.1 The cooking fuel mix

There is comparatively limited access to cooking fuels in rural Ghana compared to urban Ghana (Bawakyillenuo et al., 2021). The study showed that firewood, charcoal, and LPG were the cooking energy sources for rural dwellers. However, woodfuels (firewood and charcoal) were predominant (Wiafe & Kwakwa, 2013; Wiedinmyer et al., 2017). This situation is not specific to

rural Ghana as many developing countries find themselves in a similar situation (see Heltberg, 2005; Sola et al., 2019). The majority of rural dwellers interviewed used a combination of firewood and charcoal – the two dominant sources of cooking fuel in rural Ghana (Karakara & Osabuohien, 2021). Charcoal was especially important during rainy periods, when rural dwellers were unable to go to the forest to fetch firewood. Abena (a female), a community leader and a household head, stated:

> I heavily rely on firewood for cooking my food. While it is available for most times, I am unable to walk to the forest to get them during rainy periods. So, I have charcoal as an alternative.
>
> (Abena, October 2022)

Similar to Kenya and Uganda, collection of firewood and cooking in households in rural Ghana was done by females (wives and/or girl children) (Bamwesigye et al., 2020; Waswa et al., 2020). A lot of time was spent by females in collecting firewood as well as cooking traditional food, which took longer time to prepare. Households preferred to cook single meals instead of composite meals, and cooking was done in traditional kitchens, which are less ventilated. In the house, females cooked twice a day (mornings [before work] and evenings [after work]) while a few (specifically, wives) cooked on the farms in the afternoon. Each household cooked its own meals, and members of a household ate together. Household meals and cooking utensils were served and washed by females (especially, the girl child). These roles prevent females from investing time in other activities (e.g., civic engagements, employment, and education) and expose them to the health hazards associated with the combustion of fuels (Adjei-Mantey & Takeuchi, 2021; Bede-Ojimadu & Orisakwe, 2020; International Energy Agency, 2022). Yet, the knowledge of women about the effects of their exposure to smoke from firewood was limited to "irritation of the eyes". This notwithstanding, studies show that the effects can extend to respiratory diseases and affect the health of unborn children (Adjei-Mantey & Takeuchi, 2021; Bede-Ojimadu & Orisakwe, 2020; Hussein et al., 2020; Weber et al., 2020). Some men, on the other hand, despite cooking at times and frequenting the kitchen, trivialised the effects that exposure to smoke from woodfuels had on both women and men (Figure 21.2).

21.3.2 Why woodfuels?

A range of factors determined the type of cooking fuels (hereafter referred to as woodfuels) used by rural dwellers. The culture of a group is known to have an impact on their adoption of technologies (Panigrahi et al., 2018; Usman & Said, 2014). Rural communities have historically been known for the use of woodfuels. Likewise, the kind of fuels rural dwellers were exposed to at an early stage of life (custom) determined the type of cooking fuel they used presently (i.e., woodfuel). Some rural dwellers preferred to use woodfuel because of the longer time it took to prepare staple foods. Even in urban households where LPG is highly used, some households use charcoal when cooking certain stable foods to reduce LPG consumption (Wiedinmyer et al., 2017). The special taste of food cooked with woodfuels also made it favourable to some rural dwellers. Just as wood-fired ovens are regarded as superior for baking Neapolitan pizzas and wooden barrels add flavour to the liquids they contain (Ciarmiello & Morrone, 2016; Cisar-Erlach, 2019), so do some rural dwellers appreciate the value of woodfuels for cooking flavoured staple local meals. Consequently, many rural dwellers have a sense of cultural attachment to wood and have cultivated the habit of using woodfuels even when other alternatives are

Figure 21.2 A pile of chopped firewood; the dominant source of cooking fuel in rural Ghana.
Source: First author (2022).

available. Adwoa (female), a 50-year old indigene of the Kwahu Afram Plains South District, stated:

> I have since my childhood been using woodfuel for cooking. I know about other alternatives but I do not think I am ever going to try them. I find it comfortable to use woodfuel.
> (Adwoa, November 2022)

Cost was also a factor that rural dwellers used to decide the type of cooking fuel to use. Regardless of the significant time burden ssociated with accessing woodfuels, these fuels were nevertheless favoured by poor rural dwellers, not least as these groups found it difficult to afford the price of LPGs (Abdul-Wakeel Karakara & Dasmani, 2019; Karimu, 2015). Although acknowledging the time-benefits of using LPG, rural dwellers preferred to use woodfuels because their usage came at a much lower comparative economic price. The initial capital needed to get LPG – purchasing a cylinder, stove, and the LPG gas – prevented most rural dwellers from resorting to this method, despite widespread acknowledgement of the positives associated with it.

Availability was another factor rural dwellers used in deciding the type of fuel to use for cooking (Adjei-Mantey & Takeuchi, 2023; Karimu, 2015). Rural communities were close to forested areas, making woodfuels accessible to dwellers at any point in time. In the communities

involved in the study, there was no gas station, and dwellers who preferred to use LPG had to travel long distances to fill their cylinders. To escape this inconvenience and the initial capital outlay involved in acquiring LPG, rural dwellers resorted to woodfuels.

> I can afford LPG but there are no gas stations nearby to fill the cylinder once it is emptied. I would have to travel to the city to get LPG which for me, is not economical.
>
> (Kwame [male household head], November 2022)

Even when available, explosions associated with LPG in urban areas posed risks to its adoption in rural Ghana as people were fearful of adopting it in their homes (Adjei-Mantey & Takeuchi,2023). Notable among such incidents was an explosion in Ghana's capital, Accra, in 2017, where seven lives were lost and 130 people sustained injuries (The Guardian, 2017). News of this event and of several other comparable accidents in urban communities made some rural dwellers concerned about potential safety issues from the use of LPG. Hence, some rural dwellers were risk-averse and committed to not using LPG even when it was made available (Figure 21.3). A District Assembly Officer, in an interview, stated that:

> Meeting the energy needs for cooking is not problematic for rural dwellers as they have an affordable, accessible, comfortable and risk-free source in woodfuels.
>
> (Akwasi, December 2022)

21.3.3 Charcoal contribution to rural livelihoods

Charcoal production was a major source of income for rural dwellers (Ablo et al., 2022; Asare et al., 2022; Nketiah & Asante, 2018). Despite farming and fishing being their major occupations,

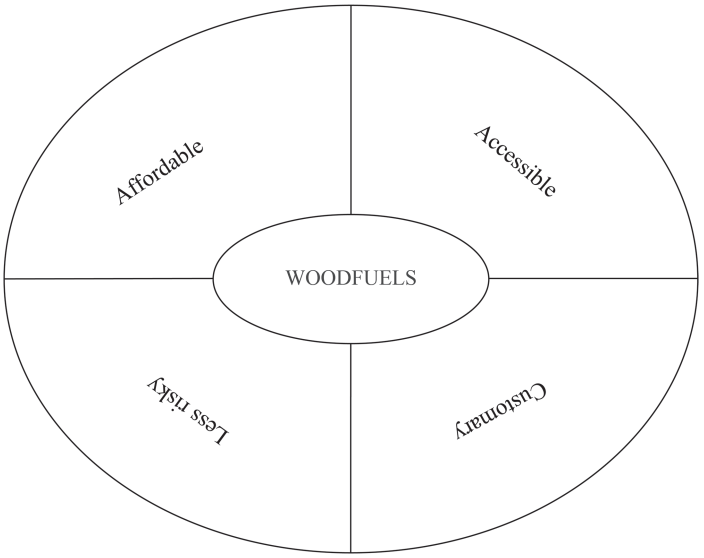

Figure 21.3 Why woodfuels are predominantly used by rural dwellers to meet their cooking needs.

Source: Authors' own construct (2023).

some rural dwellers were involved in the production of charcoal as a coping mechanism to deal with economic shocks, particularly those caused by climate change (Brobbey et al., 2019). Although heavily involved in the production of charcoal, these rural dwellers used significantly less charcoal compared to urban dwellers (Ghana Statistical Service, 2019). A lot of the charcoal produced in the rural communities is transported to nearby cities, such as Koforidua and Accra, to be sold. Charcoal production thereby creates employment opportunities for not only people in rural communities but also urban dwellers who are engaged in the commodity chain of charcoal production and consumption (Jones et al., 2016; Figure 21.4).

While of insufficient scale to meaningfully contribute to the eradication of poverty in rural communities, charcoal production remains an important poverty alleviation strategy (Kiruki et al., 2020). Charcoal production and sale provided additional income for rural dwellers, particularly women, who performed roles such as fetching and burning firewood, packing charcoal into bags, and trading charcoal. Not only women benefitted from the activity but also men who were involved in the loading and transportation of charcoal to the cities. Woodfuels (firewood and charcoal), aside from being critical to energy needs, support the livelihoods of rural dwellers (Ablo et al., 2022; Nketiah & Asante, 2018).

As a major driver of forest deforestation in sub-Saharan Africa, charcoal production causes biodiversity loss, reduces greenhouse gas sinks, and contributes to soil erosion (Bennett, 2017;

Figure 21.4 Bags of charcoal ready to be transported to the City for Sale.

Source: First author (2022).

Kumar et al., 2022; Sedano et al., 2016). Rural dwellers who engaged in the felling of trees for charcoal did not practise reforestation despite being reliant on trees for income and cooking fuel. Failure to replace cut trees can negatively impact the environment and further degenerate the living conditions of rural dwellers. In rural Kenya, for instance, households responded to the scarcity of woodfuels by cooking food with low nutritional value (since it took less time) and skipping meals (Mendum & Njenga, 2018; Waswa et al., 2020) even though there were available alternatives such as LPG.

21.3.4 Towards attaining SDG 7: implications for energy policy

As evident from the case of the rural adoption of LPG in Ghana, many rural dwellers are unable to transition to LPG, even when freely provided with LPG from the start. Also, LPG subsidy programmes tend to benefit people in urban communities more than rural dwellers, who find it difficult to afford even the subsidised cost of LPG technology (Greve & Lay, 2023). Thus, subsidy programmes do not exclusively support LPG uptake in rural communities. It is consequently recommended that other options, such as the promotion of improved cookstoves, could be used as a temporary pathway en route to a full transition to LPG in rural Ghana (Figure 21.5).

Improved cookstoves are innovations that aim to address the clean cooking energy needs of the poor, who cannot afford LPG and so are excluded from its benefits (Gill-Wiehl et al., 2021; Lambe et al., 2020). These technologies are locally produced and readily available for purchase in all parts of Ghana**.** In the rural communities involved in the study, all interviewees admitted to knowing and seeing the cookstoves. These cookstoves could be used as an alternative where

Figure 21.5 An example of an improved cookstove deployed in rural Ghana.

Source: Credit – Clean Cookstove Ghana Limited, 2023.

LPG uptake and/or use have been unsatisfactory. Currently, the distribution of improved cookstoves is championed by the Ministry of Energy and private distributors. However, coverage is very low as distribution is unable to reach many rural communities because of financial reasons. In an interview with a private distributor, he stated:

> We (the institution) are doing our best to save the environment by distributing improved cookstoves. But, we are limited in our efforts because of finances. With support from the government and other stakeholders, we can reach many rural communities.
>
> (Afua [an improved cookstove distributor] December, 2022)

Improved cookstoves are cheaper than LPG. The cost incurred in adopting LPG (i.e., to purchase a cylinder, stove, and gas) can be used to purchase two or more units of improved cookstoves. If the cost of improved cookstoves is problematic for rural dwellers, then it will be extremely difficult for them to shift to and sustain the use of LPG in their homes, given its higher cost. An improved cookstove that is relatively cheaper can provide a pathway to switching to LPG. This notwithstanding, improved cookstoves are more likely to be adopted by the few rich rural dwellers at the expense of the poor majority if they are not made affordable, as evidenced in Kenya and Ethiopia (Kedir et al., 2019; Waswa et al., 2020). Since rural dwellers have developed the habit of accessing free fuels for cooking, any substantial cost element attached to clean fuels is not likely to be accepted.

Improved cookstoves allow for more efficient use of woodfuels (firewood and charcoal). As an interim "stepping-stone" technology, improved cookstoves might help to avoid an abrupt disconnect from the traditional practices of many rural dwellers, closely associated with the use of woodfuels, as described. Since improved cookstoves use fewer woodfuels, the emissions from the fuels will be significantly reduced (Gill-Wiehl et al., 2021; Lambe et al., 2020). Rural dwellers are more comfortable with the use of woodfuel which stems from their historic and traditional use of resources in their home areas. Consequently, a rapid transition to LPG will probably be resisted, and, hence, not yield the intended results. A shift from woodfuels to improved cookstoves, on the other hand, indicates a steady change in the customs of rural dwellers, which will likely increase uptake and sustain the adoption of the technology. In an interview with a male household head who has been using improved cookstoves for the past few years, he stated:

> As a subscriber of improved cookstoves, I have observed that the amount of woodfuel I use for cooking reduces with an upgrade in the technology. I am always keen to purchase newer models.
>
> (Kofi, October 2022)

Being at the centre of charcoal production activities, rural dwellers will be negatively affected too by a rapid country-wide transition to LPG. A transition process that fails to address the livelihoods of these dwellers is likely to be unsuccessful, as many have such a critical economic stake in the production and sale of charcoal. Accordingly, rural dwellers who engage in charcoal production will continue to pollute the environment if that is their only means of survival. A male community leader and household head stated:

> I am aware of the environmental consequences of my decision to burn trees for charcoal. I do not have any other option since my household (7 in total) largely rely on charcoal production as a livelihood source.
>
> (Kwabena, December 2022)

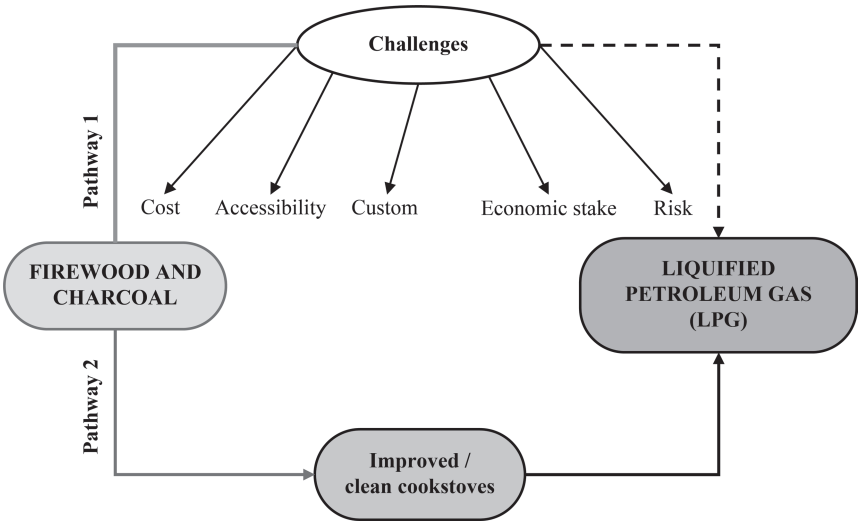

Figure 21.6 A proposed pathway to transitioning to LPG via improved cookstove.
Source: Authors' own construct (2023).

Unlike a direct transition to LPG, which collapses charcoal production activities, an improved cookstove stopgap allows the activities to continue – albeit at a slower pace. A move to improved cookstoves implies that rural dwellers engaged in the production of charcoal will still be in business and, therefore, be earning an income from charcoal production to support their livelihoods (Figure 21.6).

As illustrated in Figure 3.2, a direct transition to cleaner cooking fuels (such as LPG) is fraught with many challenges (for example, cost, accessibility, impacts on local custom, and disruption of income-generating activities), as already discussed. These challenges make it challenging to attain the ultimate goal of transitioning to the use of LPG via Pathway 1. Whereas similar challenges are encountered via Pathway 2, these challenges are relatively benign and can be coped with by rural dwellers since improved cookstoves are cheaper, more accessible, risk-free, and use traditional fuels, enabling a sustained and friendly transition to LPG.

21.4 Conclusion

The benefits of global clean cooking are considerable: "reducing premature deaths by about 500000 a year by 2030, drastically cutting time spent gathering fuel and cooking, and allowing millions of women to pursue education, employment and civic involvement" (International Energy Agency, 2022: 16). While a rapid shift to rolling out clean cooking technologies is demanded by the pace of action required to adapt to global climate change, a swift transition to LPG in rural sub-Saharan Africa is likely to backfire as rural dwellers prefer fuels that are more readily available, cheaper, and perceived as safer to use.

The "one-size-fits-all" approach to achieving SDG 7, particularly with regard to clean cooking fuels, is likely not attainable in rural sub-Saharan Africa, as evident in the case of Ghana. Rural dwellers lean towards the continued use of woodfuels (firewood and charcoal) mainly because they are readily accessible, affordable, customary, and risk-free. In addition, the livelihoods of some rural dwellers are tied to the trade of woodfuels and so there is resistance to any

form of transition that will render them poorer in spite of the potential positive environmental impacts. Therefore, stakeholders who aim to support the drive to attain SDG 7 in sub-Saharan Africa should contextualise their efforts.

Countries should, depending on the specific situation, have a holistic approach that ensures enhanced access to cleaner cooking fuels. In Ghana, for instance, it is recommended that household-level energy efficiency be enhanced by improved cookstoves. These cookstoves should be made affordable to rural dwellers as the prices can push many to regress to woodfuels. Additionally, educational and training programmes on sustainable charcoal production and alternative income-generating activities should be run for people whose livelihoods are dependent on charcoal production. People should also be sensitised so that they become aware of the benefits of using LPG.

A "friendly" approach to transition to cleaner cooking fuels (LPG) that considers disparities and inequalities within societies (e.g., educational levels, income levels, customs, and traditions) an improved/clean cooking fuel pathway is encouraged (Jasanoff, 2018). A transition to LPG in rural sub-Saharan Africa requires huge sacrifices and investment (International Energy Agency, 2022). Indeed, "it will be hard and the road will be muddy and rough", a Ghanaian music group (Osibisa) famously said, "but we will get there".

Notes

1 E-cooking here refers to cooking with electricity, and the goal of this transition is to "increase the electrification of cooking using mainly solar-powered batteries and microgrids to power … stoves and hobs for cooking" (Newell & Daley, 2022).
2 The wider study is the first author's PhD research project.
3 The first author is Ghanaian and fluent in the Twi language.

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