

**EFFECTS OF ILLEGAL REFILLING OR COUNTERFEITING OF LIQUIDIFIED
PETROLEUM GAS ON THE SALES OF OIL MARKETING COMPANIES IN
UGANDA: CASE STUDY OF OLA ENERGY UGANDA LIMITED**

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J21M47/001

**A DISSERTATION
SUBMITTED TO THE SCHOOL OF BUSINESS IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE AWARD OF A MASTER OF BUSINESS
ADMINISTRATION OIL AND GAS MANAGEMENT, INSTITUTE OF THE
PETROLEUM STUDIES KAMPALA IN AFFILIATION TO UCU.**

APRIL 2022

DECLARATION

I, Lwawuga George Williams hereby declare that this dissertation is my work, and it has not been submitted before to any other institution of higher learning for fulfillment of any academic award.

Signed.....

Date..... April 29, 2022.....

APPROVAL

This is to certify that, this research entitled “**EFFECTS OF ILLEGAL REFILLING OR COUNTERFEITING OF LIQUIDIFIED PETROLEUM GAS ON THE SALES OF OIL MARKETING COMPANIES IN UGANDA: CASE STUDY OF OLA ENERGY UGANDA LIMITED**” has been done under my supervision and now it is ready for submission.

Signature.....

Supervisor’s Name: Prof. Muhammad Ngoma

Date..... April 29, 2022.....

DEDICATION

I dedicate this work to my wife Esther Majorine Lwawuga and my mother Ms. Nalumansi Sarah who were a major source of my inspiration with support and the cheering during my education.

ACKNOWLEDGMENT

I would like to give my warmest thanks and acknowledge my supervisor Prof. Muhammed Ngoma who made this work possible through his guidance and support to ensure we achieve the objectives. His positivity carried me through all the stages of report writing and research. I would like to thank IPSK management and defense committee who were very positive during the proposal defense and the encouragement for me to go on with the research.

I would like to thank my friends Dr. Mugambe Richard, Lubulwa Richard, Pastor Kibirango Steven and PEM members, and the group where I belong right from secondary school. Special thanks to Ola Energy staff who were very positive and supportive to provide information during the study.

I would like to give special thanks to my wife Esther Majorine Lwawuga who always pushed me to carry on at all times without complaining and continuous prayers and support, even when things were not easy. I also give thanks to my mother Nalumansi Sarah for understanding and constant prayers. Your prayers for me are what has sustained me this far.

Finally, I would like to thank the almighty God for letting me through all the difficulties, tuition provision and good health. I have seen and experienced your guidance day by day and you are the one who let me finish my masters and I will always trust you for my future.

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ABBREVIATIONS / ACRONYMS

LPGas – Liquidified Petroleum Gas.

OEUG – Ola Energy Uganda Limited.

UNBS – Uganda Bureau of Standard

PIEA- Petroleum Institute of East Africa

OMCs – Oil Marketing Companies

OLA ENERGY LPGas = MPISHI GAS

Ola Energy Uganda Limited is Formerly Libya Oil Uganda Limited

CVI – Content Validity Index

ACTS & POLICIES

Petroleum Supply Act 2003

National Intellectual Property Policy 2019

ABSTRACT

Ola Energy Uganda is facing the problem of LPGas illegal refilling by illegal refillers without authorization. The purpose of this research has been to investigate the effects of illegal refilling or counterfeiting of LPGas on the sales of Ola Energy Uganda Limited. Using the designed questionnaires and interviews for Ola Energy staff, customers and distributors, the study found out that illegal refilling affects Ola energy LPG sales when illegal refillers use or hold Ola LPGas cylinders without authorization and use them for their own business hence leading to loss of revenue for Ola Energy, poor quality and low quantity product in the market, brand and cylinder damage, price suffocation in the market and affects 6kg and 13kg cylinders. This is due inactive policies in Uganda, access to LPGas and cylinders by illegal refillers, no visibility for OEUG for both brand and distributors in the market, access to OEUG seals by illegal refillers. The illegal refillers illegally refills Ola LPGas by decanting big LPGas cylinders (40/45kg) into small cylinders (6kg and 13kg), installed LPG tank with filling systems, repainted of cylinders with colors for brand to counterfeited. Therefore, its recommended that the Ola Energy should improve cylinder filling technology, adopt intellectual property controls, information control, put up education programs, increase marketing budget, put up monitoring systems for illegal refillers, improve cylinder and valve designs, implement mobile cylinder weighing, properly communicate prices and lastly implement anti –counterfeiting programs.

CHAPTER ONE: INTRODUCTION.

1.0 Introduction.

One of the most complex problems facing oil marketing companies in Uganda dealing in LPGas is illegal refilling by illegal companies. Product counterfeiting is growing dramatically in terms of volume. Most of the global companies are getting concern about the counterfeit products, reason because the phenomenon reduces their sells and also disrupt the distribution and pricing strategies. Also on the other hand, price destabilization, market and distribution channel marketing damage, brand image and reputation disruption as part of the problems with counterfeiting (Rahpeima, Vazifedost, Hanzaee and Saeednia, 2014). Counterfeiting is defined as the process to represent a registered trademark by unauthorized person or company to be carried on similar goods on which a trademark is already registered. This happens to deceive a purchaser to believe or accept that the product being bought is an original product.

This research focuses determining the most counterfeited or illegally refilled LPGas cylinder size, determining factors leading to illegal refilling of LPGas, investigating methods used by illegal refillers for Ola Energy Uganda limited LPGas and identifying effects of illegal refilling or counterfeiting of LPGas on the sales of Ola Energy Uganda limited.

1.1 Background to the study.

In the energy sector, LPG is a vital energy source in the whole world and used as a response to the air pollution and greenhouse gases. LPG is a consumer product packed and sold in metal cylinders and it goes through different distribution points before it reaches the final customers. When LPG cylinders are sold to the customer, the owner of the cylinder has no control over the next move or use of the cylinder through the distribution chain since the customer fully owns the cylinder. Therefore, some unscrupulous players within the market or the country start

to illegally convince the customers and start refilling the cylinders without notice of the brand owner hence causing business loss to the company which invested into the cylinders.

Ola Energy Uganda limited is a company dealing in trading of petroleum products in Uganda which includes fuels, lubricants and LPgas. However, this study focuses on the sales of LPgas which is branded and packed in 6kg, 13kg, 40kg and 45kg cylinders.

According to Sales and Marketing Manager for Ola Energy Uganda Limited, he stated that “Ola Energy Uganda is facing the problem of low LPgas sales on monthly and annual basis due to increasing rate of illegal LPgas refill by illegal refillers in the market. The company started its operations in 2008 and invested over 40000 cylinders and about 40% of the cylinders are not returning for refill at Ola Energy LPgas refilling plant in Mukono because they are being held or used by illegal refillers in the market without authorization”.

Therefore, even though the same problem of LPGas illegal refilling or counterfeits has affected most of the oil marketing companies (OMCs) dealing in LPGas in Uganda, the main purpose of this study was to identify the effects of counterfeited or illegal refilling of LPGas cylinders on sales to Ola Energy Uganda limited.

1.2 Statement of the Problem.

The problem of counterfeiting and illegal cylinder refiling is growing larger and faster in Uganda as for Ola Energy Uganda Limited. The company LPgas sales kept on reducing on monthly and annual basis due to the held cylinders in the market by illegal refillers. According to Ola Energy Sales and Marketing Manager, about 40% of the reduction in sales volume is largely due to illegal refilling or counterfeiting of the Ola Energy LPGas product. Therefore, the need to carry out the study to identify further the effects of counterfeited or illegally refilled LPGas on the sales of Ola Energy Uganda, identify the most counterfeited or illegally refilled LPG Cylinder size, to identify factors leading to illegal refilling or counterfeiting for Ola Energy Uganda Limited and to investigate the methods used by illegal refillers.

1.3 Purpose of the study

This study aimed to identify effects of counterfeited or illegally refilled LPGas on the sales of Ola Energy Uganda and recommend strategies that can be used to stop illegal refilling.

1.3.1 Objectives of the study

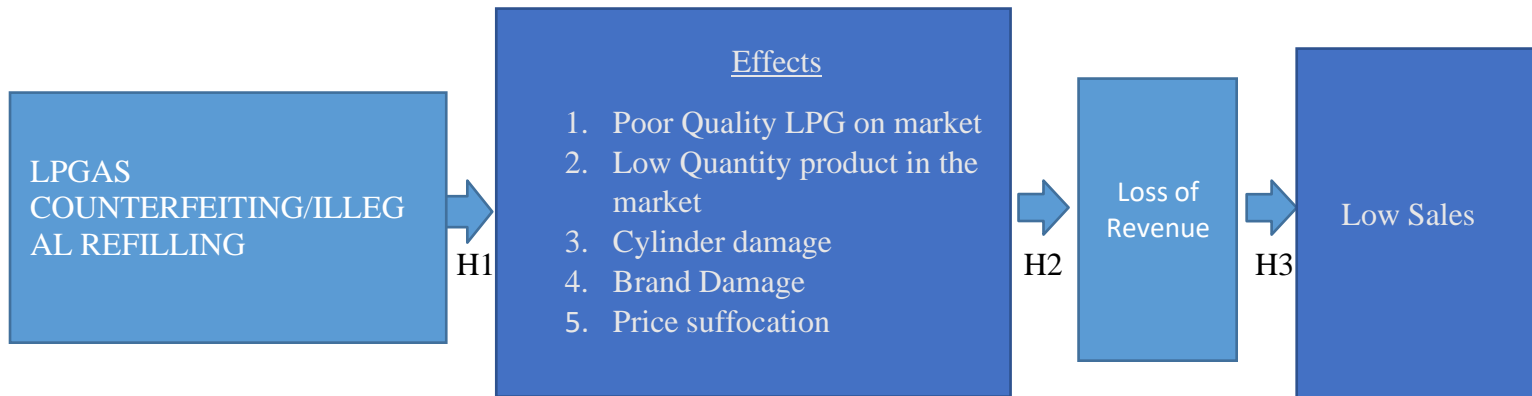
- 1) To identify the most counterfeited or illegally refilled LPG Cylinder size for Ola Energy Uganda Limited.
- 2) To identify factors leading to illegal refilling or counterfeiting for Ola Energy Uganda Limited.
- 3) To investigate the methods used by counterfeiters for Ola Energy Uganda Limited.
- 4) To determine the effects of illegal refilling on sales of Ola Energy Uganda Limited.

1.4 Research Questions

1. What are the common illegally refilled LPGas cylinder sizes for Ola Energy Uganda?
2. What are the factors that lead to the illegal refilling of the LPGas cylinders?
3. What methods do the counterfeiters for Ola Energy use to refill the cylinders?
4. What are the effects of counterfeiting or illegal refills of LPGas cylinders on the sales of Ola Energy?

1.5 Conceptual Framework

Below is the theoretical or conceptual framework used to study the effects of counterfeiting or illegal refilling on sales of Ola Energy Uganda LPGs.



Source: Steven and Busby (2015).

Fig 1: Conceptual Framework

The framework shows the existence of counterfeits or illegally refilled LPGas cylinders affects the sales for Ola Energy LPGas as per variables below.

H1- Existence of illegal refilling leads to poor quality LPGas on market, Low quantity LPgas sold on Market, Cylinder damages, Brand damage and price suffocation on market.

H2 – The effects lead to loss of revenue for OEUG

H3- The effects lead to low sales on OEUG LPgas.

1.6 Scope of the Study.

1.6.1 Time scope

This was a cross sectional study that assessed counterfeiting and its effects at a point in time. Data was availed from the field for two weeks and analyzed within two weeks as per Ola staff, distributors, and customer's responses.

1.6.2 Content Scope.

We interviewed depot staff, Sales Staff, distributor, and final customers to identify the effects of illegal refilling of Ola energy cylinders on sales, factors leading to illegal refilling, and investigating the methods used by illegal refillers.

1.6.3 Geographical Scope.

The research study covered the greater Kampala metropolitan areas of Kampala, Wakiso and Mukono. According to the sales team at Ola Energy Uganda limited, Kampala metropolitan is one of the highest selling areas and most refillers normally operates in the central region. Therefore, there was a purposive selection in these areas because of its high demand of Ola Energy LPGas and the high number of illegal refillers compared to other regions.

1.7 Significance.

Besides the direct loss of sales, lower quality, quantity of products sold by counterfeiters which lead to irreparable damage to corporate brand/reputation for OEUG. This research study also identified 6kg and 13kg as the most common counterfeited OEUG LPGas cylinders on the market.

The implementation of the recommendations suggested in this study by OEUG improve on the damage caused by illegal refillers on the sales of OEUG LPGas. The same recommendations will be a good guidance for other Oil Marketing Companies and the Government of Uganda to reduce or stop the act of LPGas illegal refilling. This study is to contribute to the existing body of knowledge relating to the illegal practices and counterfeiting in the oil and gas industry. It

is to give directions to future researchers who may be interested in advancing knowledge in the field of oil and gas counterfeiting measures.

1.8 Justification.

The problem of the illegal re-fillers for LPGas has been felt by most of the oil marketing companies in Uganda including Ola Energy Uganda., and for the purpose of this study, we identified how illegal refillers carry out the illegal exercise through holding company cylinders and used them for their benefits without the knowledge of the brand owners. If this challenge is not addressed, it will continue to affect the sales returns and the overall performance of the oil marketing companies in Uganda. The results identified are to be used to put strict measures on LPGas cylinders and putting a high-quality monitoring team in the field to identify and summon illegal refillers.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

The importance of the literature review is to review the existing counterfeiting literature in general and also the literature on LPGas counterfeiting for Oil marketing companies or for oil and gas downstream business.

2.1 History of Counterfeiting.

Product Counterfeiting started 5000 years back in China by the inventors. This is commonly happening for high demand products and products which are scarce on market. Hence, product duplication by counterfeiters is started for market satisfaction. This mostly happens for high demand products in order to maximize on the profits (Chaudhry and Zimmerman, 2013).

2.2 Definitions of Counterfeits.

Chaudhry and Zimmerman (2009), defined Counterfeits as inferior goods or of substandard products sold under another brand's name without the authorization of the brand owner.

World Trade Organization (2011) defined counterfeiting as unauthorized representation of the registered trademark being carried on similar goods or identical goods with the essence of deceiving the buyer or making the buyer believe is buying the original product.

Counterfeiting involves the process to copy someone's trademark in order to produce look alike products on the market with the aim of confusing the buyers or customers through branding without brand owner's authorization or knowledge. This mostly happens when the counterfeiter uses the packages of the brand owner or through changing the brand completely with different product.

Counterfeit goods always repacked into used, new or reinstated packs with another brand name without the knowledge or authorization from the owner of the brand. Counterfeiters do business illegally with high security and protection in order to maintain forgery chain within the market.

These goods are always of poor quality, sold at lower prices than the original or brand owner's products. (Staake, Thiesse and Fleisch, 2009)

Some articles about counterfeits are showing that, counterfeits are mostly found in sectors such as fast-moving consumer goods, automotive, pharmaceuticals, licit manufacturers with severe consequences to the buyers or customers. (Staake, Thiesse and Fleisch, 2009).

According to Staake, Thiesse and Fleisch (2008), Counterfeit trademark products are characterized with packaging company brand name without authorization from the brand owner. This affects the brand owner's and customers cannot tell the difference between the counterfeit and the original good.

2.3 Common Counterfeited Products

Staake and Thiesse and Fleisch (2009), states that counterfeit goods are creating threat to fast moving goods, pharmaceuticals and automotive with high impact on manufactures, customers and owners of the brand. According to the costs involves and nature of goods, their prices are always lower than the original brands due to small investment needed. Counterfeiters use packages of counterfeited goods and stickers are put to distinguish the genuine product. When they improve the packaging, low quality refills of products are made, and the product is sold on market at a lower price than the original brand or product.

However, Rana (2005), stated that the industries suffering from counterfeits includes Fast Moving Consumer Goods, Consumer Durables, Pharmaceuticals, and health sectors.

a. Fast Moving Consumer Goods (FMCG).

FMCG takes the fourth position in the world for being counterfeited and they are from India, these includes soft drinks, biscuits, and oils. (Rana, 2005).

In 2012, daily monitor newspaper wrote about a business war between Coca Cola Uganda limited and Harris international on the trademark infringement. This happened when Harris international launched Riham cola and fun time whose color brands, packaging and names looked like coca cola brands. The matter was resolved outside court though it damaged coca coca brand.

b. Consumer durables.

According to Rana (2005), consumers durables are low counterfeits due to high investment needed and small entrepreneurs cannot afford due to the high level of technology required. These includes Kyocera, LG, sonny, Dell and Philips products like photocopiers, phones, television sets, laptops, fridges and many others. Though, sometimes a few products are made with missing letters, interchangeable names. This sector is less affected by counterfeits due high investment required. Same as Toyota as no one has complaint about counterfeited Toyota vehicle or car.

c. Health Sector.

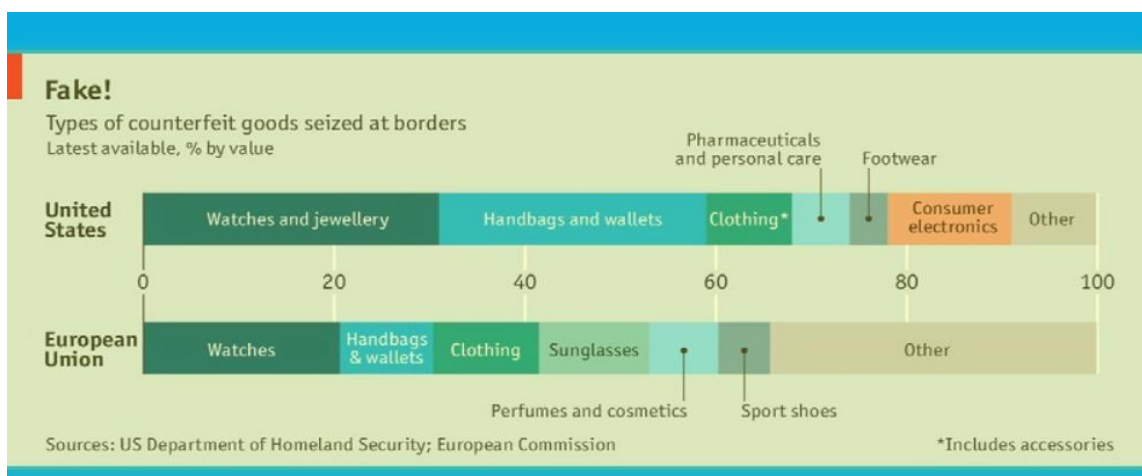
Rana (2005) stated that medicines for liver threatening diseases such as HIV, Tuberculosis and Viagra are the most counterfeited medicines with ingredients and compositions not meeting the standards. The reason for this, is that customers are not knowledgeable about the substandard medicines and the high prices required for these medicines.

d. Counterfeit in Rural Areas

Rana (2005) stated that piracy in rural places is four times city or urban places as the buyers in the rural areas are not loyal to the brands. In rural areas, the brands are represented by logos and symbols and packaging is made with the mind that in rural areas, customer are low-income earners for them to afford the highly branded and packed products.

The government should organize workshops, seminars to educate the public about counterfeits. This can also be improved through advertising and with incentives for customers who can detect the fake products on the market and all products should have specific holograms in the market. (Rana, 2005).

According to the European consumer center (2017), about 562 crimes on counterfeiters, 393 crimes were reported from non-European countries. The shoes, clothes, and electronic devices were mostly reported as shown in the figure below.



Source: (European Consumer Center, 2017).

Although Cademan, Henriksson and Nyqvist (2012), stated that luxury goods are the most counterfeited goods. These goods are bought by customers for admiration and recognition from the people around them. Therefore, counterfeited luxury goods flood the market.

2.3.1 Counterfeited or Fake products versus original products.

The quality of counterfeit products is suspected to be with cheap options for replacing genuine products. Materials such as fake leather, plastics, cheap glasses, used parts in gadgets and appliances and different container shapes are commonly used by counterfeiters. China is one of the common countries in the world which consumes and manufacture counterfeit products. All products made from China are found in China and all over the world.

The International Anti-Counterfeiting Coalition (IACC) study showed that, 80% of the fake products in the world are from China and always labeled “Made in China”. These products include food, official documents, households, electronics and apples products such as phones. Below is the figure showing apple phones with original and fake markers from the apple store. (Brand &Fakes, 2020).



Source: (Hussein, Kofinas and Win, 2017).

2.4 Factors Leading to counterfeits

According to OECD (2020), the main factors which lead to counterfeiting are categorized into

- a. Market characteristics which include profitability, market size and brand power,
- b. production, technology, and distribution which includes Investment and Technology required, marketing and sales required, ability to conceal operations and to deceive customers
- c. institutional characteristics. Which includes legal and regulatory framework, enforcement, and penalties available in the country.

All the above, if they are weak either in an organization or the country, then counterfeiting shall be unstoppable at any level.

2.4.1 Factors affecting intention to purchase fake products.

According to Patiro and Sihombing (2016), the factors were divided into supply and demand as below

For the Supply side, the concern is about production settings, tactics and motives of illicit actors and the way how fake products enter the supply chain whereas for the demand side, it focuses on customer behavior and the attitude towards the counterfeit product. The other legal and legislative concerns of anti-counterfeiting options ensures that intellectual property rights are endorsed in the country of origin to reduce counterfeit products on market

Therefore, the factors influencing the customer intention to purchase the counterfeit products includes product, person, social, cultural context, and purchase situation without age and education. (Patiro and Sihombing, 2016),).

Other factors that influence consumer intention towards buying counterfeits are classified as social, product, person, cultural context, and purchase intention. (According to demographic profiles, Bian, and Moutinho (2009) found out that age and income does not explain the subjects' likelihood of counterfeit product purchase consideration, with the exception of income, which influences the consideration of counterfeit Gucci watches.

2.5 Methods of Counterfeiting

The methods of counterfeiting are distributed into types and strategies as below.

2.5.1 Types of counterfeits.

According to Staake, Thiesse and Fleisch (2008), deceptive and non-deceptive counterfeits are the common counterfeits used in the market. For deceptive counterfeit, customers buy counterfeit goods or products in mind of being an original or genuine product whereas non deceptive, the customer buy counterfeit product when they know that they are buying a counterfeit good or product. Non-deceptive counterfeits are used for fast moving products

where the seller is taking advantage of the buyer or customer in order to maximize margins when they know that the product is cheaper on market.

Non-deceptive counterfeit is commonly used for the fast-moving products where the sellers take advantage of the customers to maximize profits or knowing that the product is cheaper on market. The sellers always describe to the customer the different products where one is fake, and another is genuine. Therefore, the customer decides on what to buy depending on nature of use or price. (Staake, Thiesse and Fleisch, 2008).

Patiro and Sihombing (2016), defined deceptive counterfeiting as the production of goods with identical packaging for which customers perceive as original goods.

2.5.2 Counterfeit Strategies

According to Stevenson and Busby (2015), four counterfeit strategies were identified through the initial searching and coding, and these includes.

- a. Extraction strategy- Counterfeiters get original goods from the original economy, distributor, and supplier for counterfeiting
- b. Production Strategy-Counterfeiter intentionally manufacture counterfeited products. This is used when the counterfeiter is aware of the procedures and standards of the original product.
- c. Distribution strategies – Counterfeiter distributes goods which are counterfeits.
- d. Infiltration strategies- counterfeiters introduce counterfeit goods from different economies into the economy.

However, secondary searching and coding showed that counterfeit strategies are set to achieve certain goals, they involve exploitation, generation, and suppression of signals. Counterfeiting also impacts on competitive resources such as reputation, quality and trademark which are

developed basing on signaling theory and the resource –based view. (Stevenson and Busby, 2015).

2.6 Effects of counterfeits.

According to Steven and Busby (2015), counterfeits affect the product quality buying refilling low grade product into the pack and hence the reputation of the brand owner is affected. For any incident, the counterfeiter will always run away to avoid being arrested and the responsibility returns to the brand owner. This also involves the misinterpretation of the trademark by the customers and for any incident, the customers will stop using the products attached to trademark which is questioned.

Cademan, Henriksson and Nyqvist (2012), stated that the consumer perception on counterfeit products has a negative effect on customer perception of luxury products, goods or brands. The customer brand association and consumer perception always perceive as quality luxury brands are affected by counterfeit products.

According to Cademan, Henriksson and Nyqvist (2012), below are the highlighted effects of counterfeits for luxury goods.

- a. Counterfeits affects brand associations and perceived quality for luxury products in the way that; for luxury brands, the perception and brand associations of counterfeits are opposite. This means that, for any product with negative perception of being counterfeits, it greatly impacts on the brand association of the luxury product or brand
- b. Since perceived quality and brand associations affect the brand, the consequence affects the owners of the brand for the genuine products. Hence counterfeit affects luxury brands as personal status symbols.

- c. The value of the original luxury brand is affected by counterfeits as the brand association and perceived quality consequences are felt by the owner which reduces the value of the product.
- d. The demand for original product is affected by counterfeit due to reduction the value of the luxury product and hence registration of low sales by the owner of the brand.

2.6.1 Customer behavior towards counterfeits.

Kumar and Rojhe (2015), indicated that, customers and business people look for low prices for them to save and make more profits. The counterfeiters focus to be lower than the original product through the right supply chain, they attract more buyers through suffocating the brand owner in relation to volumes sold and hence some companies close due to competition.

However, the study proved that age, gender, income, profession, and education have positive attitude to counterfeits. Customers buy counterfeits due to unfair actions or practices by big businesses. Therefore, age, gender, income, profession, and education are the factors which positively affect the behavior of customers to buy counterfeits with gender exclusive. (Kumar and Rojhe, 2015).

The purchase of counterfeits mostly relies on the country origin as most buyers have got strong attachment to western countries such as unite Kingdom, United States, Australia, and Canada without caring about t the product price. Even when the product is locally produced with better quality, not harmful than the imported ones from the western countries. (Owusu, 2017).

The theory of planned behavior contributes to strong demand for fake products, this is due to no or few obstacles to purchase counterfeit products in relation to time needed to look for them, and the geographic barrier, the more the customers will intend to buy the counterfeited products. However, on subjective norm, the level of price which is slightly cheaper than the

genuine product can not affect the intention to buy counterfeit or fake products. (Penz and Stottinger, 2005)

2.7 Control of counterfeits

According to Chaundry and Zinnerman (2013), Counterfeits affects multinational or international companies with fast moving products or superior products. However, the control for counterfeiting starts from the company and then spreads to the nation with support from the Government. By caution, counterattacking counterfeiters should be handled carefully as it's harmful and it's the source of the income for the counterfeiters.

Chaundry and Zinnerman (2013) emphasized that to the brand owners should work together with the Government to control counterfeiting and the Government alone may not manage. SO it's the responsibility of the brand owner. Therefore, below are the strategies to control counterfeiting.

- a. Development of intellectual protection strategy by companies within the country or economy. This involves the formation of associations concerned with intellectual properties protection and all stakeholder involved as per the cost benefit analysis.
- b. Registration of the copy rights with the Government with monitoring and follow up
- c. Put up systems for monitoring fake products through centralized registry in the market.
- d. Developing education program to the public with continuous awareness on counterfeits
- e. Working closely with local law enforcement team in order to fight counterfeiters and ensure remanding the culprits, further action to discourage the process of counterfeiting should be taken.

Harvey (1987) mentioned the 3As steps for anti-counterfeiting programs and these includes.

- a. 1st A- Awareness –Ensure parties and stakeholders are involved and aware of the impact on counterfeiting and engage them into counterfeiting.
- b. 2nd A- Action – Action should be taken for counterfeit incidents
- c. 3rd A – Assertion – Ensure that community and economy are aware that it's illegal to deal in counterfeit without compromise.

Deng, Townsend, Robert and Quesnel (1996) stated that intellectual property loses are due to exposure of the company information by suppliers, contractors, and staff. The company information should be strictly protected such as methods, procedures, controls, models, methods, and agreements to avoid ending up in the hands of the counterfeiters

2.7.1 Counterfeits, Technology and Packaging

According to Chaundry and zinnerman (2013), the new systems of packaging and marking are recommended. These includes installing special spouts for discouraging refilling of bottles, use of holograms, hidden markers, chemical fingerprints, DNA fingers prints for unique identification. According to Chaundry and zinnerman (2013) suggest the use of overt and covert technologies by the brand owners and law enforcers were

- a. Overt technology involves used of special colors, fonts, and holograms readable without special detectors and
- b. Covert Technology involves use of des electronic reading devices such as decoders or lens or specialized laboratory equipment's.

Covert technologies involve using invisible printing, radiofrequency identifications (RFID) which store and retrieve data using RFID tags or chemical / biological tags read by special detectors. Nanotechnology or Nano security prevents counterfeiting of computer chips

whereas Forensic Technology is the extreme end of covert technology which require the use of laboratory testing for verification. Destructive or non- destructive tests should be done to ensure that product identification is depending on the nature of the product.

2.7.2 Packaging products and Counterfeits.

Chaundry and zinnerman (2013) recommends the use of perceive innovative packaging is one of the measures to reduce counterfeit goods.

2.8 Conclusion.

The previous studies from the literature review researched on counterfeits of Fast-moving consumer goods, automotive, pharmaceutical industries, building materials, luxury goods, Information systems (phones, computers, televisions) with consequences to consumers, manufactures and brand owners (Staake, Thiesse and Fleisch ,2009). However, though there is no literature and study on LPG illegal refilling for any Uganda's Oil marketing companies. Therefore, the need to research on effects of counterfeit or illegal refilling of petroleum products (LPGas) on the sales of Ola Energy Uganda limited.

CHAPTER THREE: METHODOLOGY

3.0 Introduction.

This chapter described the methodology used to determine the most counterfeited Ola Energy cylinder size, determined the factors leading to illegal refilling, to determine the methods used by illegal refillers and lastly to investigate the effects of illegal refillers on Ola Energy LPGas sales.

3.1 Study design.

The study design was a cross-sectional survey design, using both quantitative and qualitative approaches. Quantitative approaches made a statistical inference to how much magnitude of counterfeiting has affected the company sales. Qualitative research aimed to attach narrative/description to the understanding why illegal refillers' carryout counterfeits and sell LPGas cylinders to customers without knowledge of brand owners and methods used.

3.2 Study population

Table below shows the study population used during research.

Table 1: Study population

Population	Total Number
Ola Energy Staff (Sales & Depot)	5
Ola Energy Customers in Kampala Metropolitan (Entebbe, Mukono and Waskiso)	80
Ola Energy LPG Distributors in Kampala Metropolitan Entebbe, Mukono and Waskiso	3

3.3 Sampling Techniques

Simple random sampling was used to select the sample from the target population. This method gave every element in the population an equal chance of being selected.

In certain cases, snowballing was used to identify customers who have experienced counterfeited gas cylinders. Snowballing also identified counterfeiters through in-depth interviews and referrals from the participants. Snowballing helped the researcher to identify some of the people involved in counterfeiting and the methods used.

3.4 Data collection Methods.

To accomplish the objectives, self-administered structured questionnaires were developed and used to interview different people. These people included Ola Staff, Ola Distributors and Ola customers. The interview questionnaires had approximately 20 questions for each respondent for both quantitative and qualitative data with open ended and closed end questions. The customers questionnaires were also used through direct physical interviews and some through phone responses as per the contact data base got from the distributors and Ola Energy customer service or staff.

Likert scales were used to determine the magnitude of those who agreed and disagree to some of the factors that contributed to counterfeiting of LPGas cylinders.

Using the questionnaires, the researcher was able to find out the effects of counterfeiting on the sales of Ola Energy LPGas, most counterfeited gas cylinder sizes, factors leading to counterfeiting of gas cylinders and the methods used by counterfeiters. This study also gave recommendations to address the counterfeiting problem.

3.5 Quality control

3.5.1 Validity.

This involved the review of the questionnaires and the theoretical concept to ensure alignment of the problem against the study objectives. This was achieved through the research supervisor, availed literature on counterfeits, oil marketing professionals such as Ola Energy staff and pretesting of the data collection tools.

The overall high content validity index (I-CVI) of the questions achieved was in the range of 0.68 -1 and the S-CVI/Ave was 0.90. The questions were improved until saturation achieved through qualitative methods. These included 6 OMC professionals for relevance rating of the 20 categorical questions with open ended items from different respondent category.

3.5.2 Reliability

This was achieved by ensuring that there were minimal errors in the research through repeatability, because its literature is minimal, the confidence interval to compare from other studies were not found thus relying on my study as a standard measure. The researcher mainly used proportions and percentages to determine the reliability of the study objectives.

3.6 Data analysis

Data was extracted from the kobo collect application that was exported into an excel spreadsheet. It was also exported to STATA 14 for further analysis. The data set included 88 respondents whose results were analyzed and computed into a report format.

3.6.1 Quantitative data analysis

Data was cleaned and analyzed using both descriptive and inferential statistics. For descriptive statistics, frequencies and proportions were generated and used to draw conclusions on the factors that are associated with presence of counterfeited LPGas for Ola Energy Uganda brand in the market.

3.6.2 Qualitative data analysis

For qualitative data, the thematic content approach was used during analysis. The Nvivo-13 was used to do qualitative analysis which generated the themes, codes, and quotations to reach the final conclusions of the study.

3.7 Ethical considerations

To avoid research ethical issues, the following were adhered to during research period and afterwards, Confidentiality of personal matters as clearly stated on the questionnaire form and during the direct interaction with respondents, received consent from Ola Energy to allow me carry out the research and ensured data protection.

3.8 Methodology limitations.

The fact that illegal refillers depend take the act as their form of employment to cater for their families, they are very dangerous to any one they think is investigating on them. They can even kill you . Therefore, this made it a bit scarier at some point mostly the distributors who were being suspected to be part of the act. Tot safeguard on the risk, the researcher concentrated more on the information from customers and Ola staff

CHAPTER FOUR: ANALYSIS, PRESENTATION, AND INTERPRETATION OF RESULTS.

4.0 Introduction

Data was analyzed using Stata-14 for quantitative analysis and Nvivo-13 for qualitative analysis. Graphs and tables were drawn for categorical variables. Frequencies and percentages were analyzed to know the magnitude of counterfeiting among the different variables.

4.1 Quantitative data findings

Quantitative data was analyzed to determine objectives 1&4 of the study which included determining the common illegally refilled cylinders and identifying the effects of illegal refilling on sales of Ola Energy.

4.1.1 Common LPGas Cylinder illegally refilled

The quantitative data finding was used to determine the common LPGas cylinder size used by illegal refillers for Ola Energy LPGas as per below variables.

4.1.1.1 Variable 1: Customers using Ola Energy Cylinders (MPISHI).

From the study, 100% (80 /100) respondents agreed that they use Ola Energy gas

4.1.2.2 Variable 2: Common Cylinder sizes used.

Table 2 below, 56.25% (45 /80) of the respondents used the 6kg cylinders, 35% (28/80) of the respondents used 13kg cylinders, 3.75% (3/80) of the respondents used 40 kg cylinders, and 5% (5/80) of the respondents used 45 kg cylinders.

Table 2: Common cylinder sizes used by customers

Variable (n =80)	Attribute	Frequency	%
Size of cylinders	6kg	45	56.25
Size of cylinders	13kg	28	35
Size of cylinders	40kg	3	3.75
Size of cylinders	45kg	4	5
TOTAL		80	100%
Use of Ola Energy Mpishi Gas	No	0	0
	Yes	80	100

Table 2 Interpretation.

The results confirms that 6kg and 13kg cylinders are most counterfeited cylinders as they are the fast-moving products for OEUG.

4.1.2 Effects of illegal LPGas Refilling on sales of Ola Energy Uganda Limited.

Under quantitative analysis, the effects were determined using different variables as explained below with different tables.

4.1.2.1 Ola Energy staff variables.

4.1.2.1.1 Demographics of Ola Staff

Table 3 below, shows the socio demographics of staff respondents where these respondents have worked for Ola Energy for some time and have experience in the business. More than half 60% (3/5) have worked for between 6-15 years and 40% (2/5) of the respondents have worked between 1-5 years at Ola Energy.

Table 3: Socio Demographics for Ola Staff

Socio demographics	Attribute	Respondents who use Ola energies
		Yes
Gender (n=5)	Male	4(80)
	Female	1 (20)
Age category (n=5)	18-24	0(0)
	25-45	5 (100)
Highest level of education (n=80)	No formal education	0(0)
	Primary	0(0)
	Above primary	5(100)
Experience with Ola Energy (n=5)	1-5 years	2 (40)
	6-15 years	3(60)

Variable 1: Cylinder Movement and holding by illegal refillers

Table 4 below, indicates that OEUG started its operations in 2008 with opening stock of 15000 cylinders. However, the total operational cylinders reduced to 9950 cylinders in 2017. This represents a total loss of 33.7% cylinders not in operation for Ola Energy Uganda Limited.

Table 4: Cylinder Stock

Item	LPG cylinders (pieces)
Opening Stock in 2008	15000
Closing stock in 2017	9950
Difference	5050
Percentage Loss of cylinders for 8 years period from 2009 to 2017	33.67%

Table 4 Interpretation.

The results show a percentage loss of 33.67% cylinders for Ola Energy Uganda limited. This is one of the causes of low sales for OEUG LPgas. The results vary from the earlier claim from OEUG Sales and Marketing Manager who had stated about 40% loss during the proposal planning.

Variable 2- Cylinder Investment Verses Sales Target.

Table 5 below, OEUG procured more cylinders to ensure sales can improve and also improve the number of cylinders in trade. However, there was a slight improvement in the sales, and the company could not meet its set targets as shown in the figure below.

Table 5: Cylinder stock movement verses target

Years	Cylinder in trade	Purchased cylinders	Target Vol (kg)	Actual Vol(kg)	Percentage
2017	9950	0	250000	204890	118% below target
2018	9825	0	250000	218553	12.5 % below target
2019	94000	6955	300000	239041	20.3% below target
2020	16355	20388	400000	307340	23.2% below target
2021	36743	0	500000	350478	29.9% below target

Table 5 interpretation.

The results show that, even if the company procures more cylinders and add them into the market, the company cannot meet its targets due to illegal refillers buying off the cylinders from customers and distributors for their own business without OEUG authorization.

Variable 3: Sales Target Vs Actual Target.

From Figure 2 below, indicates OEUG failure to meet its sales target even though it procured more cylinders and added into the market.

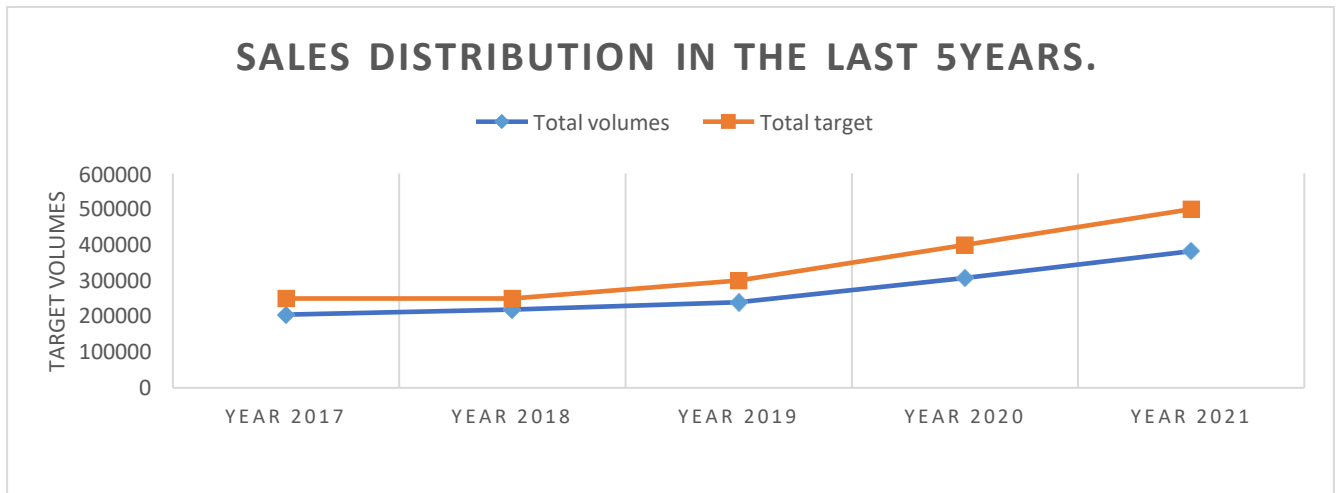


Figure 2: Sales target verses Actual sales

Variable 4: Cylinder Turn around at the Depot.

Figure 3 below, indicates OEUG estimated cylinder refill turnaround time for 6kg, 13kg, 40kg and 45 kg is not achieved as expected.

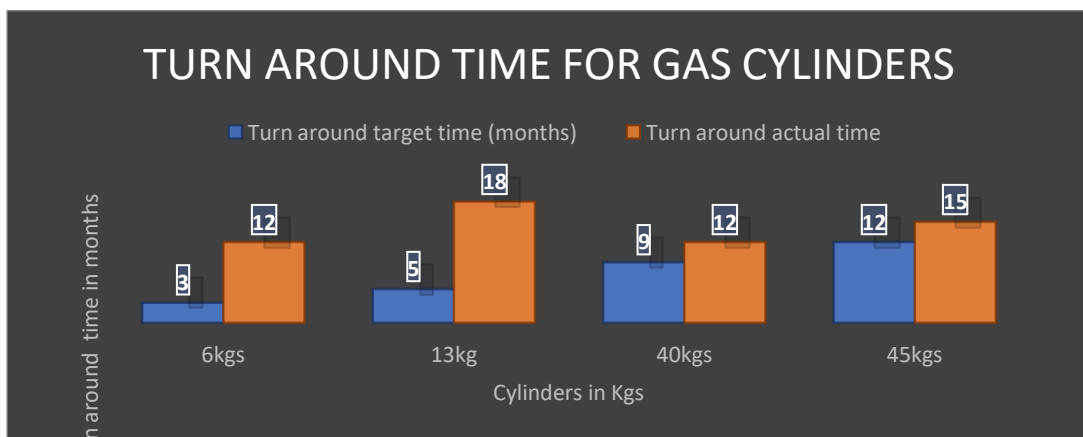


Figure 3: Turn Around time for 6kg, 13kg, 40kg and 45kg.

Cylinders take more time to be returned for refill verses the estimated time which is an indication of illegal refilling.

Variable 5: Retuned Cylinders with Defects for 6kg and 13kg

Table 6 below, indicates the returned cylinders due to defects such as faulty valves, unburning cylinders, poorly handled cylinders, and cylinders which are not burning or have ignition problem.

Table 6: Returned defective cylinders for 5 years.

Year	6kg	13kg
2017	100	50
2018	80	71
2019	110	82
2020	130	100
2021	152	88

Table 6 Interpretation.

Table 6 shows that when illegal refillers get the cylinders, they use them to failure. The cylinders go back to the filling plant in sorry state which require the company to take them for revalidation. Most of the cylinders taken for revalidation end up being scrapped as they can no longer be used to handle pressure.

4.1.2.1.2 Ola Energy Staff and LPGas Cylinders.

Table 7 below shows that, all 100 % (5/5) of the respondents strongly agreed that all distributors are known in the company. More than half, 60% (3/5) of the respondents disagreed that distributor orders are increasing this is due to constant complaints from distributors about the competition from illegal refillers and more than half, 60% (3/5) of the respondents agreed that distributor orders keep on reducing from time to time. More than three quarter, 80 % (4/5) of the respondents strongly agreed that there scenarios when cylinders returns are made with less volume and no leakage. More than half, 80 % (4/5) of the respondent strongly agree that customers always complain about cylinders failing to burn. More than half, 60 % (3/5) strongly agreed that customers are complaining about cylinders getting finished very fast than normal. More than half, 60 % (3/5) of the respondents strongly agreed that there suppliers who supply same LPGas at the same price in the market and they are not known. More than half, 80 % (4/5) of the respondents strongly agreed that there scenarios when cylinders are coming from illegal refillers at in bad shape. More than half, 80 % (4/5) strongly agreed that there illegal refillers in the market, More than half, 60 % (3/5) of the respondents strongly agreed that the competition in the market leads to low sales, More than half, 60 % (3/5) of the respondents strongly agreed, More than half, 80 % (4/5) of the respondents strongly agreed that there is no visibility for Ola Energy brand in the market, More than half, 60 % (3/5) of the respondents strongly agreed that illegal refillers are more in central due to high demand in the market and lastly More than half, 60 % (3/5) of the respondents agreed that illegal refillers are supported by independents in the market.

Table 7: Ola Energy Staff and Ola Energy LPGas Cylinders

No	Variable (n=5)	Attribute	Frequency (n=100)
1	Distributors of Ola Energy are known to the business (n=5)	Strongly disagree	0(0)
		Disagree	0(0)
		Not sure	0(0)
		Agree	0(0)
		Strongly agree	5(100)
2	Distributor orders are increasing on monthly basis	Strongly disagree	0(0)
		Disagree	3 (60)
		Not sure	0(0)
		Agree	0(0)
		Strongly agree	2 (40)
3	Distributor orders are reducing on monthly basis	Strongly disagree	0(0)
		Disagree	2(40)
		Not sure	0(0)
		Agree	0(0)
		Strongly agree	3 (60)
4	There are scenarios when cylinders are retuned with less volume and no leakage by customers	Strongly disagree	0(0)
		Disagree	1(20)
		Not sure	0(0)
		Agree	0(0)
		Strongly agree	4(80)
5		Strongly disagree	0 (0.0)

		Disagree	0 (0.0)
		Not sure	0 (0.0)
	Had scenarios when customers complain about cylinders failing to burn	Agree	1 (2.0)
		Strongly agree	4(80)
6		Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
	Had scenarios when customers are complaining about cylinders getting finished very fast than normal.	Agree	0 (0.0)
		Strongly agree	3 (60)
7		Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	1 (20)
	Had about suppliers selling product at low price and are not known within the supply chain for Ola Energy	Agree	1(20)
		Strongly agree	3 (60)
8		Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
		Agree	1(20)
	Had scenario of cylinders coming from illegal refillers to the plant	Strongly agree	4(80)
9		Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
	Illegal refillers in the market led to reduction in sales of Ola Energy	Agree	1(20)
		Strongly agree	4(80)

10	Competition from other marketing companies led to low sales for Ola Energy	Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
		Agree	2(40)
		Strongly agree	3(60)
11	Lack of visibility in the marker has led to low sales for Ola Energy LPgas	Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
		Agree	1(20)
		Strongly agree	4(80)
12	Illegal refillers are more in the central than other regions	Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	1(20)
		Agree	1(20)
		Strongly agree	3(60)
13	Illegal refillers supported by other independent marketers	Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
		Agree	3(60)
		Strongly agree	2(40)

Table 7 Interpretation.

From the results, Ola staff confirm the issue of illegal refilling due to the nature of cylinders returned after a long period of time and in bad shape that the company cannot reuse them before revalidation.

4.1.2.2 Ola Energy Customer information variables

4.1.2.2.1 Customer Demographics

Table 8 below, shows the socio demographics of customer respondents including more than two quarters 82.5% (66/80) of the respondents were male, almost two thirds 80% (64/80) of the respondents were aged 25-45 years. More than, two thirds, 68.8 % (55/80) had achieved above primary as their highest level of education. More than three quarters 86.3% (69/80) of the respondents were married. More than half of the respondents are working

Table 8: Customer Socio Demographics

Socio demographics	Attribute	Respondents who use Ola energies
		Yes
Gender (n=80)	Male	66(82.5)
	Female	14 (17.5)
Age category (n=80)	18-24	16 (20)
	25-45	64 (80)
Highest level of education (n=80)	No formal education	2 (2.5)
	Primary	23(28.7)
	Above primary	55 (68.8)
Current marital status (n=80)	Single	11 (13.7)
	Married	69 (86.3)
Religion (n=80)	Catholic	35 (43.7)
Working (n=80)	Yes	72(90)
	No	10(12.5)

Variable 1: Cylinder consumption period.

OEUG filling plant confirmed the monthly consumption period for each cylinder pack as 3 months for 6kg and 6 months for 13kg.

However, from table 9 below, the study found out that more than two thirds, 73.3 % (33/45) of the respondents consumed 6kg within 1-2 months (below target), less than a third, 60.8 % (14/45) of the respondents consumed 6kg within 3-months (within Target).

For 13kg cylinders, 60.8% (14/23) of the respondents consumed 13kg cylinders within 3-4 months (below targets), and only 39.2% (9/23) of the respondents consumed within 5-6 months (within target)

Table 9: Cylinder consumption/ use period by customer

Attribute	Target	Result	Frequency	%
6kg (n=45)	3 months	1-2 months	33	73.3
		3-4 months	12	26.7
Total			45	100%
13kg (n=23)	6 months	3-4 months	14	60.8
		5-6 months	9	39.2
Total			23	100%

Table 9 Interpretation.

The table shows that, cylinders take long to be returned to the depot for refill due to illegal refillers holding them in the market and keep on using them.

4.1.2.2.2 Customer Experience with Ola Energy LPGas Cylinders.

Table 10 below, more than half, 56.2% (45/80) of the respondents agreed that there was no signage for authorized LPG distributors within their areas because whenever they ordered for gas, it was delivered to their door stops without knowledge or signage to identify the authorized distributors. More than half, 76.2 % (61/80) of the respondents strongly agreed that they always called the distributors for more gas given having contacts of the sellers who would deliver at their doorstep. More than half, 63.7 % (51/80) of the respondents strongly agreed that they were not okay using OEUG LPgas with swift support and delivery. More than two thirds, 75% (60/80) of the respondents strongly disagreed that they cannot tell a cylinder that is not full to its expected volume. More than half, 55 % (44/80) of the respondent strongly agreed that some cylinders are delivered without seals, since distributors deliver using the doorto door, they tend to remove the seals and install a regulator for a 13kg and a burner for 6kg before the customer realizes.

Almost half, 43.7% (35/80) of the respondent strongly agreed that the cylinders at times fail to burn, because of the different qualities of gas that are refilled with the cylinders by the different refillers. More than a third, 37.5 % (30/80) agreed that their cylinders get finished very fast when cooking from the time it's ordered to the time it gets finished, this is attributed to the fact that gas counterfeiters fill less volumes than the standard volumes. Almost half, 68.75 % (55/80) of the respondents agreed that most cylinders delivered were dirty and in bad shape, this is attributed to the rude mentally handling of cylinders by the illegal refillers. Almost half, 51.3 % (41/80) of the respondents strongly agreed that some cylinders are delivered without safety stickers and some faded. More than half, 51.3 % (41/80) of the respondents were not sure having ever heard about counterfeited cylinders on the market. Less than half, 40 % (32/80) of the respondents agreed having ever bought Ola Energy cylinders at lower price compared to other oil marketing companies, thus sometimes Ola energy of same sizes have

different prices within the same areas. More than half, 65% (52/80) of the respondents were not sure whether they have ever used counterfeited or illegal cylinders, because gas are always in pressurized cylinders, and the fear of customers at using this gas. More than a third, 37.5% (30/80) of the respondents strongly agreed having ever experienced gas leakages through cylinders valves, this is because of the poor handling of cylinders by the refillers. Almost half, 53.8 % (43/80) of the respondents strongly disagreed having experienced an explosion from LPGas cylinders.

Table 10: showing customer experience with Ola Energy LPGas cylinders.

No	Variable	Attribute	Frequency (n=100)
1	There are no authorized distributors of MPISHI gas or Ola energy gas in my region (n=80)	Strongly disagree	20 (25)
		Disagree	2(2.5)
		Not sure	10(12.5)
		Agree	45(56.2)
		Strongly agree	3(3.8)
2	I can call an authorized distributor for MPISHI gas, and its distributors (n=80)	Strongly disagree	5 (6.3)
		Disagree	10(12.5)
		Not sure	2 (2.5)
		Agree	2 (2.5)
		Strongly agree	61 (76.2)
3	Not okay to use MPISHI gas cylinders compared to other brands (n=80)	Strongly disagree	15(18.8)
		Disagree	4 (5.0)
		Not sure	2 (2.5)
		Agree	8 (10.0)

		Strongly agree	51 (63.7)
4	Can tell a cylinder that is not full to its expected volumes (n=80)	Strongly disagree	60 (75)
		Disagree	10 (12.5)
		Not sure	2 (2.5)
		Agree	6 (7.5)
		Strongly agree	2 (2.5)
5	At times, cylinders don't have seals (n=80)	Strongly disagree	33 (41)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
		Agree	3 (3.8)
		Strongly agree	44 (55)
6	Gas at times fails to burn (n=80)	Strongly disagree	27(33.8)
		Disagree	2(2.5)
		Not sure	1 (1.5)
		Agree	15 (18.8)
		Strongly agree	35 (43.7)
7	Cylinders get finished very fast than normal (n=80)	Strongly disagree	10 (12.5)
		Disagree	2(2.5)
		Not sure	20 (25.0)
		Agree	30(37.5)
		Strongly agree	18 (22.5)
8	New filled cylinders are always dirty (n=80)	Strongly disagree	3 (3.75)
		Disagree	1 (1.25)
		Not sure	2 (2.5)

		Agree	55(68.75)
		Strongly agree	19 (23.75)
9	New cylinders are marked with a safety sticker on the body (n=80)	Strongly disagree	8 (10.0)
		Disagree	10 (12.3)
		Not sure	15 (18.8)
		Agree	6 (7.5)
		Strongly agree	41 (51.3)
10	Heard about counterfeited cylinders in my area (MPISHI Gas inclusive) (n=80)	Strongly disagree	17 (21.2)
		Disagree	3 (3.7)
		Not sure	41 (51.3)
		Agree	14 (17.5)
		Strongly agree	5 (6.3)
11	Ever bought a cylinder at a lower price (n=80)	Strongly disagree	11 (13.8)
		Disagree	5 (6.3)
		Not sure	12 (15)
		Agree	32 (40)
		Strongly agree	20 (25)
12	Ever used counterfeited /illegally refilled cylinders before (n=80)	Strongly disagree	7 (8.8)
		Disagree	10 (12.5)
		Not sure	52(65)
		Agree	10 (12.5)
		Strongly agree	1 (1.25)
13	Ever experienced gas leakages from the valve (n=80)	Strongly disagree	20(25)
		Disagree	5 (6.3)

		Not sure	10 (12.5)
		Agree	15(18.75)
		Strongly agree	30(37.5)
14	Ever experienced explosion (n=80)	Strongly disagree	30 (37.5)
		Disagree	43 (53.8)
		Not sure	7 (8.75)
		Agree	0 (0)
		Strongly agree	0(0.0)

Table 10: Interpretation.

The results shows that the customers are buying counterfeit or illegally refilled cylinders from the market from illegal refillers who have built a network of managing and monitoring the customers. With the gaps identified such as lack visibility by Ola Energy in the market, different prices for the same brand, cylinders getting finished very fast than standard hence, affecting the sales of OEUG LPGAs.

4.1.2.3 Ola Energy Distributor Variables.

4.1.2.3.1 Demographics of Ola Energy Distributors

Table 11 below, shows the socio demographics of the OEUG distributors who responded as 100% (3/3) of the respondents were male, 100% (3/3) of the respondents were aged 25-45 years. 100 % (3/3) had achieved above primary as their highest level of education. 100% (3/3) of the respondents were married. 33.3% (1/3) of the respondents had worked with Ola Energy for 1-5 years, 66.7% (2/3) of the respondents worked with Ola Energy for 6-15 years. 100% (3/3) of the respondents are working for only Ola brand.

Table 11: Distributor Socio Demographics

Socio demographics	Attribute	Respondents who use Ola energies
		Yes
Gender (n=3)	Male	3(100)
	Female	0 (0)
Age category (n=3)	18-24	0 (0)
	25-45	3 (100)
Highest level of education (n=3)	No formal education	0(0)
	Primary	0(0)
	Above primary	3 (100)
Current marital status (n=3)	Single	3(100)
	Married	0 (100)
Working with Ola Energy (n=3)	1-5 years	1(33.3)
	6-15 years	2(66.7)
Working with other OMCs	Yes	0(0)
	No	3(100)

Table 12 below show that; more than half, 66.7 % (2/3) of the respondents disagreed that all distributors for Ola Energy are known in the market. More than half, 66.7 % (2/3) of the respondents disagreed that Ola Energy does not supply gas on time. More than half, 66.7 % (2/3). More than half, 66.7 % (2/3) of the respondents strongly disagreed that distribution points are not branded. All 100% (3/3) of the respondents strongly disagree that they do not get cylinders from Ola without seals. More than half, 66.7 % (2/3) of the respondents strongly agreed that there are complaints about customers on gas failing to burn. More than half, 66.7 % (2/3) of the respondents agreed that customers complain about less gas in the cylinders which gets finished very fast. More than half, 66.7 % (2/3) of the respondents strongly agree that there suppliers in the market selling the same brand at low prices. All 100% (3/3) of the respondents strongly agreed that there are illegal refillers in the market. More than half, 66.7 % (2/3) of the respondents agreed that illegal refillers led to low sales for the distributors and existence of other brands in the market, low knowledge by the customers.

Table 12: Distributor Response about LPGas Cylinders

No	Variable (n=3)	Attribute	Frequency (n=100)
1	There Ola gas distributors in the market and not known	Strongly disagree	0(0)
		Disagree	2(66.7)
		Not sure	0(0)
		Agree	1(33.3)
		Strongly agree	0(0)
2	Ola Energy always reliable on supplying gas and cylinders to its distributors on time	Strongly disagree	0(0)
		Disagree	2(66.7)
		Not sure	0(0)

		Agree	1(33.3)
		Strongly agree	0(0)
3	There are incidents when Ola Energy fails to supply orders on time	Strongly disagree	0(0)
		Disagree	1(33.3)
		Not sure	0(0)
		Agree	0(0)
		Strongly agree	2(66.7)
4	Distributor points are clearly branded with Authorized signage	Strongly disagree	2(66.7)
		Disagree	1(33.3)
		Not sure	0(0)
		Agree	0(0)
		Strongly agree	0(0)
5	There scenarios I get cylinders from Ola Energy without seals	Strongly disagree	3(100)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
		Agree	0 (0.0)
		Strongly agree	0 (0.0)
6	Had incidents when customers are complaining about cylinders failing to burn when brought from my store or somewhere else	Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
		Agree	1 (33.7)
		Strongly agree	2 (66.7)
7		Strongly disagree	0 (0.0)

		Disagree	0 (0.0)
		Not sure	0 (0.0)
	Has incidents when customers complain about cylinders getting finished very fast than normal	Agree	2(66.7)
		Strongly agree	1(33.7)
8		Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
	There are always other suppliers selling the same product at low price and are not known with in my area	Agree	1(33.7)
		Strongly agree	2(66.7)
9		Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
		Agree	0 (0.0)
	There is a lot of illegal refillers in my area	Strongly agree	3(100)
10		Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
	Illegal refillers and distributors have led to low sales for my business	Agree	2(66.7)
		Strongly agree	1(33.7)
11		Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
	Lack of knowledge about product has led to low sales of LPGas MPISHI to my business	Not sure	0 (0.0)
		Agree	2(66.7)

		Strongly agree	1(33.7)
12	Existence of unknown brands other than MPISHI has led to low sales for my business	Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
		Agree	2(66.7)
		Strongly agree	1(33.7)
13	The existence of illegal refillers in the area has led to low sales	Strongly disagree	0 (0.0)
		Disagree	0 (0.0)
		Not sure	0 (0.0)
		Agree	0 (0.0)
		Strongly agree	3(100)

Table 12 Interpretation.

The results shows that the distributors are facing the presence of illegal refillers which affects their sales volume. However, there other actions observed to be done by OEUG and these includes making sure availability of the product, branding of distributor stores and advertising of OEUG brand.

4.2 Qualitative data Findings.

The qualitative data findings looked at all study objectives as below

4.2.1 Most counterfeited or illegally refilled LPG Cylinder size for Ola Energy Uganda Limited.

Ola Energy Uganda limited trades in 6kg, 13kg, and 40 kg and 45 kg cylinders and according to the market. This implies that OEUG suffers more illegal refilling on the 6kg and 13kg which are fast movers.

One respondent quoted that.

“6kg and 13kg cylinders are fast movers for Ola Energy brand and the illegal refillers are more interested in the fast movers” They have also tracked and found out that 6kg and 13kg are the most counterfeited products”.

4.2.2 Factors leading to illegal refilling or counterfeiting for Ola Energy Uganda Limited.

Below are the factors that lead to illegal refilling of LPgas cylinders for Ola Energy Uganda limited.

a. Inactive Government policies.

The policies in Uganda are not fully implemented, therefore any person can start LPG trading business such as refilling plants without licenses.

One respondent was quoted saying.

“In Uganda everything is possible, you start the business, and no one stops you. Actually, when police come with the owners of the cylinders, they are paid money and goes away”.

Therefore, the inactive policies and the corruption of the security forces increases the rate of illegal refilling in Uganda.

- b. Strict controls from neighboring country Kenya.

The study observed that, in Kenya, the Government through Petroleum Institute of East Africa put up regulations which chased away most of the prominent illegal refillers. These illegal refillers shifted to Uganda and started the business of LPGas illegal refilling

One respondent was quoted saying.

“Illegal refilling started when Kenya enforced restrictions to illegal refillers and most of them ran to Uganda”.

This indicates that the illegal refillers flooded the Ugandan market when Kenya took a step to fight them with a penalties and also being jailed.

- c. Accessibility of the product (LPGas).

The illegal refillers have access to cheap product from the market without control and the same product is decanted into the branded cylinders and then put them on market.

One respondent was quoted saying.

“So many customers with cheap product in Uganda and they are not registered, LPgas can be bought from the gas trucks in transit or locally available distribution transporters, suppliers or even buying 40/45 kg LPGas cylinders which are decanted into the small cylinders”.

- d. Accessibility to empty cylinders.

The illegal refillers buy off cylinders from customers who own cylinders and do not use them or authorized distributors.

One of the respondent was quoted saying.

“Most customers own the cylinders and the illegal refillers move door to door buying them off and also the distributors buy from the company and sell them to the illegal refillers”.

- e. No market visibility for Ola Energy Uganda Limited.

The name Ola Energy is not commonly known by the customers as it was changed from Libya Oil Uganda limited.

One respondent was quoted saying.

“Ola Energy Uganda is not known though the cylinders are on market and there two brands of brands which includes Oilibya, and Ola Energy Uganda limited but having the same color”.

This also attributed by few sites for Libya Oil Uganda which are not branded even though

- f. Access to cylinder sealing materials.

The illegal refillers illegally buy seals from the operatives of oil marketing companies such as Ola Energy Uganda Limited the brand owners.

One respondent was quoted saying.

“The illegal refillers work with the team refilling gas at the plant or depots of the oil marketing companies who steal the seals for them in return for money. They even have manufacturers who manufacture any type of seal for any oil marketing company including Ola Energy Uganda Limited”.

- g. High Corruption rate

The high level of corruption has led to increased LPGas illegal refilling for OEUG.

One respondent was quoted saying.

“When the place is engaged, illegal refillers pay a lot of money to police who at the end protect them and release them in case they are arrested”.

- h. No proper Territories demarcated for authorized distributors.

Ola Energy Uganda have distributors in the market who are not known by some customers and illegal refillers work together to maximize profits.

One respondent was quoted saying.

“The first illegal refillers is the distributor who has access to company seals, cylinders and product, all the illegal refillers first work with the distributors and then grow their relationship.”

4.2.3 Methods used by counterfeiters for Ola Energy Uganda Limited.

The illegal refillers have different methods of carrying out illegal refilling for Ola Energy Uganda LPGas, and the same methods are used for most of the OMCs in Uganda as indicated below.

- a. Decanting big Cylinders to small cylinders.



Figure 4: 40kg, 45kg, 13kg and 6kg Ola Energy Cylinder.

From Figure above, the illegal refillers buy big cylinders (40/45kg) and decant them into small cylinders of 6kg and 13kg. The sizes of the cylinders are shown in the figure 4 above.

One respondent was quoted saying.

“The illegal refillers buy the big cylinders from the distributors, as a normal process and hide them to their fully guarded yards. Then decant into the small cylinders and due to the process, the cylinders cannot get full to the required capacity and that’s why they even sell low volumes at high cost.”

b. Installation small LPG tank.



Figure 5: Sample LPG Bullets

The illegal refillers install LPG bullets as shown in figure 5 above and then refill refill them with gas bought on market or black market. After refilling the tank, they start refilling into small cylinders and then deliver on market.

One respondent was quoted saying.

“The illegal refillers work together with drivers who distribute and transport gas to refill their tanks and no one can access the yard unless you are part of them.”

c. Repainting of Cylinders.

Illegal refillers do repaint low priced cylinder brands with colors of high-priced cylinder brands to deceive to customers that it's the right brand.

Another respondent was quoted saying.

“You can get any type of branded cylinders from those areas. The brands available includes Ola Energy which are the most illegally refilled brands. “

d. Manipulation sealing system of the cylinder

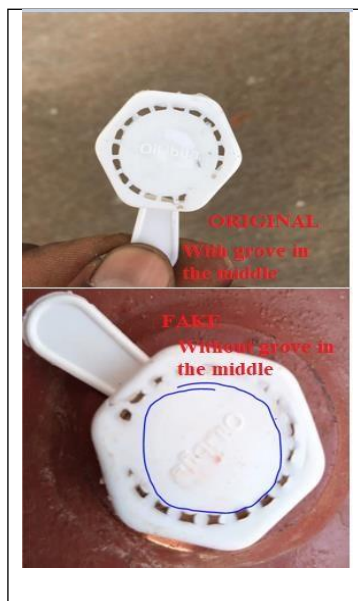


Figure 6: Counterfeit 6kg oilibya cylinder seal.

The figure 6 above shows how the illegal refillers can manipulate the seals for Ola Energy Uganda formerly Libya oil Uganda Limited.

One respondent was quoted saying.

“The illegal refillers can get any type of seal for any oil marketing company in Uganda without any problem.”

4.2.4 Effects of counterfeited or illegally refilled LPGas on the sales of Ola Energy Uganda.

a. Loss of revenue due to loss of sales.

According to the study, the illegal refillers carry out market survey to determine the fast-moving brands. In this case, OEUG' s fast moving products are 6kg cylinders and 13kg cylinders. Illegal refillers buy off cylinders or access cylinders in the market through OEUG distributors, customers who owns or already bought Ola Energy cylinders. These cylinders are retained in the market and used by illegal refillers.

One respondent was quoted saying.

“The illegal refillers have so many cylinders of different brands held in their stores, and no one can be granted access to enter into their stores unless you are member”.

b. Unfair Price competition in market.

It was found out that, the illegal refillers refill cylinders with less volume than the required cylinder quantity, for example a 4 kg can be refilled into 6kg and the refillers gains a margin for 2 kg. The less refilled cylinder is sold at same price or lower price to that legally refilled from OEUG supply chain.

One respondent was quoted saying.

“The illegal refillers have created point of sales with the market where they supply their counterfeited packed products. At times their different types of Ola Energy cylinders with lower prices and other high prices, officially we go in for lower prices”.

This shows that within the market network, the illegal refillers have their own point of sales and in some areas, they work with the authorized distributors who have access to company cylinders, product, and all necessary information. This creates a lot of confusion in the market and the price sensitive customers always go in for cheaper prices and not minding about the quality of the product.

c. Poor Quality product on market.

Illegal refillers buy product from any source without minding about the quality of the product, from black markets, delivery drivers and transit trucks. This leads to customers to start buying poor quality gas branded with OEUG. This affects the good product from OEUG available on market.

One respondent was quoted saying.

“The illegal refillers buy anywhere in the market and they do not care so long as they have a big margin “.

d. Brand and cylinder damage.

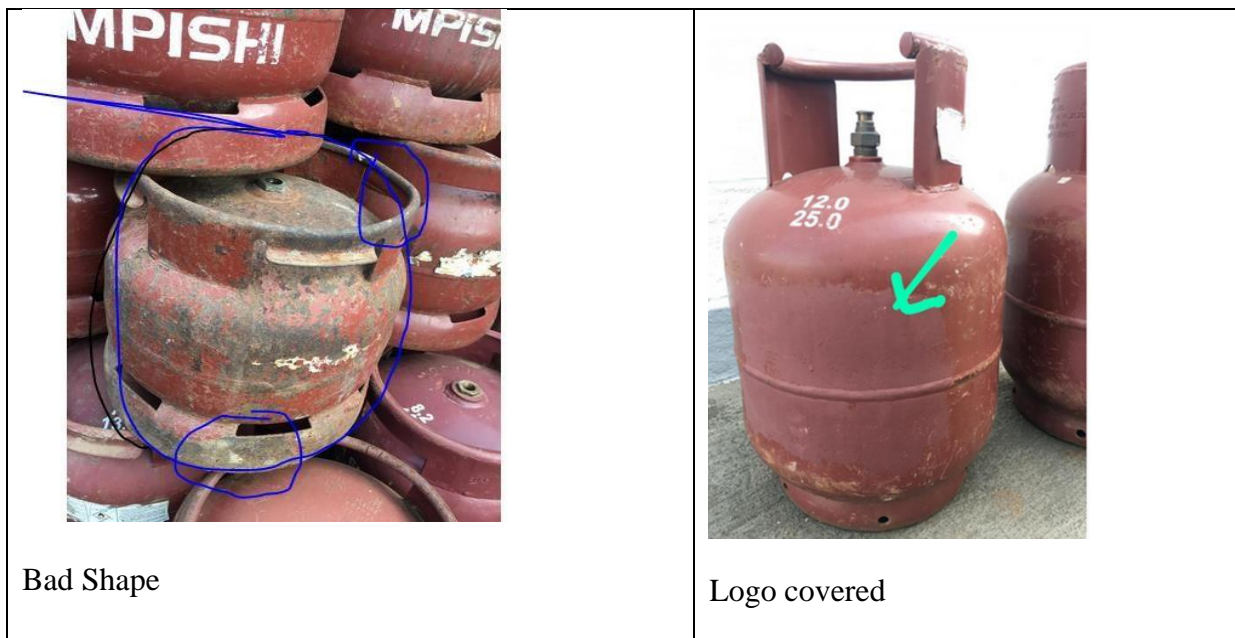


Figure 7: Bad Shape cylinder and Cylinder with covered logo

Figure 7 above, it indicates the bad shape of the cylinders which have gone through the supply chain of illegal refillers.

One respondent was quoted saying.

“At times if they have any other branded cylinders for other customers, they repaint the cylinders to the colors of the brand (Ola Energy Uganda, MPISHI) or Ola Energy Brand to another brand they want to counterfeit”.

Therefore, once the cylinders are held in market and illegal refillers keep on repainting them, they may not go back to the rightful owner or brand owner.

Illegal refillers poorly handle the cylinders in the way that, they repaint the cylinders with the brand color for the company to be counterfeited, they damage cylinders due to poor means of refilling cylinders.

e. Loss of capital (cylinders)

Ola Energy procure cylinders on capex budget in anticipation for multiple refills and to increase its sales. However, the acts of the illegal refillers who retain the cylinders for their business affects the capital investment for Ola Energy without return on investment.

One responded quoted.

“The illegal refillers have stores or yards with high security control to limit any access by non-members”.

4.3 Conclusion

The analyzed quantitative data helped to determine objective 1 and 4 of the study and the qualitative data helped to determine all the objectives of the study 1,2,3 and 4. Therefore, the study objectives were achieved through the data findings in this chapter.

CHAPTER FIVE: DISCUSSION OF RESULTS.

5.0 Introduction.

This chapter analyses quantitative and qualitative data findings from chapter 4 above in line with the study objectives and literature.

5.1 Common illegally refilled LPGas cylinder sizes for Ola Energy Uganda.

According to the study results, the common LPG cylinder sizes refilled are 6kg and 13kg cylinders and it was observed that these are the fast-moving cylinder sizes for OEUG. The study showed that 56.25% (45/80) use 6kg and 35 % (28/80) use 13kg cylinders. These are favorite brands for illegal refillers as per the study.

According to Chaudhry and Zimmerman (2013), counterfeiters always go in for high demand products and use the opportunity that the product is scarce on market, and they are trying to satisfy the market in return for money. The illegal refillers use non-deceptive counterfeit which is commonly used for the fast-moving products where the sellers take advantage of the customers to maximize profits or knowing that the product is cheaper on market. (Staake, Thiesse and Fleisch, 2008).

Therefore, illegal refilling of fast-moving cylinder sizes justifies the literature for counterfeiters to illegally refill high demand products.

5.2 Factors that lead to the illegal refilling of the LPGas cylinders.

a. Poor implementation of Government policies

The study indicated that some of the factors leading to illegal refilling of Ola Energy cylinders is poor implementation of LPG trading policies by Government where any person can start operating LPG business without license. However, the findings showed that in Kenya the petroleum institute of East Africa put up policies to fail all illegal refillers with fines and

penalties (PIEA, 2021) and this worked. At the end, these illegal refillers shifted from Kenya and got flooded in Uganda and hence affecting the LPG business for OMCs in Uganda including Ola energy Uganda Limited.

b. Access to LPG gas, Cylinders, and seals

The study showed that illegal refillers can access cheap LPGas, empty cylinders from the customers and distributors and lastly the seals which clearly matches the original seal, and it is very hard for the customer to detect and realize that it's counterfeited. The study showed that over 65 % (52/80) of the respondents were not sure of the counterfeited or illegally refilled cylinders or gas hence the illegal refillers taking advantage. However, 100% (3/3) of the distributors strongly agreed that there is illegal refilling which affects their sales volumes and the same was confirmed by Ola staff as per the results.

From the literature, Deng and Townsend (1996) stated that the company should always have strict measures to avoid contractors, employees from sharing company information, methods, and procedures with controlled limits of exposure. The study indicated that distributors and operatives are the main source of information and materials to the illegal refillers in return for money from illegal refillers. These includes seals, LPG cylinders, gas given out to illegal refillers.

c. Lack of visibility for Ola Energy Uganda Limited

The study indicated that there two brands in the market representing the same product, this gives a chance for illegal refillers to counterfeit the product. According to OECD (2020), counterfeiters always take up product where the marketing or visibility is poor for (OECD, 2020)

d. High Corruption Rate.

The study found out that the high corruption rate by police and concerned parties leads to increased rate of LPGas illegal refilling. For any person to start up a business, it's very important to have an operating license for proper control and guidance. The mushrooming traders in Uganda in LPGas is a sign of poor control.

During the study, it was found out that one of the major companies carried out a raid to one of the illegal refillers and they recovered some of their cylinders. During the raid which involved police, more cylinders of other companies were found which included Ola Energy Uganda cylinders. However, it's indicated that as these operators are arrested, within few hours they are released.

5.3 Methods do the counterfeiters for Ola Energy use to refill the cylinders.

The study showed that illegal refillers always use three methods to counterfeit cylinders such as decanting into small cylinders of 6kg and 13kg from the big cylinders of 40/45kg, installation of the LPG tanks of capacity 500 kg to 5000 kg with filling heads which can refill the illegally retained cylinders and lastly repainting the cylinders to the brand of which they want to counterfeit.

According to to Stevenson and Busby (2015), the counterfeiters use extraction strategy and production strategy where for extraction, Counterfeiters get original goods from the original economy, distributor and supplier for counterfeiting and production strategy, the Counterfeiter intentionally manufacture counterfeited products. This is used when the counterfeiter is aware of the procedures and standards of the original product. Therefore, the methods used, and the literature confirms to the act of illegal refilling for LPGas cylinders of Ola Energy Uganda Limited.

5.4 The effects of counterfeiting or illegal refills of LPGas cylinders on the sales of Ola Energy Uganda Limited

a. Lost sales and Revenue.

The results from table 4, indicates that the company has lost almost 33.67% (5050/15000) of the cylinders through illegal refillers hence this affects the sales of Ola Energy. Though the results are less than the claim of 40% which from the Ola Energy team during the proposal draft. Table 5 results shows that even if the company procures more cylinders, the company does not improve on its targets, and these are stack averagely 20% before target for each year. Figure 3 of the results shows that some cylinders take long to come back to the plant verses the standard time where 6kg take 1-2 months (below target of more than 3 months) and 13kg take 3-4 months (below target of 5-months). All these findings combined, emphasizes the effect of the illegal refillers and leads to lost sales and revenue for Ola Energy Uganda Limited. The cylinders are refilled in highly protected areas without access to nonmembers.

According to Staake, Thiesse and Fleisch (2009), counterfeiter's work with high sense of security and protection to maintain chain of forgery.

The findings showed that, in Kenya, most of the oil marketing companies were suffering from illegal refillers refilling their cylinders, and until when the petroleum institute of East Africa set up new regulations to stop all illegal refillers from operating through penalties and sentenced any person involved in the act. Therefore, the study and literature confirm that illegalrefiling can lead to loss of revenue and sales for the brand owner.

b. Brand Damage.

According to the study results from table 5, cylinders are returned to the plant with defects such as leaking valves, damaged cylinder body, and poorly handled cylinders, repainted cylinders

with other brand colors. This means OEUG cylinders are repainted with other colors and at times logos removed by illegal refillers.

The literature showed that Counterfeit goods are repacked into used, new or reinstated packs with another brand name without the knowledge or authorization from the owner of the brand. (Staake, Thiesse and Fleisch, 2009). Therefore, the study results confirm with the literature about brand damage due to illegal refilling. Therefore, the study results under brand damage rhymes with the literature on the brand damage for counterfeits which affects OEUG sales.

c. Poor Quality product, Low quantity, and Unfair price competition

The study showed that the illegal refillers buy gas from black market without minding about the quality of the product in order to maximize profits. The study showed that, 43.7% (35/80) of the respondents strongly agreed that at times the gas fails to burn, and this is one of the signs of poor-quality LPG. The same poor-quality product is charged at slightly lower price or higher than the original brand and they also refill less than the standard capacity of the cylinders. Customers buy more at lower price than genuine gas from OEUG. Hence, affecting sales of OEUG.

The literature showed that counterfeiters always have poor quality products sold at lower prices than the original brand owners. (Staake, Thiesse and Fleisch, 2009). The study results match with the literature and confirms with the behavior of counterfeiters in the market

5.5 Conclusion

From the discussion of the findings against the literature review, the existence of illegal refilling is confirmed for the Ola Energy LPGas through the achieved study objectives. Therefore, this call to suggest recommendations in chapter 6 upon which OEUG and any OMC in Uganda can adopt to fight illegal refillers and hence improve LPGas sales.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

LPG Counterfeiting or illegal refilling is tremendously increasing in Uganda, and this continuously affect oil marketing companies in Uganda including Ola Energy Uganda Limited. The study was done basing on objectives which includes to determine the common counterfeited LPGas cylinder for OEUG, determine the leading factors to illegal refilling of LPGas cylinders for OEUG , determine the methods used by illegal refillers and determine the effect of illegal cylinder refilling of LPGas cylinders on the sales of Ola Energy Uganda Limited, as per the objectives of the study, the chapter defines the conclusions and recommendations as below.

6.2 Summary of findings

Counterfeiting or illegal refilling of LPGas cylinders has greatly affected the sales of Ola Energy Uganda as per the study. This has reached to the extent that, even if more cylinders are procured and pushed into the market, OEUG still cannot meet its targets as illegal refillers are always waiting to get hold of these cylinders and start using them for their business. The main effects of illegal refillers are loss of revenue through lost sales, brand damage, poor quality product and price suffocations on market, and lastly loss of capital through damaged cylinders due to poor handling.

The study found out that, 6kg and 13kg cylinders are the common Ola Energy cylinders illegally refilled by illegal refillers as these cylinders are Ola Energy's fast-moving cylinders on market. This confirms to the literature that, illegal refillers or counterfeiters always invest in counterfeiting of fast-moving products due to high demand. Illegal refillers always refill the cylinders which are fast moving; therefore, the company and Ministry of Energy have got to implement the below recommendations to stop the illegal refilling.

The study found out that, there many factors which leads to illegal refilling of Ola Energy LPGas cylinders and these includes; inactive government policies and regulations to control illegal activities where people can start LPG trading without operating licenses, High corruption rates by the concerned parties on the implementation of policies, Strict restriction from Kenya which leads to illegal refillers shift to Uganda, accessibility to cheap LPGas and empty cylinders in the market by illegal refillers, poor market visibility by OEUG where the company still branded Libya Oil Uganda limited but already changed name to Ola Energy Uganda Limited, no proper territorial demarcations for the authorized distributors within Uganda and illegal access to the cylinder seals by the illegal refillers through operators or direct manufacture of the seals. OEUG, OMCs and Ministry of Energy should put up collective actions as per the recommendations below to completely stop the act of illegal refilling.

The study found out that, the illegal refillers have mastered three methods of LPGas counterfeiting, and these includes decanting of big (40/45kg) cylinders into small LPGas cylinders. They have installed small LPGas tanks of about 500-5000 kg into their homes with options for refilling into cylinders, these sites are under high security and protection without access to everyone. Lastly, illegal refillers repaint Ola Energy cylinders with another oil marketing company colors and sale them inform of another brand.

6.2 Conclusion.

The existent of Illegal refilling for Ola Energy business has led to 33.67% of cylinders lost in the market due to illegal refillers and the company cannot meet its sales target on annual basis and averagely performing at 20% below target. Therefore, the research concludes that, illegal refilling has greatly affected the LPGas business for Ola Energy Uganda. If the issue of Illegal refilling is not addressed by Ola Energy, this may lead to to close of business due to continuous loss of revenue, no returns on investment, brand damages by illegal refillers, poor quality product on market, price suffocations and low quantity product on market by illegal refillers.

As highlighted in the study framework, the more the illegal refillers increase, the more losses OEUG is facing. Therefore, OEUG should take recommendations seriously which includes revising OMC association to work with Government and enforce laws which reprimands illegal refillers and OEUG to improve its procedures to control illegal refillers. The recommendations drawn below should be of great benefit to both OEUG, other OMCs and Government in order to stop illegal refillers. However, strong caution should be taken when dealing with illegal refillers as they are harmful since the act of illegally refilling cylinders is their source of income for day-to-day living.

6.3 Limitations

Below are the limitations of the study.

- a) Some distributors were not able to share the correct information as they are part of the illegal re-filling group, and they benefit directly. As discussed in the findings, the illegal refillers are being supported by the authorized distributors of OEUG. They sell cylinders to the illegal refillers and at the same time buy refilled cylinders from illegal refillers at low prices compared to OEUG prices and hence causing price differences in the market for the same brand.
- b) There was restricted access to the illegal refiller' s yards and most of the information was got through snowballing and the interviews made with key staff, customers, and distributors.
- c) Some customers and distributors were hesitant and rudely respond as they are part of the system or benefit from illegal refilling.
- d) The study was only limited to one company (OEUG) although most of the oil marketing companies are suffering from the habit of illegal LPGas refilling.

6.4 Recommendations

The following are the recommendations to the findings of the study as per the set objectives.

6.4.1 Recommendations on the refilling of fast-moving cylinders by illegal refillers.

a) Control of OEUG Information sharing.

The study found out that illegal refillers work together with the company staff and distributors who provide information about processes. Therefore, OEUG should put up strict measures to avoid sharing of company information by staff, distributors, and contractors. Information sharing is a source intellectual property loses which includes procedures, systems, and processes.

b) Technology advancement

OEUG should adopt the use of technological advancement such as cylinder tagging and bar coding. This will help to monitor and track the location of the cylinders and their turn around to the filling plant.

6.4.2 Recommendations on the Factors that lead to illegal refilling of the LPGas cylinders.

a) Enforcement of Inactive Government policies

OEUG through Oil marketing associations, should inform and task the Government on the issue of illegal refillers and unlicensed LPG traders in Uganda for follow up,

OEUG through OMC association and Government should review all LPG traders to find out those registered or permitted to trade in LPGas. This will ensure track down of all illegal refillers in Uganda.

b) Bench marking with Kenya Policies

OEUG through OMC association and Government should adopt the same laws used in Kenya to track down LPgas illegal refillers through fines, penalties including sentences.

c) Proper demarcation of Ola Energy Distributors

OEUG should have proper demarcation of their authorized distributors in the market to avoid contradictions. Most distributors find themselves working in other distributor's territories which becomes difficult to identify an illegal refiller's point of sale. Management should also display signposts to identify the authorized distributors in the market including the name, contacts, and location of the distributor.

d) Put up measures to deny access to LPG gas, Cylinders, and seals

OEUG through OMC association should request government to display list of registered suppliers of LPGas in Uganda and prices should be controlled by Government to control black market LPGas.

OEUG should device means to have data base for the cylinders sold or distributed in the market. Where possible, the cylinder should remain property of OEUG, and a customer can deposit with option for refund if he or she returns the cylinder. This will make it harder for the customers to sell cylinders to illegal refillers.

OEUG should improve the cylinder sealing mechanism to change from the manual to electronic. They should make it expensive for the illegal refillers to manipulate the seal, and strict measures put in place to avoid operatives selling seals to the illegal refillers.

e) Improve Marketing for Ola Energy Branda.

OEUG management should increase marketing budget for LPGas to ensure extensive advertising for the customers to know more about the Ola Energy MPISHI LPGas. This should include signposts, radio adverts, signages, and television adverts to improve OEUG visibility in the market.

The Company should carryout full rebrand on all the sites to avoid two contradicting brands in the market which includes Oilibya and Ola Energy.

- f) Follow up on High Corruption Rates through the right office.

OEUG should ensure to handle the matter with the right office that is: Ministry of Energy and Mineral development enforcement officers other than local police officers who are prone to corruption or should report to Anti -corruption unit set by state house to handle such matters.

6.4.3 Recommendations on methods used by illegal refillers to counterfeit Ola Energy LPgas cylinders

- a) Cylinder valve remodeling

OEUG should improve or change the valve sizes or models used on 6kg and 13kg cylinders to avoid having the same type of valves like other traders which makes it easier for the illegal refillers to refill the cylinders.

- b) Cylinder sealing upgrade

OEUG should adopt of should adopt applicable technology such as radiofrequency identifications (RFID), invincible sealing systems to enable monitor the cylinder movement and to improve reconciliation.

6.4.4 Recommendations on the effects of Counterfeiting on sales of Ola Energy Uganda.

- a) Revival of Oil Marketing Association in Uganda

OEUG should spear head to revive oil marketing association in Uganda which exists but not active. Thereafter, the association can reach out to the ministry of Energy and mineral development, Uganda National Bureau of Standards (UNBS), National Environment Management Authority (NEMA) for support to look out for the illegal refillers and action taken.

- b) Strengthen Regulatory framework

Through the OMC association, the Ministry of Energy can put Strick measures to avoid the mushrooming LPgas traders growing up in order. SO many traders are starting business without licenses and permits to trade and market LPgas.

c) Monitoring systems for Fake Products and enforcement

OEUG should put in place monitoring systems for counterfeit LPGas in the country through centralized registry and to ensure contracting professionals brand managers. The managers should closely work with Local law enforcement team to fight illegal refillers and ensure remanding the culprits to court and take further actions to discourage product counterfeiting

d) Proper Communication

OEUG should put in place proper system to communicate any changes in prices and any information about LPGas such as radio, television sets, social media etc. This will guide the customers on the right price of the product to avoid varying prices in the market by illegal refillers.

e) Encourage reward system

OEUG should put in place contact numbers for the community or any person such as customers to report any issue concerning counterfeiting or illegal LPGas refills. Good and motivating rewards should be given to the reporter who successfully links the company to illegal refillers. The company should follow up the matter to dot and ensure actions are followed up for closer.

f) Impalement 3A's Anti-counterfeiting programs

OEUG should implement the 3As steps of anti -counterfeiting programs which were recommended by Harvey (1987) and these includes.

- ✓ 1st A- Awareness – To ensure all parties and stakeholders involved are aware of the implications of engaging into counterfeiting.
- ✓ 2nd A- Action – Take action for any form of counterfeit
- ✓ 3rd A – Assertion -Make it a point to the community or economy that dealing in counterfeits is illegal without any compromise.

g) Development intellectual property protection strategy

OEUG should spear head the development of wide intellectual property protection strategy for companies dealing in LPGas through associations which can work with Government and fight illegal refillers. This will help to track down any person tampering with the LPGas cylinder brand and logos with penalties and sentences.

h) Put in place Mobile Quality Monitoring team

OEUG should put in place Mobile Quality monitoring team which checks the quality of product in the market and follow up on closer. This will help to control poor quality LPgas on market

i) Put in place Mobile weighing scales at point of sales.

OEUG management should provide mobile weighing scales to the authorized point of sale and distributors and emphasize weighing of cylinders before selling to the customer. This should be communicated clearly to the customers to weigh before buying to stop distributors from selling low quantity LPgas.

6.5 Suggestion for further research

The researcher suggests further research on the effects of LPGas counterfeiting on the community where illegal refilling is taking place, Government, and final customers.

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APPENDICES

APPENDIX A: QUESTIONNAIRE- OLA ENERGY STAFF

Objective

This questionnaire has been designed to obtain information regarding the new and refilled LPGas cylinders for Ola Energy Uganda Limited. This information is to be used for academic research in partial fulfilment of the requirements for the award of the masters’ degree in business administration oil and gas management of Uganda Christian University. All information obtained will be strictly kept confidential and for academic purposes only.

Basic company Information

Name (Optional)

Position

How long have you worked with Ola Energy

Gender: Male Female Age Category: 18-24 25-45

Highest level of Education: No formal Education Primary Above Primary

Marital Status: Single Married

Job Title.....

How long have you worked in that position

Working years with Ola : 1-5 years 6-15 years

Detailed Information

Please fill in the spaces accordingly, use N/A for not applicable where necessary.

1) Fill in the Table below;

1. Cylinders Procured per Year

Year	Cylinders Procured				Total
	6kg	13kg	40kg	45kg	
2017					
2018					
2019					
2020					
2021					

2. Average cylinder turnaround

	6kg Target	6kg Actual	13kg Target	13kg Actual	40kg Target	40kg Actual	45kg Target	45kg Actual
Turn Around time (months)								

3. Total Cylinders returned due to defects such as Leaks, Failed valves, or not burning.

Year	Cylinders Returns due to Failure from customers (Leaks, Failed valves, not burning)				Total
	6kg	13kg	40kg	45kg	

2017					
2018					
2019					
2020					
2021					

4. Tick as appropriate

NO	ITEM	Strongly Disagree	Disagree	Not Sure	Strongly Agree	Agree
a	Distributors of Ola Energy are known to the business					
b	Distributor orders are increasing on monthly basis					
c	Distributor orders are reducing on monthly basis					
d	There scenarios when cylinders are returned with less volume and no leakage by customers					
e	Had scenarios when customers complain about cylinders failing to burn					
f	Had scenarios when customers are complaining about cylinders getting finished very fast than normal.					

g	Had about suppliers selling product at low price and are not known within the supply chain for Ola Energy					
h	Had scenario of cylinders coming from illegal refillers to the plant					
i	Illegal refillers in the market led to reduction in sales of Ola Energy					
j	Competition from other marketing companies led to low sales for Ola Energy					
k	Lack of visibility in the marker has led to low sales for Ola Energy LPgas					
l	Illegal refillers are more in the central than other regions					

5. What are some of the methods used by illegal refillers?

6. What is your advice to control buying counterfeited LPGas

7. Any other comment you would like to share about MPISHI Gas or Ola Energy Gas

Do you know any illegal refillers (share some information if possible)

NOTE: ALL INFORMATION FILLED ON THIS FORM SHALL BE KEPT CONFIDENTIAL.

SIGNED :(Staff)

SIGNED (Researcher)

APPENDIX C: QUESTIONNAIRE- CUSTOMER

Objective

This questionnaire has been designed to obtain information regarding the new and refilled LPGas cylinders for Ola Energy Uganda Limited (MPISHI GAS). This information is to be used for academic research in partial fulfilment of the requirements for the award of the masters' degree in business administration oil and gas management of Uganda Christian University. All information obtained will be strictly kept confidential and for academic purposes only.

Basic company Information

Name (Optional)

Gender: Male Female Age Category: 18-24 25-45

Highest level of Education: No formal Education Primary Above Primary

Marital Status: Single Married

Working Marital Status: Yes No

Location (district)

Size of cylinder used.....

Detailed Information

Please Tick where applicable accordingly, use N/A for not applicable where necessary.

1. Have you heard about OLA ENERGY GAS OR MPISHI GAS?

a. Yes

b. No

2. Do you use OLA ENERGY GAS OR MPISHI GAS

a. Yes

b. No

c. For how long do you use your 6kg OLA ENERGY GAS OR MPISHI GAS

a. 1-2 months

b. 3-4 Months

3. How long does your 13kg Cylinder take before running out?

a. 3-4 Months

b. 5-6 months

4. How many cylinders do you use in a year

a. 2 cylinders

b. 4 cylinders

5. TICK IN THE TABLE WHERE APPLICABLE

NO	ITEM	Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree
a	There no are authorized distributors of MPISHI gas or Ola Energy gas in my region.					

b	Can call authorized distributors for MPISHI gas, and its delivered in time					
c	Not very okay with the MPISHI gas cylinders compared to other brands.					
d	Can tell a cylinder that is not full to its expected volumes.					
e	New refilled cylinders, at times it does not have a seal.					
f	When I buy new refilled cylinder, it always fails to start burning					
g	When I buy new refilled cylinders, it gets finished very first than normal.					
h	When I buy a new refilled cylinder, it's always very dirty					
i	When I buy a new refilled cylinder, it's marked with a safety sticker on the body.					
j	I have heard about counterfeited cylinders in my area (MPISHI Gas inclusive)					
i	I have bought refilled cylinders at lower price, yet the same brand and same cylinders sold at higher prices in the same area.					

j	I have used counterfeited/illegally refilled cylinders before.					
k	I have experienced gas leakages from a gas cylinder from the valve					
l	I have heard or experienced a home explosion from a gas cylinder for MPISHI gas.					

6. What are some of the methods used by illegal refillers?

7. What is your advice to control buying counterfeited LPGas

.....

NOTE: ALL INFORMATION FILLED ON THIS FORM SHALL BE KEPT CONFIDENTIAL.

SIGNED :(customer)

SIGNED (Researcher)

NO	ITEM	Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree
a	There are Ola gas distributors in the market and not known					
b	Ola Energy always reliable on supplying gas and cylinders to its distributors on time					
c	There are incidents when Ola Energy fails to supply orders on time					
	Distributor points are clearly branded with Authorized signage					
d	There scenarios I get cylinders from Ola Energy without seals					
e	Had incidents when customers are complaining about cylinders failing to burn when brought from my store or somewhere else					
f	Has incidents when customers complain about cylinders getting finished very fast than normal					
g	There are always other suppliers selling the same product at low price and are not known with in my area					
h	There a lot of illegal refillers in my area					

i	Illegal refillers and distributors have led to low sales for my business					
j	Lack of knowledge about product has led to low sales of LPGas MPISHI to my business					
k	Existence of unknown brands other than MPISHI has led to low sales for my business					
l	The existence of illegal refillers in the area hassled to low sales					

2. What are some of the methods used by illegal refillers?

.....

3. What is your advice to control buying counterfeited LPGas

4. What is your advice to control illegal refilling?

5. Any other comment you would like to share about MPISHI Gas or Ola Energy Gas illegal refill?

6. Do you know any illegal refillers in your area or any area (share some information if possible

NOTE: ALL INFORMATION FILLED ON THIS FORM SHALL BE KEPT CONFIDENTIAL.

SIGNED :(Distributor)

SIGNED (Researcher)

**Appendix D: APPLICATION TO OLA ENERGY TO ALLOW USE OLA ENERGY AS
CASE STUDY**

Appendix E: RESPONSE FROM OLA ENERGY UGANDA LIMITED