Socio-spatial Constructions Surrounding Queuing for Fuel in Harare

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Abstract

This article is based on a study that investigated the circumstances, nature and extent of fuel queues by answering the following research question: 'What happens in fuel queues and how are motorists and service station owners responding to this development?' Using interviews and field observations, the study reveals that much fuel is being wasted whilst looking for the same. The queues have also impacted the neighbouring properties whilst forcing operators of the facilities to introduce several innovations. Zimbabwe has suffered fuel shortages for many years. These shortages have resulted in the emergence of long queues whenever there is product supply. Due to the mismatch between demand and supply, many motorists fail to get the fuel even after long hours of queuing, usually at different facilities. This uncertainty has caused jostling for the product. Chaotic and even violent scenes can also happen whenever there is fuel or anticipation of fuel delivery. It appears that urban planning did not envisage queues at these fuel stations as a matter that falls within the ambit of its business. The study found different service station operators responding by redesigning their premises and adjusting management measures.

Keywords: *energy challenge, fuel shortage, innovation, fossil fuel, redesign, fuel station*

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INTRODUCTION

For many years, Zimbabv,re has suffered fuel shortages. The landlocked country is a net importer of all petroleum products (Bcsada and Moyo, 2008). These shortages have been pronounced in the years when the country's exports have not performed \Veil. This is because during such years, the country did not generate suHicicnt foreign currency to meet the national import bill (Tsiko and Toguri, 2012). Whenever there are inadequate fuel supplies, the shortages manifest themselves in long fuel queues. These queues create numerous management challenges since fuel selling facilities, commonly known as service stations, in Zimbabwe were not designed to accommodate more than a few cars at a time. 1cn hundreds of cars require fuel at the same time, the facilities are overwhelmed. This causes many other unintended impact5 that affect neighbours. The service stations have had to be renovated or redesigned to cater for the emerging requirements. This article examines the adjustment5 that have taken place to d1e service stations and to adjacent properties. In light of fuel shortages, the study also assesses the dTccts of the journeys to look for fuel on the efficient use of the already scarce commodity. The study finds an interesting contradiction; 'much fi.1el is being wasted in looking ±or fuel'. This makes Zimbab>vc fa.il to achieve the sustainable development goal that seeks to tacilitate affordable clean energy.

LITERATURE REVIEW

Zimbabwe's motor vehicle industry is still almost exclusively dependent on petrol- or diesel-powered engines. Unlike od1er countries wid1 significant proportion of their cars running on cleaner energy ±arms (such as battery-stored electricity or hydrogen) the majority vehicles in the country still mn on ±ossil fuels. The 1970s global oil shortages that have been followed by other periodic shortages of the fossil fuel have shmvn that dependence on crude oil may not be sustainable in d1e long-run (Henning, 2000; Pratt et *al.*, 2002). For such countries, fuel supplies have not always been reliable. There arc many disruptions in dx supply chain, •vith periodic stockouts forcing countries to consider other sources of energy (Jimu *ct* al., 2009).

Previous research on fuel supplies in Zimbabwe has focused on the vulnerability of the country to international energy price and other supply determining fluctuations (Bryceson and Mbara, 2003). The fuel challenges have been with the country for a long rime (Mhazo *et* al., 2003; Kamcte, 2006; Resada and Moyo, 2008; Makoni, 2019). A report by the then UN-HABITAT Director on the much-publicised clean-up of Zimbabwe's urban areas known as *'Operation lviurambatsvina'* also details the night-long vigils even the af±lucnt had to endure in fuel queues (Kapp, 2005) . The fuel shortages have affected other aspects of Zimbabweans' well-being as urban councils have attributed to outbreaks of cholera and other communicable diseases, their failure (because of the unavailability of diesel fuel), (Chambers, 2009; Chikobvu and Makarati, 2011; Tsiko and Togarepi, 2012). The latest fuel shortages have caused even hospital ambulances to periodically get grounded as a result of failure to get fuel (Makoni, 2019). Even the blending of petrol v,ith ethanol fi·om sugar cane grown on large estates in the country's Lmvveld region has not helped end the energy shortages in Zimbabwe (Shum ba er *a/.*, 2011). Some scholars estimate that in the late 1990s, the country at some points \Vmlid operate with less than 40 % of it5 fuel needs, thereby creating a 'turbulent' fuel industry (Mashangc, 2002). Other scholars have attributed Zimbabwe's declining manut 1cn1ring sector capacity utilisation to the challenges in the fuel sector (Doig, 2006; Damiyano et *al.*, 2012).

There are many factors causing the periodic fuel shortages in Zimbabwe. According to Besada and Moyo (2008), Zimbabwe's energy challenges, along other economic challenges, arc attributable to inappropriate policies and failure of governance. Others have blamed the fuel shortages on imposed on Zimbabwe by some countries (Hove, 2012). Hove argues that although the sanctions were meant to punish individual senior government officials for poor governance, these have caused 'more harm than good' and now punish the ordinary person who wa. supposed to benefit from good governance *(ibid:* 72). Yet, Zi.mbab,ve had done so \vell in the first decade of

independence with an average growth rate of 2.9% per year that compared way better than the regional average growth rate of 1.7% during the same period (UNCIAD, 2007). Pricing of f\1el has also been a challenge that has contributed to its limited and intermittent availability and sustainability. The need to cushion other fuel users, such as farmers, ha. also meant that some of the fuel is subsidised (Manycrukc *ct al.,* 2013). Tlus has brought distortions leading to arbitrage opportunities for unscrupulous members of the public and business operators.

Zimbabwe's towards blending and biofuel optiom has been driven by the nvin objectives of reducing the cost of the imported petroleum products and desire to move tov,ar(i cleaner energy sources. This is in line with the seventh sustainable development goal (SDG) which compels goverrm1ents to facilitate the usc of affordable cleaner energy types (De Souza *ct al.,* 2010). Scholars have blamed the absence of a national biofuels policy to direct the biofuels drive (Moyo et al., 2014). Consmner perception of the appropriateness and suitability of biofuels in Zimbabwe has been negative despite the absence of choices amidst biting fuel shortages (Saruchera et al., 2014). The biofuels option is always a delicate balance as it means competition between fuel energy and food provision (Amigun et *al.,* 2011; Ralat and Ralat, 2009). Like the rest of the vmrld, Zimbabv,'e and rest of d1e SADC region are feeling the effects of global warming and climate change (Malcolm *ct* al., 2006; IPCC, 2007).

Zimbabwe's fuel shortages have been linked to its economic misfortunes. As the economy has deteriorated, so has its capacity to import liquid fuels (Peters-Berries, 2002; Coomer and Gstraumhalcr, 2011; Robertson, 2011). This is understandable, bearing in mind that the country is a net importer of liquid fuels and only produces small quantities of ethanol tl1at is blend ed wid1 imported petrol. The country's petroleum products' demand stood at **100** million litres per month at a cost of USS40 million dollars as at 2007 prices (Mbohwa, 2008). The country has frequently ±:1iled to meet tlus bill.

The fuel shortages have been a source of frustration for many Zimbabweans. They have caused dire difficulties on the people forcing some to change their voting patterns. The 2008 elections, coming amidst economic challenges and biting fuel shortages, were the first after independence not to have an outright \vinner and some scholars attributed this to people's fi·ustrations \Vith having to endure many hours in fuel queues (Dewa, 2009). The consequences have indeed been life-changing. This study, therefore, contributes to nnv knowledge generation by examining the un-researched dimension of the fuel queues as a result of the >vell-docmnented periodic fuel products shortage.

METHODOLOGY

The sUldy used two methods: field observations and interviews. A checklist was prepared for the observations that were used to list and add comment5 as each site was visited. Variables observed included lengths of queues, numbers of vehicles, the prevalence of order or disorder, the prevalence of vices, such as corruption in the queues and the time it was taking for vehicles to get to the fuel pumps. Also observed were changes that had taken place at the facilities, such as, access designs and other barriers. The interviews covered the same aspects as those covered by the checklists and enabled sampled motorists to share additional information, such as where they carne fi·orn, the time it was taking them to look for fuel and how d1ey ±dt about d1e siUlation. Service station operators, and selected key informants, such as planners and policy-makers, were also interviewed to provide views and comments on hov,: this new development was impacting on d1eir business and other aspects of city management.

The studv fom1d 20 service stations in central Harare and at least two in each suburb. Eve service stations were sampled in the CBD and another ±J.ve were sampled in the residential areas to ensure that different dynamics between the CBD and the residential areas would not be missed as shown in figure **l.** In every fuel queue five motorists would be selected for intervievv·s. The key informants were purposively selected for their knowledge in energy or planning and city management.

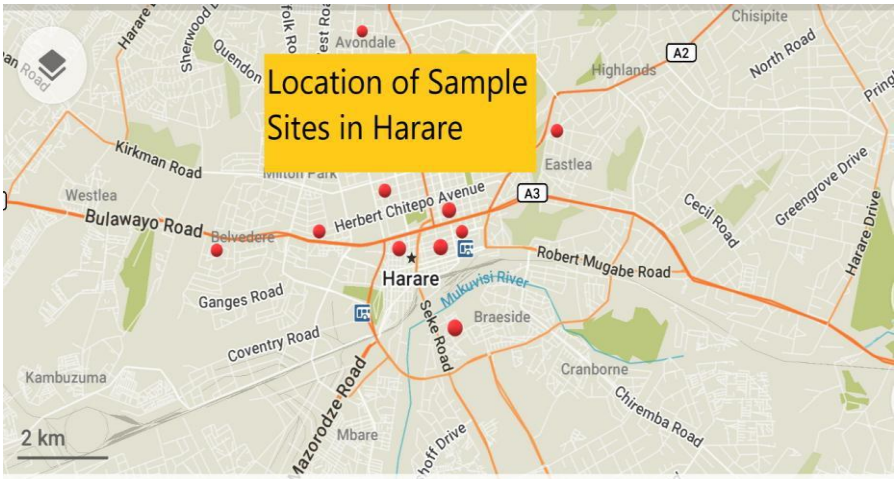

Figure 1: Location of Sample Sites in Harare (Google Maps)

RESULTS

The lengths of queues varied, depending on the type of service station and the conditions for supply. The study established that there are different conditions that exist at each service station. Some of them allowed customers to pre-pay for fuel and were issued with cards that identified them and gave them preferential treatment. Such customers would, in most cases, join a different queue that was, in many instances, much shorter than the queue for motorists that had not pre-paid. At such facilities the queues for those without privileged pre-paid cards were not as long as at facilities where no one pre-pays. Interviewed motorists indicated that their chances of getting fuel were better at facilities where no one enjoyed any advantages. One motorist said,

> "I do not join queues where others have advantages because when the fuel stocks go low, they reserve the remaining fuel for their customers."[3]

The longest queue had a vehicle count of 346 cars and stretched over four blocks of streets for many than a kilometre. Most of the queues averaged 100 cars. The shortest had five cars. This was at a facility that offered a pre-

[3] Interview with a motorist in a petrol queue conducted in Harare on 18 February 2020.

payment facility and were serving customers with cards only. Short queues were always at t 1cilities that segregated motorists in terms of whether they pre-paid or they paid in a foreign currency, that is, using United States dollars.

As part of preparations for the sntdy, a pilot study was conducted which showed d1at not all motorists in a queue always got fuel. A question was included that asked motorists how many other attempts d1ey had made at other f\1el stations before d1ey got fuel. Most customers reported getting fuel at the first fuel station d1ey visited. This was because they were using mobile phones to check "\Vhen supply was available and some WhatsApp groups even provided detail, such as, d1e time fuel was supplied, d1e time service commenced and the likelil1ood of one getting fuel if they joined the queue at a particular time. There were a few that still indicated d1at they only got fuel at the second or third petrol station, some even after a ±ew days of searching. An interview on 12 February 2020, with an elderly male Harare motorist in a fuel queue who did not \vant to be idemitied shared the fi>llmving experience,

> "Last time I only got it after three unsucces sful attempts. I tried at the one along Leopold Takawira Street tlrst. \Vhen I joined the queue, I had been advised that the fi1cl had just been delivered and I was about 30 cars away from the pumps. Hmvever, the queue was not moving at all. I even sent my son to check at the forecourt whether they were serving any customers. They were serving but there was m<UlY chaos with commuter omnibus drivers skipping the queue and forcing their way. Then there was a different group of customers that were corruptly getting in front. After eight hours in the queue we vvere advised that the fuel was finished. I had to leave my car in the queue because I did not have enough fi1el to get back home."

The elderlv man indicated that there was no nearby supply of petrol made over the neA.'t two days and so he had to make arrangement5 with a security guard \vorking overnight at a shop near the car to look after it fi)l· a small fee. When fuel was delivered on the next street, he only got to know late, so he f 1iled to get f\1el again. It was only on the third day that he was informed in advance of a fuel delivery nearby. He was then able to position his car right neA.'t to the ±orecourt and he finally got it. By d1e time he got fuel, d1ey were pushing the vehicle because d1e little tank was nmv empty. His problems were not quite over because when he finally got d1e fuel, the tl1el station operators were rationing allocations per vehicle to only 20 litres per car. Although he

\would have \Vanted to till up his fuel tank , he was happy that the 20 litres would be enough for the week.

Motorists in queues \Vere observed to be involved in many activities to while up time. Some were seen reading newspapers, others reading books, \vhilst some engaged in discussions \vith old frientb or new friends met in the queues. There was much socialisation that \Vent on in the fuel queues. There were also some fights breaking in the queues when some motorists wanted to fit in their friends or relatives to skip the queue. This also happened \Vhcn some enterprising young men corruptly brought motorists to the front for a tee. Motorists who would have been in queues for long hours would protest at having anyone being brought to the front. The enterprising young men would, sometimes, \vork in cahoots with some statf at the facility v,hich made it ditTtcult to stop the corruption.

Sometimes, motorists waited long before fuel was delivered. This happened at a few service stations where the owners advised of an impending fuel delivery. Sometimes some privileged motorists got to know through staff at the fuel stations. The behaviour of motorists in a queue where the fuel had not yet been delivered was ±ound to be a lot less tense. Some motorists would be seen outside their cars and, in many instances. discussing current affairs. An interesting observation was the usc of an object to book space for a car that would join the queue later. An object, such as a fuel jerry can, or an empty box, wa. commonly used to book space for a car that would be joining the queue at a later stage. A person could also be required to stand in t(>r the car and inform all motorists who joined the queue behind the person to avoid conflicts \vhen the said car arrive.

Most motorists came from a 10-kilometre radius of the service station. There \Vere, however, a significant mm1ber d1at reported coming from nearby, but also from as far as 20 kilometres away from the facility as shown in Table **l.**

Tablc 1 O ngtn of motonsts from scrvtcc station

Origin of Motorist (Radius)	5-kilometres	10-kilometres	20-kilometres
umber of Respondents	14	28	8
N=50			

The table indicates that most of the sampled motorists travel long distances just to look ±or fuel. They arc stxnding much fuel to look for fuel. Whilst a !c\v of the motorists combine the journey to look ±or fuel with other errands, there were many motorists whose sole purpose for the journey was to look for fuel. The little h1el available in the country is not being efficiently utilised. Too much h1el is being used to search for h1el.

The smdy found out that there were people employed as drivers whose main purpose was to look for fuel for their colleat,'1.les who were busy at work or could not get time to look ±or fuel. Although only three people out of the sampled 50 motorists indicated that they were employed to look ±or fuel, it was an interesting finding that the shortages of fuel no\v compelled some to employ merely ±or the purpose of fuel. It is significant that the crisis has created employment for a few people.

There \vere two signitlcant categories of changes fimnd, infrastructure changes and operational changes. Most service stations now have barriers to controlling vehicles to enter the facilities. They have closed other access points. Older h1el stations have incorporated minor changes which comprise mostly building metal pillars with chains in between. Newer ones, however, are designed v,ith stronger barriers, some even with perimeter palisade barriers. When most old service statiom were designed and built, tl1ere were no h1el shortages. The expectation was that there would be, at most. a few cars coming into the forecourt at a time. The fuel shortages require stricter management of space.

The otl1er change introduced because of the h1el shortages has been the designation of one entry side and a separate exit side. In the past, most service stations were designed to provide access from different sides. The original intention was to provide convenience to the motorist so that one could enter from different sides as long as there wa. space in the fi)recourt, depending on which side one \vas coming from. For example, if a h1el station wa. at a corner of two roads, there vv·ould be access from either road. That ha. all changed in an attempt to manage access and order in tl1e queues. Almost all tl1ese facilities now use one access routes unless they are allmving tl1ose with pre-paid cards.

Operationally, most fuel stations have introduced additional people to assist in the management of these access and exit points. Whilst many facilities control only their access points, others also controlled order along the whole queue as a response to complaints from neighbours.

Service stations have become difficult and for many 'uncomfortable' neighbours because of the inconveniences the queuing vehicles cause on adjacent properties. Most neighbouring property mvners complained of destruction of flower beds, lawm and roadside kerbs and periodic closure of access to their properties. Vehicles in fuel queues were reported to have driven over neighbours landscaped gardens and physical barriers. Interviewed on february 14, 200, Sango, a resident of a Harare suburb whose property is ncar a service station, explained,

> "Tn the past, the road reserve in front of my property was beautifully landscaped with lush green lavn1s and beautiful tlowers. These had all taken much etTort and resources to develop over a number of years. When the serious fi1cl shortages started, this all changed. Whenever fi1cl was delivered at the service station next door, there was total chaos as motorists scrambled to get fuel. In the process. all our beautiful gardens were destroyed."

Some property owners >vho arc neighbours to fuel dispensing facilities have also adapted to the nnv inconvenience by also constructing barriers to stop cars from inconveniencing them. The measures vary fi·om placing signs and single stone boulders to constructing walls on the boundaries. Others employ security guards to control vehicles and ensure that their access is not blocked by vehicles in the fuel queues. At one of the properties next to a service station close to a suburban shopping centre, there is now a security guard whose purpose is to enforce a sign that reads 'No Parking in Front of the Gate'. Without the b'l.urd, motorist5 in the queue used to disregard the notice. The owners indicated that they had to employ a guard because their clients were always inconvenienced by finding the gate entrance blocked by vehicles queuing for fuel. At a few residential properties, rock boulders were placed at the front, to discourage motorists from using that space to queue.

Different groups of people arc affected differently by fuel queues. For passing motorists and pedestrians, the queuing vehicles can be an inconvenience. Some roads become constricted as the fuel queues can occupy part of the road and, in the process, slovv· dmvn passing traftic. Pedestrian crossings can also be blocked by vehicles, particularly if the queues are disorderly.

One group of people that \vas aftected by fuel queues in a positive vv·ay were vendors. These are small-scale businesspeople that sell a variety of wares ±rom fruits and other foodstuffs to electric goods and clothes. All vendors interviewed were happy \Vith the fuel queues and wish that the fuel shortages persisted. Masunda, a leather-products vendor operating in central Harare interviewed on l<'cbruary 13 2020, had this to say,

> ""VVhen there is a fuel queue, a nev,r market is created. Most queues are there for a day or even more and that helps. The people will need water to drink and fruits or food to cat. Others sell other things. I mainly specialise in leather products, belts cmd sandals. On a good day I can sell several pairs of sandals and a number of belts. \ Then it is hot, sometimes, vendors run out of drinking water as ah11ost everyone in the queue will buy. Ice creams can also move hst on a good day. So yes, most of the vendors are happy v.rhenever there are fuel queues."

There arc three different categories of people that were ±ound controlling fuel queues in Harare. These include the staff that dispenses fi1el, known as petrol attendants, security guards employed by d1e facility owners and details from the national Zimbabwe Republic Police (ZRP). All these play di±Iercnt roles in managmg queues.

Fuel attendant5 are d1e staff employed to sell fuel to motorists. There are usually several of these at each facility, depending on how many pumps were installed to serve fuel at a time. Before the fuel crisis, these were enough to attend to all duties at a fuel station. They \vould direct tratTic, sell h1el, till fuel tanks, and otTer ancillary services, such a. , oil-level checking, tyre-pressure checking or \vindscreen cleaning. These were all services available at most facilities.

During this study, the functions of the fuel attendants \Vcre found to have slightly changed: Firstly, they no longer offered most of the ancillary services, such as, tyre-prcssure checking, engine oil-level checking and windscreen cleaning whenever there \vas fuel. They would concentrate mainly on selling fuel since there was much pressure on them. Secondly, they \'v'ere nmv involved in the control of access to the fi)recourt. There was always one or more of them stopping cars before they entered the facility and controlling when and to which pump cars came into d1e torecourt.

In undertaking the new control functions, the attendants were not always fair or ethical. Some of them conducted the duty with high levels of corruption. Some cars would be right in front of the queue whilst others waited a convenient distance ±rom the front, waiting to be given a signal to come to the ±ront. These would be motorists given prdcrcntial treatment, because they would have paid a bribe or arc ±riends or relatives of the petrol attendants. This. Sometimes, drnv criticism and anger from other motorists in the queue. Some of these corruptly allowed cars would also use exit points to come into the fuel station. At two service stations sampled during the study, violence empted as a result of this type of corruption and anti-riot police had to be called to restore order.

Almost all service stations surveyed now employ security t,'uards in addition to the fuel attendants. In d1e past, guards would work only at night to attend to the security aspects of the facility when closed. Now all of d1em employ day guards who assist with controlling access into the torecourt at a new additional cost.

These guards arc supposed to assist in enabling orderly movement of cars into the forecourt and prevent those that may want to skip queues but, sometimes, they become the problem. Like the petrol attendants, they were also getting involved in corruption. They would occasionally allow motorists who were not in the queue to access fuel for an additional fee, a bribe. Guards at fuel stations acquire a different status from their colleagues whose jobs are generally looked down upon. This status is capmred in the comments of Nyika, a motorist interviewed in a queue in Harare on 17 February **2020,**

"Security guards at petrol servtce stations are bosses. Thev are so important that getting their assistance means you can save yourself hours if not days of waiting in a queue. It only takes his permission to get imo the f(xecoun that you are guaranteed of not just saving tin1e, but also getting the fuel you need. They can also phone you to alert you when fuel is delivered. If you bdiiend a guard at a fuel station, all your energy challenges arc solved. Unlike their collclgtics just gt1arding other premises, these have access to easy cash and acquire a high status".

Security guards have become an additional cost to service station mvncrs. They have, hmvcvcr, not always improved the order at these facilities. In some instances, they become part of the problem.

Another nnv addition to the fuel stations in Harare is the usc of the national police ±orcc, the ZRP at the queues. Some operators of fuel stations call the ZRP v,henever they have fuel to a. sist in managing the sin1ation. The owners indicated that they approach the leadership of the police at the local police station who usually second a few police otlicers to a.%ist. The owners do not pay f(>r this service, it is part of the police duty to ensure orderly conduct. The police oHicers get a small advantage in return as they buy fuel for their cars without joining the queue, a huge bendit during times of dire fuel shortages.

Most motorists intervinved do not think the presence of the police at fuel queues improves the situation. Many Zimbabweans consider d1e national police to be very corrupt and so do not trust d1em to maintain t:1ir order. In an interview wid1 Chatora, a service station owner in Harare, 12 February 2020, d1e following emerged:

"ZRP is very cormpt and their presence does not help at all. In tact, there arc many people that believe that the moment you involve the police, you invite corruption. Inviting them here simply means that you arc creating opportunities for them to make extra money. Private security guards arc better because they do not luvc ,ls much power as ZRP, so they are less corrupt. The ZRP are more corrupt and will abuse their power. When we complain that they are being corn1pt they threaten to arrest the complainant as the one causing public disorder".

Chatora's views were shared by almost half of the motorists interviewed. Despite the widespread negative perception of the ZRP by the motorists, whenever there was chaos or violence, operators of service stations called the ZRP to maintain order because of their statutory status. They are custodians of the country's laws and have arresting powers. The ZRP, therefore, represents authority at the highest level. For operators, they are the most reliable in ensuring and restoring order.

The Sustainable Development Goals (SDGs) represent the world's shared aspirations in terms of global development. SDG7 aims at facilitating access to affordable safe and clean energy. The goal contains high aspirations for countries to use clean fuel and energy sources because there is evidence that energy is a key contributor to the greenhouse gas emissions (De Souza *et al.*, 2010). It is estimated that energy contributes as much as 60 % to the generation of greenhouse gases (Satterthwaite, 2008). The fuel shortages in Zimbabwe mean that there is inefficient use of the little available fuel. Neither petrol nor diesel is clean fuel. Both of them are high contributors to the depletion of the ozone layer, as their use leads to accumulation of ozone-depleting gases in the atmosphere. Zimbabwe's fuel shortage of and the long and numerous trips made whilst looking for fuel exacerbates the situation. Many motorists spend a lot of time looking for a polluting fuel that most of them struggle to afford. Much unclean fuel is used to look for more fuel. This means that there is neither affordable nor safe and clean energy in Zimbabwe.

CONCLUSION AND RECOMMENDATIONS

Zimbabwe's fuel challenges have caused many changes to the facilities that sell fuel as a result of the overwhelming demand which outstrips supply. For many motorists, looking for fuel has become a new job. There is uncertainty in terms of whether one will get fuel or not and after how long. Queues can be very long with vices, such as corruption, especially, if the fuel is being sold without any privilege restrictions. Other services that motorists used to enjoy at these facilities are no longer easily available. Motorists now struggle to get services, such as, windscreen cleaning, tyre-pressure checking and oil level checking. Whilst this happens, the SDG7's intention of affordable clean energy is not realised. Zimbabwe's fuel is neither affordable nor clean. In fact, the little available fuel is wasted looking for fuel.

The study makes the following recommendations:

- The country must develop alternative energy types.

- In the meantime, there must be innovations that improve distribution efficiencies in the fuel sector. The country cannot afford the current wastages and inefficient fuel use.
- The location and design of service stations must compel planners to rethink fuel station designs, considering contemporary economic realities.
- The fuel shortages have been in existence for more than a decade. Maybe it is time they are a design and planning consideration for Zimbabwean cities.

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