

TAMSYN BOTHA

15 008 221

THE IMPACT OF 'LOAD-SHEDDING' WITHIN THE NELSON MANDELA BAY RESTAURANT INDUSTRY

RESEARCH REPORT

RESM8419P

CAROLE BALDIE

HONOURS IN BUSINESS MANAGEMENT

WORD COUNT: 11 910

I hereby declare that the Research Report submitted for the IIE Honours in Business Management degree to The Independent Institute of Education is my own work and has not previously been submitted to another University or Higher Education Institution for degree purposes.

ABSTRACT

Eskom's supply of electricity serves as an imperative input for many business operations in South Africa, presenting the problem analysed in this study. Since the implementation of 'load-shedding' in 2008, many small businesses have struggled to reach their maximum productivity as research states they do not possess the resources to mitigate the effects of 'load-shedding', hindering their ability to survive. South Africa's economic growth and development is highly reliant on the productivity and survival of small enterprises. The primary objective of this study is to evaluate the impact 'load-shedding' has on the productivity of restaurants, within Nelson Mandela Bay. This study provides a quantitative approach towards, whether there is an impact of 'load-shedding' amongst restaurants, how their inputs and outputs are impacted and what mitigation techniques they have implemented. Questionnaires were developed, administrated, collected and evaluated by the researcher, to a sample of 20 respondents. This data produced significant findings of 73% of respondents identifying 'load-shedding' as a major concern and contrary to small enterprises lacking in resources, 93% of respondents invested into a secondary energy source to alleviate 'load-shedding' impacts. The study's key contribution aimed to understand the negative impact of 'load-shedding' and the most popular mitigation technique.

TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1	CONTEXTUALISATION	2
1.2	RATIONALE	4
1.3	PROBLEM STATEMENT	5
1.4	PURPOSE STATEMENT	5
1.5	RESEARCH QUESTIONS AND OBJECTIVES	5
2.	LITERATURE REVIEW	7
2.1	CONCEPTUALISATION	7
2.2	THEORETICAL FOUNDATION	8
2.2.1	INPUT - PROCESS - OUTPUT MODEL	9
2.2.2	SERVICE PRODUCTIVITY MODEL	9
2.3	THE PROBLEM BEING INVESTIGATED	10
2.3.1	THE REASON FOR 'LOAD-SHEDDING'	10
2.3.2	THE IMPORTANCE OF ELECTRICITY	11
2.3.3	THE IMPACT ON RESTAURANTS INPUTS	12
2.3.4	THE IMPACT ON RESTAURANTS OUTPUTS	13
2.3.5	THE TECHNIQUES IMPLEMENTED TO MITIGATE THE EFFECTS OF 'LOAD-SHEDDING' ..	14
3.	RESEARCH DESIGN AND METHODOLOGY	15
3.1	PARADIGM	15
3.3	RESEARCH APPROACH AND DESIGN	16
3.4	POPULATION	17
3.5	SAMPLING METHOD	18
3.6	DATA COLLECTION METHODS	18
3.7	DATA ANALYSIS METHODS	19
4.	FINDINGS	21

4.1	PRESENTATION AND INTERPRETATION OF FINDINGS	21
4.1.1	SMALL, MEDIUM AND MICRO ENTERPRISES	21
4.1.2	AVERAGE HOURS RESTAURANTS EXPERIENCE ‘LOAD-SHEDDING’	22
4.1.2	‘LOAD-SHEDDING’ AS A MAJOR CONCERN	23
4.1.3	THE IMPACTS ON RESTAURANT INPUTS.....	24
4.1.4	RESTAURANTS MOST CHALLENGING IMPACTS	25
4.1.5	CUSTOMER TRAFFIC AS AN OUTPUT	26
4.1.6	SERVICE DELIVERY AS AN OUTPUT	27
4.1.6	REVENUE AS AN OUTPUT	28
4.1.7	SECONDARY ENERGY SOURCE	29
4.1.8	DIFFERENT TYPES OF SECONDARY ENERGY SOURCES.....	30
4.1.9	STRATEGIES TAKEN TO MITIGATE THE EFFECTS OF ‘LOAD-SHEDDING’	31
4.1.10	POSITIVE OUTCOMES OF ‘LOAD-SHEDDING’	33
4.2	RELIABILITY AND VALIDITY OF THIS STUDY.....	34
5.	CONCLUSION	36
5.1	DISCUSSION OF RESEARCH QUESTIONS AND OBJECTIVES	36
5.1.1	DOES ‘LOAD-SHEDDING’ HAVE AN IMPACT ON RESTAURANTS WITHIN NMB?	36
5.1.2	WHAT INPUTS HAVE BEEN AFFECTED BY ‘LOAD-SHEDDING’	36
5.1.3	WHAT OUTPUTS HAVE BEEN AFFECTED BY ‘LOAD-SHEDDING’?	37
5.1.4	WHAT TECHNIQUES COULD RESTAURANTS IMPLEMENT TO MANAGE THE IMPACTS OF ‘LOAD-SHEDDING’?	38
5.1.5	WHAT IS THE IMPACT OF ‘LOAD-SHEDDING’ ON PRODUCTIVITY WITHIN THE RESTAURANT INDUSTRY, IN NMB?	38
5.2	IMPLICATIONS OF FUTURE FINDINGS.....	39
5.3	RECOMMENDATIONS FOR FUTURE FINDINGS	39
5.4	ETHICAL CONSIDERATIONS	40
5.5	LIMITATIONS.....	40
6.	REFERENCE LIST	41
7.	ANNEXURES.....	46

7.1 ANNEXTURE: QUESTIONNAIRE	46
7.2 ANNEXTURE: ETHICS CLEARANCE LETTER	51
7.3 ANNEXTURE: ORIGINALITY REPORT	52
7.5: ANNEXTURE: THE FINAL RESEARCH REPORT SUMMARY DOCUMENT	53
7.5 ANNEXTURE: REVISED SHEDULE 1 OF THE NATIONAL DEFINITION OF SMALL ENTERPRISE IN SOUTH AFRICA	54

FIGURES:

FIGURE 1: THE LINEAR DEPICTION OF PRODUCTIVITY AND FIRM PRODUCTION (SCERRI, 2015: 57) 9	
FIGURE 2: ADOPTED BY (SAUNDERS & TOSEY, 2013: 59)	16
FIGURE 3: PERCENTAGE OF SMALL, MEDIUM & MICRO ENTERPRISES IN THIS STUDY.	21
FIGURE 4: THE PERCENTAGE OF RESTAURANTS CONSIDERING 'LOAD-SHEDDING' A MAJOR CONCERN.	23
FIGURE 5: THE LEVEL OF IMPACT ON RESTAURANTS INPUTS	24
FIGURE 6: THE EFFECT OF 'LOAD-SHEDDING' ON NUMBER OF CUSTOMERS.	26
FIGURE 7 :COMPARISON OF RESTAURANTS ABILITY TO OFFER A SERVICE DURING 'LOAD-SHEDDING' AND IN THE ABSENCE OF 'LOAD-SHEDDING'	27
FIGURE 8: REVENUE AS AN OUTPUT	29
FIGURE 9: PERCENTAGE OF RESTAURANTS INVESTED IN A SECONDARY ENERGY SOURCE.	30
FIGURE 10: PERCENTAGE OF ALTERNATIVE ENERGY SOURCES USED BY RESTAURANTS.	30
FIGURE 11: THE COST OF INVESTING IN A SECONDARY ENERGY SOURCE COMPARED TO RELIABLE AN ENERGY SOURCE	31
FIGURE 12: ACTIONS TAKEN BY RESTAURANTS TO COPE WITH THE EFFECTS OF 'LOAD-SHEDDING'	32
FIGURE 13: ALTERNATIVE TECHNIQUES OF COPING WITH 'LOAD-SHEDDING'	33
FIGURE 14: THE PERCENTAGE OF POSITIVE OUTCOMES FROM 'LOAD-SHEDDING'.	34

TABLES:

TABLE 1: THE NEW NATIONAL SMALL ENTERPRISE ACT THRESHOLDS FOR DEFINING ENTERPRISE SIZE CLASSES BY SECTOR	3
--	---

TABLE 2: RESEARCH QUESTIONS AND OBJECTIVES.....	6
TABLE 3: CONCEPTS WITHIN THIS STUDY	8
TABLE 4: THE AVERAGE HOURS RESTAURANTS EXPERIENCED 'LOAD-SHEDDING'	22
TABLE 5: RESTAURANTS MOST CHALLENGING IMPACT OF 'LOAD-SHEDDING'	25

1. INTRODUCTION

Approximately 95% of South Africa's (SA's) electricity is generated by a public utility known as, Eskom (Eskom, 2019). Eskom is the primary energy supplier for the country, by monopolising the SA market. Eskom was originally identified as 'The Electricity Supply Commission' (Escom) until its name was changed to Eskom, in 1987. Escom was established in 1922 by the South African government, through the Electricity Act of 1922. The Electricity Act No. 42 of 1992, reads as follows: "To efficiently, effectively and sustainably supply electricity to the people of the country, with the main intent to ensure that the present and future needs and interests of electricity customers and users are satisfied " (Steenkamp et al, 2016: 70).

In the year of 2001, Eskom was termed 'the Financial Times Power Company of the year' at the Global Energy Awards Ceremony in New York, illustrating their compliance to The Electricity Act. This award was granted as a result of Eskom successfully offering the world's lowest-cost electricity, while creating excellent technological innovations, growing transmission system reliability, and emerging economic, efficient and safe methods for combustion of low-grade coal (Du Toit, 2019).

However, Eskom failed to continue to live up to the Electricity Act as they currently find themselves in crippling debt levels of R430 billion, representing 15% of SA total debt. According to Pravin Gordhan, the minister of public enterprises, the utilities debt is owed to a substantial loss of critical skills, poor quality of maintenance and inadequate workmanship, resulting in break-downs, of which 40% is owed to human errors (Du Toit, 2019). These break-downs have given rise to a unique expression regularly used in SA, known as 'load-shedding' (Steenkamp et al, 2016: 70).

'Load-shedding' is implemented to relieve stress on Eskom when the demand for electricity is greater than the supply. It often occurs with or without prior warning to the consumer. Eskom applies 'load-shedding' by stopping the electricity distribution throughout particular areas for a short period of time, involving businesses and households. This is referred to as 'rolling blackouts' in other countries (Rouse, 2019). Energy analyst, Chris Yellend stated that 'load-shedding' (unserved energy) costs the country R1 billion per stage, per day (Business Tech, 2019).

After the Second (II) World War, the demand for electricity expanded faster than the Gross Domestic Product (GDP) and during the apartheid era the supply was mainly issued to urban areas, leaving only 40% of the population being issued with electricity. In 1994, the beginning of a democracy brought about change considering that both urban and rural areas had to be supplied with electricity. At this stage the national grid was distributing to an extra 2.7 million houses, while the expansion of supply remained stagnant. By 1996, the demand for electricity rapidly increased to 28 330 MW (Mega Watts), it was evident that the capacity would go beyond the supply capacity of 39 000MW. Eskom first announced the possibility of 'load-shedding' in 1997. Yet, no new power stations were built, therefore introducing the beginning of 'load-shedding' on the 10th of January 2008 as a result of an energy crisis (Prof Assan & Masibi, 2015: 10). Although the action of 'Load-shedding' was to prevent the probability of a country-wide blackout, it has had vast impacts on the productivity of organisations in SA (Coetzee & Els, 2016: 268-269).

1.1 CONTEXTUALISATION

Economists in SA have expressed a forewarning that the impact of 'load-shedding' will be the result of small enterprises being confronted with liquidation (Prof Assan & Masibi, 2015: 3). Ado & Josiah (2015: 240) and Cissokho & Seck (2013: 7), affirm that Small, Medium and Micro Enterprises (SMME's) may be the most vulnerable compared to large organisations. The reason being SMME's lack adequate human, capital resources, financial support and the majority aren't able to afford back-up facilities to guarantee power supply (Ado & Josiah, 2015: 240). Minister Zulu, from the department of Small Business Development, declares an alarming statement that 70 - 80% of SMME's will never have the opportunity to celebrate one year of business. As a sector, SMME's are seen as a main driver for economic growth, job creation and poverty alleviation, thus this failure rate should not be over-looked (Mashimbye, 2018). Emphasising the consumption of electricity being positively correlated with productivity and economic growth (Scott et al, 2014: 9).

The important contribution of the SMME's sector towards economic growth and development is recognised internationally, however defining an SMME is a challenge, seeing that every country has their own definition. Organisations differ in various areas of capitalisation, sales and employment, resulting in no single consistently accepted definition of small firms (Le Fleur et al, 2014: 6). For the purpose of this study, Lindiwe Zulu's recently amended definition of small enterprises will be utilised (Zulu, 2019: 110). It reads as follows:

Small enterprise refers to a separate and distinct business entity, together with its subsidiaries, if any, including cooperative enterprises, managed by one owner or more predominantly carried on in any sector or subsector of the economy mentioned in column 1 of the Schedule in Annexure 7.5 page 55 & 56 and classified as a micro, a small or a medium enterprise by satisfying the criteria mentioned in columns 3 (Zulu, 2019: 110).

The new National Small Enterprise Act Thresholds for defining enterprise size is classed by sector (Zulu, 2019: 110).

Column 1	Column 2	Column 3
Catering, Accommodation and Other Trade:	Medium Enterprise	Employing (51-250) full-time employees
	Small Enterprise	Employing (11-50) full-time employees
	Micro Enterprise	Employing (0-10) full-time employees

Table 1: The new National Small Enterprise Act Thresholds for defining enterprise size classes by sector

The following research will specifically analyse the impact of 'load-shedding' on restaurants in terms of SMME's. Rendering to the energy crisis that occurred in the tourist attraction suburb known as Sea Point on the Cape Peninsula, in Cape Town, South Africa. More than 70 restaurants were affected by stage 4 'load-shedding', enforcing restaurants to be without electricity for up to five hours a day between crucial lunch and supper service times (i.e. 12:00-14:30 & 20:00-22:30). Hindering, the Sea Points restaurants ability to increase their productivity (Botha, 2019).

The issue of 'load-shedding' is felt all over SA (Prof Assan & Masibi, 2015: 3). Permitting to Scott et al, (2014: 8), Cissokho (2015: 3), Nyanzu & Adarkwah (2016: 1), and Arlet, (2017: 2), 'load-shedding' has had a damaging negative impact on the productivity of organisations. The main focus of this study is to understand and evaluate the impact 'Load-shedding' has on productivity within the restaurant industry.

1.2 RATIONALE

The term 'Load-shedding' is exclusive to SA yet, not the concept. According to Cissokho & Seck (2013: 7), 'rolling blackouts' occur in both developed and developing countries (such as Nigeria), nevertheless the frequency, extent and cause of 'rolling blackouts' differ amongst countries. A study instigated by Arlet (2017: 2), found 80 economies from The World Bank Enterprise surveys, reported a negative connection between 'power outages' and firm's productivity. Stating the cause and extent may be different but, the outcomes are still deemed negative towards firm's productivity. Organisational productivity may simply be described as the total output generated per input (House of Commons, 2018: 7). In other words, it is the relationship between production and resources. The measure of productivity is associated with the productive process. Therefore, if 'load-shedding' effects the productive process of firms their financial results will be equally affected (Dresch et al, 2018).

SA was positioned 113 out of 115 countries in the Effective Energy Transitions Index of 2018, demonstrating their lack of sustainability (Oehsen, 2019). Productivity is of importance to SA as a number of studies have shown that the uncertainty of reliable electricity supply may cause businesses to hold back on investing in the growth of their firms as well as face potential liquidation, which may result in a restriction of the economy's growth (Von Ketelhodt & Wöcke, 2008: 4; Ado & Josiah, 2015: 240; Arlet, 2017: 2-3; and Makgatho, 2019). For instance, in Sub-Saharan Africa the annual economic growth weakened as a result of a delicate power utility, producing a 2% lag in growth (Arlet, 2017: 2-3).

According to Business Tech (2018) and Chance (2018), a study released by the Small Business Institute (SBI) in partnership with the Small Business Project (SBP), stated that 98,5% of South Africa's economy consists of SMMEs. Illustrating the significant impact, a lack of production amongst SMME's may have on the economic growth and development of SA. However, SA's SMME's only employ 28% of the workforce which in comparison to other countries, the contribution should be between 60 – 70% (Chance, 2018). This may be a result of 'load-shedding' crippling SMME's ability to survive, as smaller businesses typically lack resources to buy generators to mitigate the repercussions of 'Load-shedding' (Arlet, 2017: 3).

1.3 PROBLEM STATEMENT

Eskom's power supply serves as an indispensable input for many businesses in SA. Nearly all business activities within a restaurant rely on the continuous and efficient flow of electricity (Oseni, 2012: 1). According to Mhlanga (2018: 408), 62% of restaurants fail within their first year of operation and 87% fail within their first five years. This failure rate is a result of restaurants not capable of reaching their maximum productivity or effectively using their time and resources. Electricity is a vital input for productivity, hence 'load-shedding' may contribute to the failure rate of restaurants in SA. Not only is this a concern for all restaurant owners (i.e. restauranteurs), but to the economy as poor productivity has a negative effect on SA's economic growth and development.

1.4 PURPOSE STATEMENT

The purpose of this study is to identify a relationship between 'load-shedding' and restaurants productivity as well as to distinguish the mitigation techniques that restaurants have implemented to alleviate these effects. Rendering to the unfavourable occurrence of Sea Points energy crisis. The aim of this study is to gain a better understanding of how restaurants productivity has been impacted by 'load-shedding', within the Nelson Mandela Bay (NMB)?

1.5 RESEARCH QUESTIONS AND OBJECTIVES

To apprehend the main purpose of this study, the following sub-questions have been constructed to assist in the analysis and answering of the main question. The main question this study aims to respond to is: What is the impact of 'load-shedding' on productivity within the restaurant industry, in NMB?

RESEARCH QUESTIONS:	RESEARCH OBJECTIVES:
1. Is there an impact caused by 'load-shedding' on restaurants in NMB?	1. To determine the impact of 'load-shedding' on restaurants through observing managers and owners view of 'load-shedding'.

2. What inputs have been affected by 'Load-shedding'?	2. To establish the impact of 'load-shedding' on restaurants inputs, such as: Staff; Operations; Costs; Security; and Equipment.
3. What outputs have been affected by 'Load-shedding'?	3. To establish restaurants outputs affected by 'Load-shedding' through service delivery, revenue, and customer traffic.
4. What techniques could restaurants implement to manage the impacts of 'Load-shedding'?	4. To determine the techniques that have been implemented by restaurants to reduce the impact of 'load-shedding', by employing secondary energy sources and alternative coping actions.

Table 2: Research Questions and Objectives

This section paid much attention to familiarising the study to the reader. By discussing the background of 'load-shedding', the rationale, the purpose of the study, the problem statement and the relevant research questions and objectives of this study.

2. LITERATURE REVIEW

This section is intended to discover existing knowledge of what other researchers have already discovered on this topic. The attained information ought to substantiate and develop the current knowledge of the researcher. By investigating secondary data, the researcher was able to identify existing impacts of 'load-shedding' (rolling blackouts) and acknowledge the limited research commenced on the impact on NMB restaurants' (Prof Assan & Masibi, 2015: 10).

2.1 CONCEPTUALISATION

These defined terms are distinguished as important to the study and will assist in the contextual understanding.

'LOAD-SHEDDING':	'Load-shedding' is the action from Eskom of rolling power cuts that intend to lessen the load on the power supply system when Eskom is not able to supply the high demand of electricity (Prof Assan & Masibi, 2015: 1). 'Load-shedding' has two types of outages: Unplanned and planned
UNPLANNED 'LOAD-SHEDDING':	Periods of power cuts when the electricity supply to a particular area (referred to as groups) is interrupted and is not scheduled. This is often due to cable theft, weather conditions, old infrastructure, excavation or building developments or even illegal electricity connections (Schoeman & Saunders, 2018: 328).
PLANNED 'LOAD-SHEDDING':	Periods of power cuts that occur when electricity is switched off at a substation or area within the local grid at a scheduled time. Often due to maintenance, emergency repairs taking place or to relieve Eskom of the demand from customers (Schoeman & Saunders, 2018: 328).
MITIGATION:	The action of restaurants reducing the effect of 'load-shedding' through back-up systems or change in operations (Scott et al, 2014: 21).

SMALL, MEDIUM AND MICRO ENTERPRISE (SMME):	All restaurants that satisfy the employment criteria of a small, medium or a medium enterprise as stipulated by Zulu (2019: 110). - Micro Enterprise: Employing (0-10) full-time employees. - Small Enterprise: Employing (11-50) full-time employees. - Medium Enterprise: Employing (51-250) full-time employees.
PRODUCTIVITY:	An index that measures the output (e.g. goods and services) generated per input (e.g. staff) in an organisation (House of Commons, 2018: 7).
INPUTS:	Raw materials (e.g. coal used in producing electricity) put in operation to achieve the relative outputs (Yadav & Marwah, 2015).
OUTPUTS:	The act of producing something, the amount of something that is generated or the process in which something is delivered (e.g. Produced electricity) (Yadav & Marwah, 2015).
RESTAURANT INDUSTRY:	Restaurants ranging from fine dining establishments to quick service casual outlets, predominantly serving food and beverages (Tang, 2014: 7).

Table 3: Concepts within this study

2.2 THEORETICAL FOUNDATION

Thomas (2017: 232), describes a theory “as a group of related overviews that indicate new observations, which can be empirically tested for the purpose of explaining”. Acknowledging the topic of this study, the following productivity models have been identified to collectively understand the problem of ‘load-shedding’ effecting restaurants productivity. Providing the range of input factors and the nature of ‘load-shedding’s’ impact, the illustrated model is best suited to determine the causal (cause and effects) relationship between ‘load-shedding’ and restaurants productivity (Scott et al, 2014: 10). These models are recognised as the input-process-output model and the Service Productivity Model (SPM) (Scerri, 2015: 57).

2.2.1 INPUT - PROCESS - OUTPUT MODEL



Figure 1: The linear depiction of productivity and firm production (Scerri, 2015: 57)

This model is applicable to this study by means of productivity and the firms' strategies being seen as linear and directional. In Figure 1, the input for instance, raw materials (e.g. the ingredients for a salad) flows into the restaurant, passing through the businesses operations whilst enduring a transformation process (e.g. the chefs washing and cutting up the ingredients to create the salad). The output then departing as a tangible product with inserted value (e.g. the salad as a final product, being delivered to the customer). Intangible inputs and outputs may also be considered in this process. The intangible output (e.g. quality) is determined through the productivity of intangible factors of production (e.g. the quality of service). However, the measurement of intangible outputs is not easily measurable (Nachum, 1999: 123). The significance of this model is the impact of 'load-shedding' on the process. For example: the input of equipment and machinery should go through a process which assists in the generation the output of products and services. However, the process is interrupted by means of 'load-shedding' and the output is disrupted, therefore the restaurant is negatively impacted. This is addressed through the SPM demonstrated by Scerri (2015: 57) as the Gronroos and Ojasalo's (2004) model.

2.2.2 SERVICE PRODUCTIVITY MODEL

According to Scerri (2015: 57-59), the SPM acknowledges the open system nature of productivity as it is influenced by the demand of customers. The SPM states that lower levels of demand from customers results in a negative influence on the resources of a service provider, thus negatively effecting the service productivity. This model presents the concepts of "internal efficiency", "external efficiency" and "capacity efficiency", as adopted by Scerri (2015: 57-59).

For this study, the internal efficiency relates to the effective implementation of resources, such as; electricity, systems, personnel and information, etc. Followed by capacity efficiency, which relates to the manner restaurants managers and waitrons react to the variants of customers demand during 'load-shedding' hours. Recognising that the service productivity may be affected by customer satisfaction being met. Presenting the notion of external efficiency which is customers contribution and involvement. This would be illustrated through customers verbal rating the level of service they received during hours of 'load-shedding' as well as their retention. This model illustrates the inputs in the service delivery process is generated through a single entity (Scerri, 2015: 57). The single entity is the ability of restaurant staff to offer internal efficiently during 'load-shedding' compared to the restaurants standard level of service delivery ability. The customers contribution was established through the customer traffic increasing, decreasing or no noticeable difference during 'load-shedding' hours.

2.3 THE PROBLEM BEING INVESTIGATED

2.3.1 THE REASON FOR 'LOAD-SHEDDING'

The action of turning off parts of the power grid to ensure stability at Eskom, was a consequence of the government disregarding Eskom's warning in the late 1990's. Eskom warned that if no new power stations were built, the country may encounter power supply problems in 2007. The government at the time aspired to allow private electricity producers to generate power to the national grid, nonetheless by the year 2000, nobody had invested in private power generation. This was a result of Eskom still wanting to retain 70% dominance of power production in SA (Prof Assan & Masibi, 2015: 13-15).

The former president, Thabo Mbeki, acknowledged that the government had slipped-up in 2007 by over-looking the pending power demand crisis. When the government decided to address the issue of greater demand, they were faced with unskilled labour and poor leadership inside Eskom. After subsidising the labour force by 50%, expansion began to take shape. Yet, the cut down of staff added to badly maintained power stations, which has been a contributing factor to 'load-shedding'. Another influence of pro-longed 'load-shedding' was labour unrest as workers on the constructions site started striking, delaying Eskom's expansion programme. These are only but a few reasons for the implementation

of 'load-shedding', hence the issue is still evident in 2019 (Prof Assan & Masibi, 2015: 13-15).

2.3.2 THE IMPORTANCE OF ELECTRICITY

Reliable electricity in the 21st century serves as an indispensable input to the activities of any business. A significant 50% of Sub-Sahara African firms recognised electricity as a major constraint to their business operations, whereas Oseni (2012: 1), indicates that only 39.2% of the world considers 'load-shedding' a major constraint. Prior surveys issued by Scott et al, (2014:10), suggest that, in developing countries such as SA, access to electricity has been one of the leading constraints to their business operations. Furthermore Frederick & Selase (2014: 34), propose the existence of a unique relationship between electricity and businesses as energy supplies have a considerable impact on economic activities. This is a result of electricity being consumed for various purposes ranging from storage, operational processes, production and powering of equipment/machinery. The supply of power is a substantial component of virtually any production process, making electricity an essential commodity for industry types such as: the service industry. Without electricity, restaurants are not able to efficiently offer their service to satisfy customers (Frederick & Selase, 2014: 34).

A Nobel prize winning economist, Paul Krugman stated; "Productivity is not everything, but in the long run it is almost everything. A countries capability to improve its standard of living over time depends almost exclusively on its ability to raise its output per worker" (Krugman, 1997: 11). The extensive research commenced on the negative impact power outages has on the productivity of firms, confirms the magnitude of the on-going issue of 'load-shedding' rendering small enterprises unproductive and inefficient (Scott et al, 2014: 8; Cissokho, 2015: 3; Nyanzu & Adarkwah, 2016: 1; and Arlet, 2017: 2). The relationship between electricity consumption and a business productivity is evident, yet the causality is regarded as intricate. Owing to a range of input factors and to the various electricity impacts (Scott et al, 2014: 10).

According to Mhlanga (2018: 13), the average restaurant in SA only operates at a 77% efficiency level without the impact of 'load-shedding'. This result was generated through the analysis of inputs (i.e. labour, food and beverage and materials) and one total output as total revenue. As mentioned by Mhlanga, (2018: 408) that the high failure rate of restaurants

(87%), is due to restaurants not able to reach their maximum productivity or successfully using their time and resources. To acknowledge the impact of 'load-shedding' on restaurants productivity, the possible impact on the relative inputs and outputs should be distinguished.

2.3.3 THE IMPACT ON RESTAURANTS INPUTS

According to Cissokho (2015: 2) and Nyanzu & Adarkwah (2016: 6), 'load-shedding' challenges a restaurants productivity through numerous channels, causing inputs to idle which leads to a lower output level. These input channels may include staff, operations, costs, security, and machinery and equipment.

Challenges such as: staff working in an uncomfortable environment as the aircon may not work and adapting to a manual ordering system may cause a change in the restaurants atmosphere and ambience (Oseni, 2012: 2). Resulting in a potential decrease in customers during 'load-shedding hours, effecting waitrons income (Botha, 2019). Another challenge may be that staff arrive late for work as a result of not being able to clean their work clothes or traffic lights not operating on their route to work (Jacobs, 2015). These negative impacts influence the staff's capability to offer a service effectively.

Rendering to Villiers (2019), the top worry for South Africans is the intensified risk of crime, considering the 'load-shedding' schedule is made public and not always accurate. Thus, security playing a role in the inputs effected by 'load-shedding'. Cable theft and vandalism during 'load-shedding' has also caused extended periods of power outages for businesses (Joubert, 2019).

Abrupt and extended 'load-shedding' hours ultimately lead to the damage of machinery and equipment, increasing additional costs owed to more frequent repairs and replacement (Cissokho, 2015: 2). Additional costs are also inquired through spoilage of foods and inventory. For example, staff at Woodstock Brewery's in Cape Town explain that 'load-shedding' has produced major issues in their brewing process, as when their production comes to a standstill the whole batch becomes wastage (Jacobs, 2015).

Permitting to the understanding of productivity as the total output generated per input, the following will observe the possible outputs of restaurants effected by 'load-shedding' (House of Commons, 2018: 7).

2.3.4 THE IMPACT ON RESTAURANTS OUTPUTS

It is visible that 'load-shedding' has a direct impact on all business operations and their productivity (Steenkamp et al, 2016: 74). This direct impact implies that the probability (a tangible outcome) of firms to decrease in revenue would be higher during 'load-shedding' compared to when there is available power for production. The loss of revenue may be accredited to firms who lack the financial resources to invest in alternative energy sources and who are electricity intensive (Nyanzu & Adarkwah, 2016: 14). Arlet (2017: 3), however, reveals that firm's revenue suffer the most as they are unable to measure their production and Prof Assan & Masibi (2015: 57), expresses that 'load-shedding' alters the manner in which business decisions are carried out. For the reason that they have to deposit more revenue back into the business as they have to take care of machinery and equipment, preparing for 'load-shedding' occurrences and additional input costs such as: buying a generator and diesel.

The efficiency of service delivery and customer satisfaction are two other considered effected outputs. Service delivery is the ability of restaurants to effectively meet the dynamic needs and expectations of customers (Durdyev et al, 2014: 496). Considering the INPUT-PROCESS-OUTPUT and SPM found in Figure 1 and 2 (Page 9 and 10), The impact of 'load-shedding' on the firms process may result in impacting the efficiency of delivering a service, therefore, potentially effecting customer retention (Scerri, 2015: 57). According to Al-Tit (2015: 130), the dimensions of service efficiency involves: food quality, employee service and the physical environment of the restaurant. The result of 'load-shedding' may affect the restaurants ability to meet the needs and expectations of customers. For example, food takes longer, not all items on the menu can be made and the unpleasant sound of a generator effecting the ambiance of the restaurant, as a result of 'load-shedding'. Contributing to a possible decrease in customers traffic, as a result in not meeting customer expectations.

Schoeman & Saunders (2018: 328), discovered that 16.7% of businesses experienced an increase in customers during 'load-shedding' hours were restaurants and three of the restaurants identified a considerable 30% increase in customer traffic. Demonstrating the possibility of restaurant's actually benefiting from the implementation of 'load-shedding'.

2.3.5 THE TECHNIQUES IMPLEMENTED TO MITIGATE THE EFFECTS OF 'LOAD-SHEDDING'

According to Nurudeen et al, (2018: 3), self-generation has been deemed the most widely implemented strategy to mitigate the impact of 'load-shedding'. The leading mitigation method for restaurants is the use of a standby generator, followed by modifications in operations and reduced hours. The execution of generators amongst developing countries is around 33% and in countries such as: Nigeria, the issue of 'load-shedding' is higher therefore, generators make up 86% of the energy supply (Scott et al, 2014: 27). In 2007, the World Bank Group (2019), indicated 44.9% of firms were affected by 'load-shedding' with a 4.5-hour average outage and only 18.4% made use of generators. Closely related to SA is Sub-Saharan Africa, where 53.2% of businesses own generators (Blimpo & Cosgrove-Davie, 2019: 19). Showing a significant increase in the use of generators to mitigate 'load-shedding' outcomes.

Firms investment into self-generation greatly influences their ability of investing into other productive activities that may have resulted in higher returns (Nurudeen et al, 2018: 3). Self-generation additionally adds to operating costs and capital, as it is much more expensive than electricity supplied from Eskom (Scott et al, 2014: 19). According to Thelwell (2014), businesses potential loss incurred due to not employing a generator during 'load-shedding' hours is +/-R13 000 an hour, where as those who do employ a generator only lose +/-R 919 and hour.

Considering businesses who cannot afford the high cost of generators resorted to changes in operations to alleviate the impact of 'load-shedding' (Nurudeen et al, 2018: 3). These operations may include reducing the hours and amount of staff per shift and even working extra hours to prepare for 'load-shedding'. Several firms have been forced to close their doors as it is not viable to render a service (Makgatho, 2019). Shortening of the menu has also been exercised as without power, certain items cannot be made. A Manager of an Italian restaurant in Sea Point, Cape Town, Ritesh Sewsunker says, "The guests aren't allowed to order everything on the menu, and there's crucial items that can't be served. You can't even serve coffee and cocktails as they use the blenders. This has a major impact on guest that frequently visit the restaurant" (Botha, 2019). The last technique of mitigation is restaurants keeping up with the 'load-shedding' schedule to best arrange for 'load-shedding, even though it is regarded as unreliable at times (Kohler, 2019).

3. RESEARCH DESIGN AND METHODOLOGY

This section will give a description of how the study was performed and procedures implemented to answer the research question by satisfying the research objectives. This section will also examine the appropriate paradigm and why it is was best suited for this research problem. The research design will be discussed by means of the systems, methods and techniques utilised to gather the required data. Followed by the collection and analysis of data (Prof Assan & Masibi, 2015: 33).

3.1 PARADIGM

The research design of this study has been influenced by the researcher's paradigm. According to Prof Assan & Masibi (2015: 5), It is customary for researchers to abide by particular standards that direct their behaviour during a study, otherwise known as a paradigm. A positivistic paradigm was conducted according to this study's empirical-analytical nature. In terms of a causal (cause and effect) relationships between variables concerning 'load-shedding' and the productivity of restaurants through structured observations (Du Plooy-Cilliers et al, 2014: 24-25). The aim of positivism is to enlighten restaurateurs on the impact 'load-shedding' has on their inputs and outputs of their restaurant and ways to mitigate 'load-shedding' (Du Plooy-Cilliers et al, 2016: 21,24,76). To compare the relationship between particular variables or how one variable (e.g. revenue) is affected by another variable (e.g. additional costs), is achieved through implementing 'descriptive research' through a quantitative approach.

The quantitative approach assisted in the collection, analysis and interpretation of this study as well as the motivation behind selecting the relevant data collection and analysis methods. Rendering to the purpose, objective and aim of this study explaining the significant quantities in the causal relationship, the quantitative approach contributes to the validity of this study's findings (Du Plooy-Cilliers et al, 2016: 14-15). The paradigm and research design of this study is guided by the below figure adopted from Saunders & Tosey (2013: 59), known as the Research Onion.

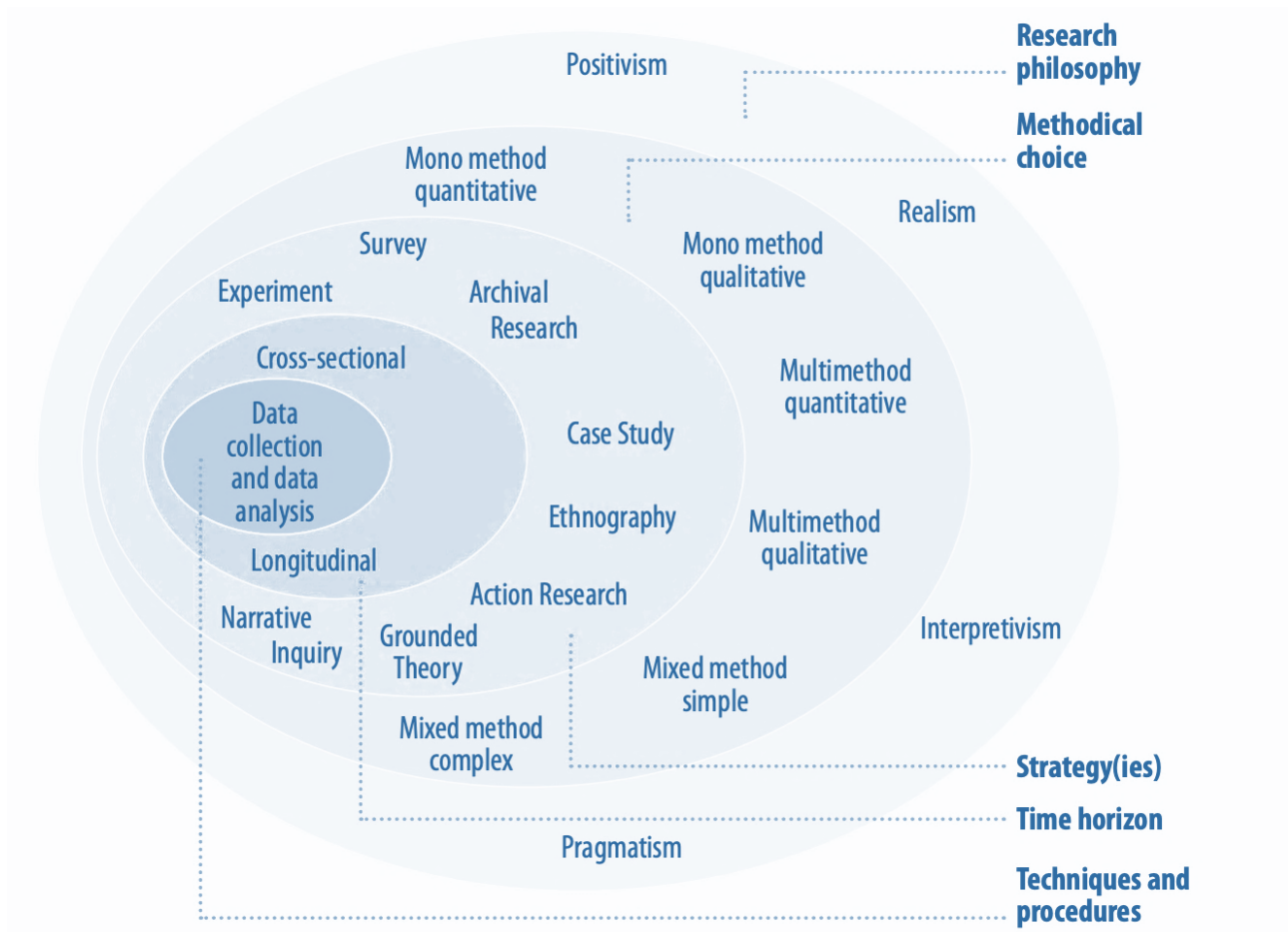


Figure 2: Adopted by (Saunders & Tosey, 2013: 59)

The above figure gives a visual illustration of the researcher's interpretation and decisions in reference to the outer layers that offer context and boundaries within the data collection and analysis. The methodology applied and the research design that is to follow, has abided by the research philosophy of Positivism, a mono method of quantitative, followed by a survey strategy (i.e. Questionnaires) leading into a cross-sectional time horizon to reach the relative data collection, analysis techniques and procedures that have been implemented (Saunders & Tosey, 2013: 58).

3.3 RESEARCH APPROACH AND DESIGN

Rendering to Prof Assan & Masibi (2015: 33) and Du Plooy-Cilliers et al, (2014: 93), the research design entails the plan to be carried out by the researcher. To stipulate an outline of how the researcher has performed the process of formulating questions, to collecting data and evaluating the final results. The research design implemented in this study assists in

answering questions authentically, accurately and economically with regards to 'load-shedding' and restaurants productivity.

The positivism tradition assisted in developing quantitative and objective reasonings, that was supported by direct observation. Resulting in the use of Positivist theorising to guide the observation of the phenomena and allow for theory building. Meaning that this study's made use of a circular dependency on each other as the INPUT-PROCESS-OUTPUT model guided the observation of impacts from 'load-shedding' and vice versa. The aim of this approach was to quantify the significance causal relationship of 'load-shedding' on restaurants' productivity and formulating questions to measure the main objective of this study (Du Plooy-Cilliers et al, 2014: 51).

The relevant data was gathered through surveys administrated through a cross-sectional survey design. This design created an overall picture of the impact 'load-shedding' had on restaurants productivity in NMB at single point in time. Illustrating a unique focus on the restaurants in NMB as the data collection is not necessary to repeat to compare outcomes. The employing of a structured questionnaire granted the researcher the opportunity to ask a set of questions related to the attitude, trends, and opinions of restaurateurs on 'load-shedding'. Producing quantitative descriptive research to provide insight into restaurants' experience with 'load-shedding' (Du Plooy-Cilliers et al, 2014: 14).

To quantify the impact of 'load-shedding' on the restaurant industry, a quantitative research method was exploited to substantiate the statistical analysis of the study. Another reasoning was to allow the researcher to make objective interpretations of the data through detecting hidden patterns. The following provides the methodological outline of the study (Du Plooy-Cilliers et al, 2014: 14).

3.4 POPULATION

The target population of this study is comprehended as all the restaurants impacted by 'load-shedding'. Whereas, the accessible population was restaurants situated in Marine drive, Summerstrand and Humewood area, in NMB, that were impacted by 'load-shedding'. Recognising the entire group of restaurateurs from whom data was required from. Once the population for this research was taken into consideration a sample was drawn (Du Plooy-Cilliers et al, 2014: 132).

3.5 SAMPLING METHOD

The unit of analysis is understood to be all restaurants affected by 'load-shedding' within NMB. The sample drawn abided by to the requirements of the Independent Institute of Education (IIE) as a minimum of 20 respondents. The administrated questionnaire was delivered to 20 respondents (i.e. Owners or managers) and 20 questionnaires were retrieved, generating a 100% response rate. However, during the data cleaning process 25% of responses were deemed incomplete, leaving 75% of responses eligible to contribute to the findings of this study.

There are many different ways of sampling which are categorised into two groups namely; probability and non-probability sampling methods. A non-probability method of convenience sampling was utilised as it allowed for quick and easy access to sample and the researchers' residence was situated close to the sample. Selection was based on the researchers' judgement and not randomly from a set list. The sampling commenced in this study differs from the most common description of convenience sampling, as the researcher did not know the owner or managers on a personal level. Rendering to the character of non-probability sampling, this study has not intended to generalise findings to the larger population but was implemented as it was the most convenient sampling method (Du Plooy-Cilliers et al, 2016: 142-145).

The inclusivity of the sample entailed all those respondents in which the researcher was able to make contact with and was not based on a systematic selection. The convenience sampling method of collecting primary data played a vital role as it established the base for final conclusions at the end of this study (Du Plooy-Cilliers et al, 2016: 134-138).

3.6 DATA COLLECTION METHODS

Primary data took place through a questionnaire being administrated to respondents by means of a cross-sectional survey design. The aim of gathering this information was to reach the relevant findings (Prof Assan & Masibi, 2015: 36). A 'survey' research tool was consumed to provide a quantitative description of restaurant managers and owners opinions, trends and attitudes towards the problem of 'load-shedding' (Du Plooy-Cilliers et al, 2016: 149).

The administering of surveys in the form of questionnaires allowed for an inexpensive, less time consuming and anonymous factor which led to a response rate of 100%. However, surveys are known to be prone to errors during the collection and interpreting phases. Therefore, the researcher eliminated those incomplete questionnaires during the data cleaning process to ensure the probability of producing errors within the interpreted data did not occur (Du Plooy-Cilliers et al, 2016: 160).

The questionnaire (Annexure 7.1, Page 46 - 50) started with an introduction to inform respondents on the purpose of the study and their role within the data collection process. Respondents were assured their participation was voluntary and they had the option to withdraw at any time. This opening paragraph stated the duration of the questionnaire (10 minutes) and respondents were assured the questionnaire would remain confidential and anonymous.

The questionnaire started with two pre-requisite questions to ensure only restaurants who form part of the SMME criteria and were affected by 'load-shedding' filled out the questionnaire. If restaurants failed to meet the mentioned criteria, they were instructed to not continue with the rest of the questionnaire. The rest of the questionnaire included close-ended, open-ended, multiple choice, matrix and linear numeric scale questions. The aim of these questions was to gain a better understanding on what and how restaurants productivity has been impacted as well as the techniques restaurants have implemented to mitigate these impacts. Two open-ended (qualitative) questions were included to provide insight into additional impacts or techniques that the researcher did not include or was unable to foresee (Du Plooy-Cilliers et al, 2016: 152-160).

The procedure employed during data collection involved the researcher driving to each conveniently selected restaurant in Marine drive, Summerstrand and Humewood, NMB. Where owners or managers were requested to complete the structured questionnaire anonymously. This questionnaire was constructed through the use of Google Forms.

3.7 DATA ANALYSIS METHODS

The analysis of data method exercised is identified as descriptive statistics. This method was used to ensure a truthful and objective explanation on how the productivity of

restaurants, in NMB, were affected by 'load-shedding' and the techniques implemented for mitigation (Du Plooy-Cilliers et al, 2016: 152).

The first step taken to analyse the data was to acquire all the completed questionnaires to form a data set. The data set was then inspected for any incomplete or un-useable questionnaires, once identified they were disregarded from the study. Each questionnaire was labelled 1-15 and the relevant respondents answers were recorded onto an excel spreadsheet. Once the data had been captured, tables were formed to calculate the frequency and percentages of each question. In some cases, the central point of the data was determined through the mean, median and mode. Graphical representation was then designed accordingly to present findings in the forms of pie graphs, bar graphs and tables. The data attained was then interpreted to formulate patterns, relationships and comparisons against previous studies (Du Plooy-Cilliers et al, 2016: 160).

The two-open ended questions from the questionnaires were captured in Microsoft word and analysed for common patterns and outliers. Reason being to analyse the most frequent answer and uncover possible missed additional impacts and techniques of mitigation (Du Plooy-Cilliers et al, 2016: 153).

The following section embraces the findings associated with the main objective of the study.

4. FINDINGS

The findings of this empirical research have been presented in the form of bar graphs, pie charts and tables combined with the interpretation, discussion and insight of the relevant findings and prior literature/theory as well as the reliability and validity of this study.

4.1 PRESENTATION AND INTERPRETATION OF FINDINGS

The presentation and interpretation of findings has evaluated the findings in the broader context of the research problem.

4.1.1 SMALL, MEDIUM AND MICRO ENTERPRISES

As larger enterprises downsize and subcontract ever increasing functions, the pressure of SMME's in the economy is increasing. According to Nyanzu & Adarkwah (2016: 2), SMME's operations have been overwhelmed by 'load-shedding', leading many SMME's to become unproductive and inefficient. The National Development Plan forecasts that 90% of all new jobs in SA will be from SMME's, by the year 2030. For SMME's like restaurants to augment their contribution to the economy and produce more jobs, a supporting environment is required. However, 'load-shedding' is threatening the productivity of SMME's as a sector, resulting in harmful implications on SA's economic growth and development (Schoeman & Saunders, 2018: 333).

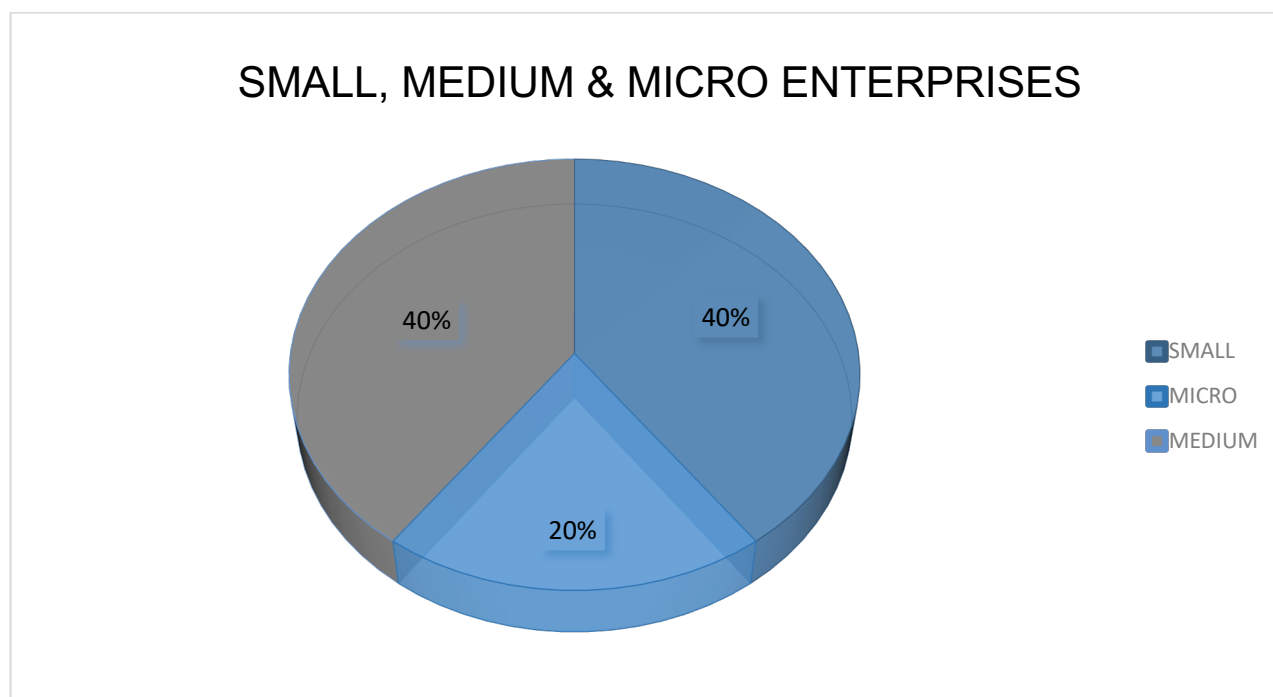


Figure 3: Percentage of Small, Medium & Micro Enterprises in this study.

Emphasising the vital role restaurants productivity plays in the growth and development of SA, the demonstrated figure acknowledges the percentage of sampled restaurants that formed part of the SMME's criteria. 40% of restaurants were small enterprises, 40% were medium enterprises and 20% were micro enterprises.

4.1.2 AVERAGE HOURS RESTAURANTS EXPERIENCE 'LOAD-SHEDDING'

On the 18th of March 2019, Eskom announced the implementation of stage 4, meaning restaurants would experience 'load-shedding' 12 times over a four-day period for two hours at a time, or 12 times over an eight-day period for four hours at a time (Eyewitness News, 2019). Restaurants are equally financially impacted as abrupt and extended 'load-shedding' hours increase additional costs due to more frequent repairs and replacement (Cissokho, 2015: 2). Table 4 illustrates the average hours restaurants in NMB experienced power cuts during a time of frequent 'load-shedding'.

AVERAGE HOURS OF EXPERIENCING 'LOAD-SHEDDING':	AVERAGE RESPONSE OF RESTAURANTS:
BELOW 2 HOURS	7%
2-4 HOURS	60%
5-8 HOURS	26%
ABOVE 8 HOURS	7%

Table 4: The average hours restaurants experienced 'load-shedding'

As demonstrated, 60% of restaurants affirmed they experienced an average of 2-4 hours of 'load-shedding' and 26% stated 5-8 hours of 'load-shedding' was experienced. Only 7% experienced below 2 hours and above 8 hours of 'load-shedding'. Considering, the highest averages of 2-4 hours and 5-8 hours falls within stages 3 and 4, the costs incurred by the economy may be of a substantial amount (Du Toit, 2019). Not only is 'load-shedding' a major concern for the economy (Cissokho, 2015: 2), but also to restaurants. Thus, the next figure looks at 'load-shedding' as a major concern.

4.1.2 'LOAD-SHEDDING' AS A MAJOR CONCERN

According to Oseni's (2012: 21), over and above 50% of African firms recognized reliable electricity as a major concern. Another study commenced in Senegal analysed the electricity concern amongst growth supporting sectors such as, services delivery and 57% reported electricity as a major concern (Cissokho, 2015: 2). Figure 4 illustrates restaurants response to whether 'load-shedding' is a major concern within their business operations.

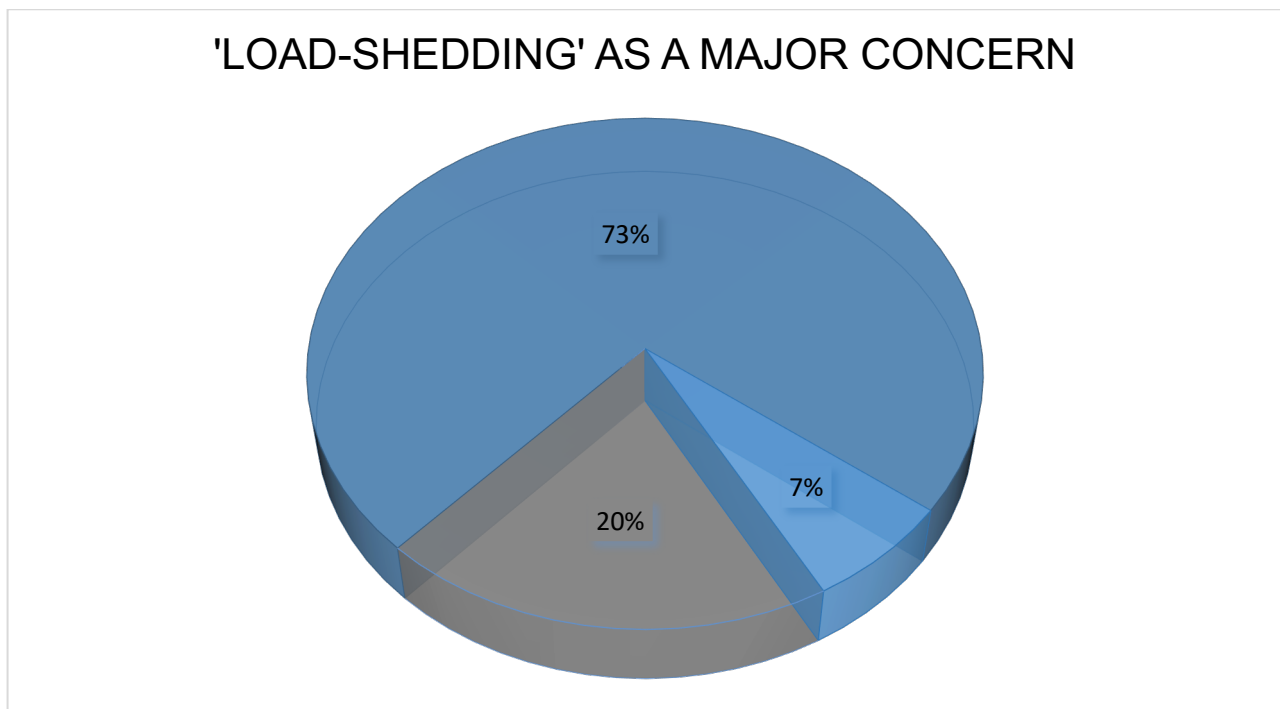


Figure 4: The percentage of restaurants considering 'load-shedding' a major concern.

The demonstrated figure corresponds higher than the level of concern found in Oseni's (2012: 21), study by means of 73% of respondents agreeing that 'load-shedding' is a major concern within their business operations and only 7% responding no. Another option was offered to respondents to allow for restaurants to partially consider 'load-shedding' as a major concern. Thus, 20% of respondents were partially concerned with the impact of 'load-shedding'. To analyse the depth of this concern, respondents were asked to declare the level at which they were impacted. Resulting in 37% feeling 'load-shedding' had a high negative impact and 42% felt a moderate negative impact. Representing a 79% of restaurants being negatively affected, hence the reasoning why 73% of restaurants expressed 'load-shedding' as a concern.

It is prevalent that 'load-shedding' hinders the activities of restaurants within the NMB area. To address the impact on the productivity of restaurants, the impacts on inputs such as: staff; operations; costs; security; and equipment were identified to recognise the impact they had on the outputs namely: revenue; customer traffic and service delivery.

4.1.3 THE IMPACTS ON RESTAURANT INPUTS

Figure 5 represents the level at which each input factor was impacted by 'load-shedding'.

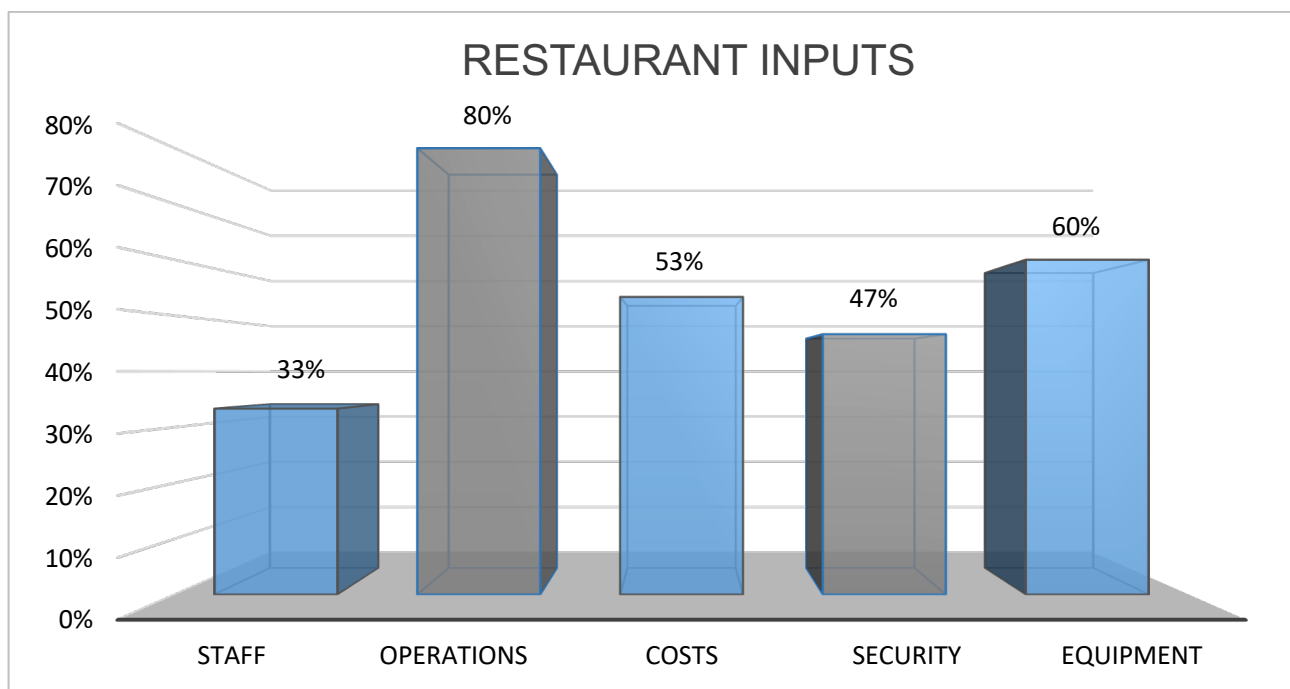


Figure 5: The level of impact on restaurants inputs.

33% of respondents illustrated 'load-shedding' had affected their human capital, in terms of staff (e.g. waitrons). These effects included waitrons working harder during 'load-shedding' yet earning less and staff being sent home during 'load-shedding' hours as they were unable to accomplish their duties (Botha, 2019 and Steenkamp et al, 2016: 74).

Figure 5 states 80% of restaurants felt the ultimate impact was on their firms' operations. It was pointed out that this may be a result of generators not being able to power the whole restaurant, leading to many procedures being changed (NMPP Energy, 2017). These procedures often slowing down or hampering staffs (waitron's, kitchen, barmaids) ability to effectively carry out their operations (Steenkamp et al, 2016: 74).

53% of restaurants identified additional costs as an impact. Rendering to Cissokho (2015: 2), stating frequent repairs and replacement of machinery and equipment as well as Jacobs (2015), identifying the accrued costs through spoiled food and inventory.

47% of restaurants described security as an impact, substantiating Villiers (2019) on the intensified risk of crime.

Lastly, the impact of 'load-shedding' on machines and equipment was felt by 60% of restaurants as agreeing with Cissokho (2015: 2), the fluctuations in voltage cause severe damage to machinery and equipment, creating additional costs.

4.1.4 RESTAURANTS MOST CHALLENGING IMPACTS

The following table assisted the researcher in discovering impacts that may have been unforeseen.

GREATEST IMPACT OF 'LOAD-SHEDDING'
Unable to make items on the menu
Food Takes longer
Generator capacity
Loss of customers
Security Increase in fuel costs
Send staff home
Turnover and sales decreased
Added stress
Closing doors

Table 5: Restaurants most challenging impact of 'load-shedding'

However, the displayed table correlates with previous literature and results on the impacts of 'load-shedding' on restaurants inputs (Steenkamp et al, 2016: 74).

4.1.5 CUSTOMER TRAFFIC AS AN OUTPUT

In relation to a study commenced by Schoeman & Saunders (2018: 328), on the impact of power outages on small businesses in the city of Johannesburg. It was discovered that 16.7% of businesses that experienced an increase in customers during 'load-shedding' hours were restaurants and three of the restaurants identified a considerable 30% increase in customer traffic.

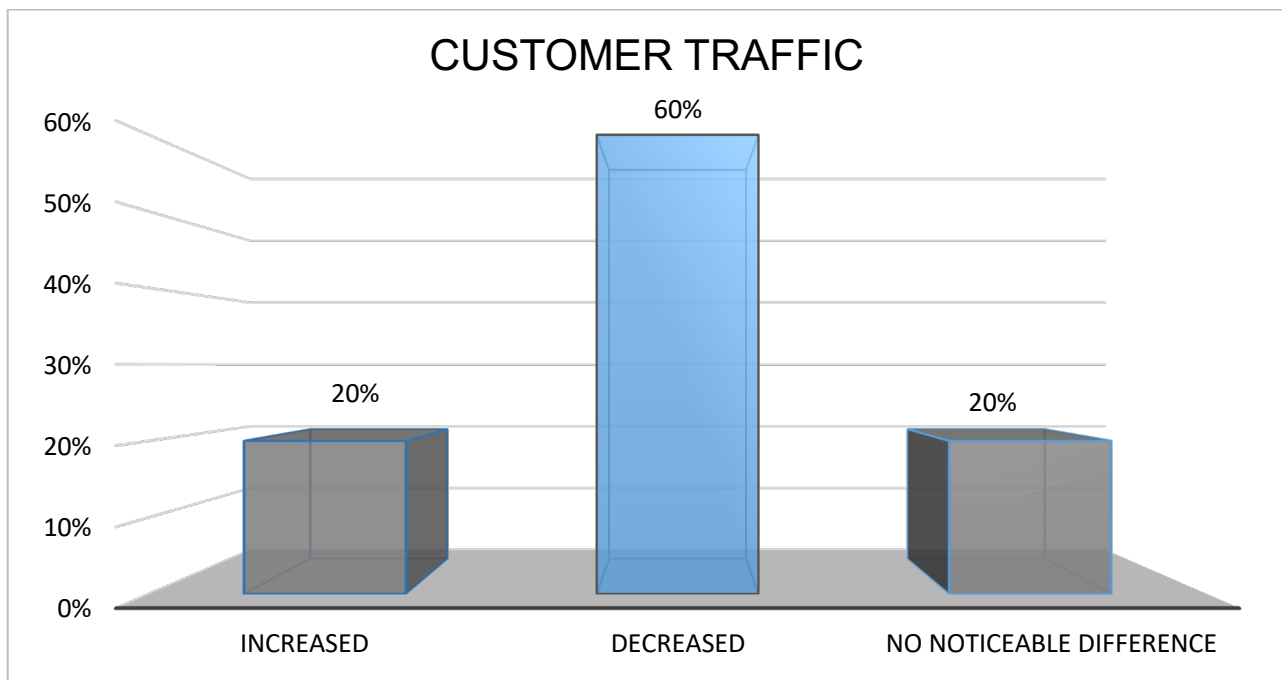


Figure 6: The effect of 'load-shedding' on number of customers.

With regards to Schoeman & Saunders (2018: 328), study compared to NMB restaurants, there was a 20% increase in customer traffic and 20% that felt no noticeable difference, which may be deemed as a positive effect. Thus, indicating a positive effect of 'load-shedding'. This result may be owned to customers being aware of restaurants ability to still operate through the use of a generator, effective 'load-shedding' procedures implemented and customers in the same 'load-shedding' area not able to cook at home. Therefore, a 20% increase in customer traffic may increase the output of revenue, resulting in a favourable productivity outcome.

However, a substantial 60% of restaurants experienced a decrease in customers during 'load-shedding', contradicting Schoeman & Saunders, (2018: 328) findings. This may be due to the high impact of restaurants operations; longer waiting periods and customers not aware of restaurants being open for business. The decrease in customers contributes to a decrease in the sales, production and revenue of the restaurant. The negative impact on

customer traffic may also be a result of the restaurants ability to offer effective service delivery as an output.

4.1.6 SERVICE DELIVERY AS AN OUTPUT

A study conducted in 2016, on the current factors effecting consumer selection in NMB, stated variables that have an impact on customers satisfaction when choosing a restaurant. The most influential variable towards customers patronisation to a restaurant was, good service. Consequently, if other dining attributes (e.g. food quality) do not meet the expectations of the customer, good service delivery may compensate for the lack thereof (Mhlanga & Tichaawa, 2016: 2). Figure 7 demonstrates the comparison between the restaurants ability to offer a high or low level of service during 'load-shedding' and without 'load-shedding'.

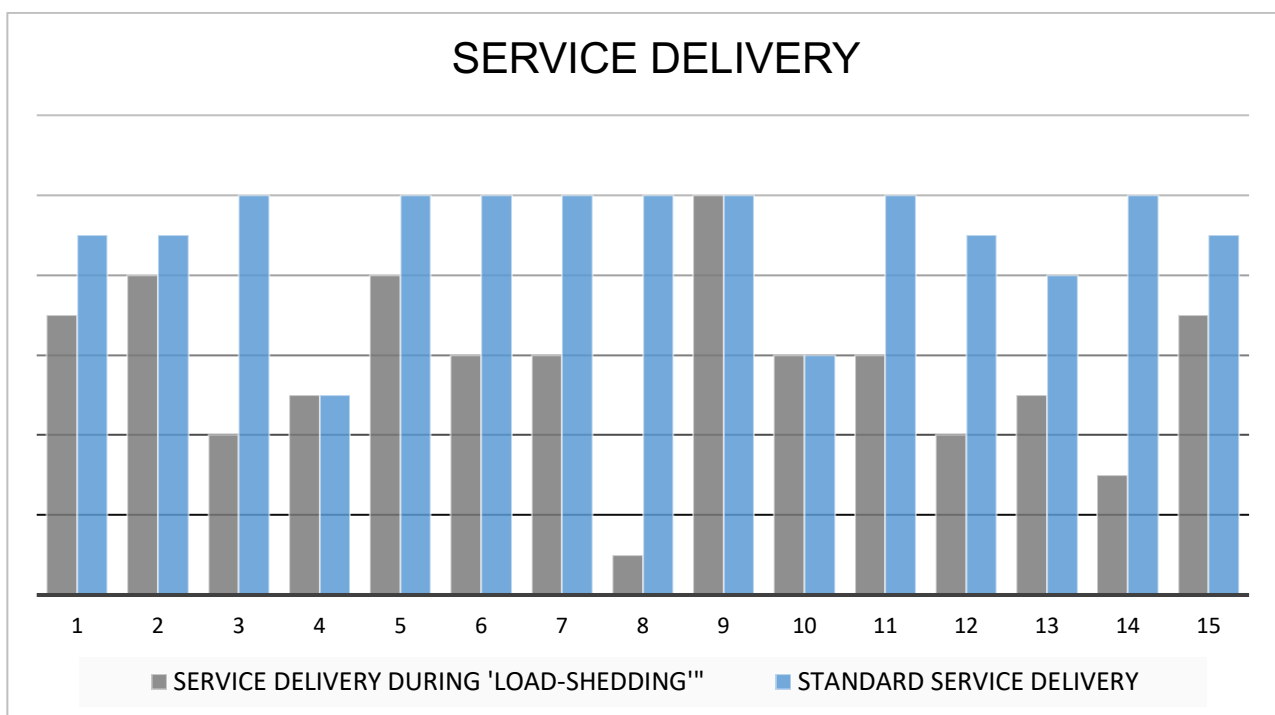


Figure 7 :Comparison of restaurants ability to offer a service during 'load-shedding' and in the absence of 'load-shedding'

This graph assists in determining the relationship between 'load-shedding' and the productivity of restaurants. Respondents were asked to answer two linear-numeric scale type questions consisting of a multi-point rating option, on were their service delivery stands. Ten being high service delivery and one being low service delivery. The numerical average (i.e. Mean) of respondents concluded that majority rated their service delivery at 9 in the

absence of 'load-shedding' and rated their service delivery at a level of 5.73 when affected by 'load-shedding'. Thus, identifying a definite decrease in restaurants ability to efficiently offering their service during 'load-shedding'. When analysing the most frequently selected answer, known as the Mode, the standard service delivery goes from a level 10 to a 6 when 'load-shedding' occurs. Thus, demonstrating a negative impact of 'load-shedding' on restaurants service delivery (Du Plooy-Cilliers et al, 2014: 210-211).

The distinguished impacts on inputs in this study may be the result of restaurants experiencing a 32.7% decline when offering a service during 'load-shedding' compared to their standard service delivery. A decrease in restaurants service delivery reiterates Mhlanga & Tichaawas (2016: 2), study that the most influence variable is delivering a quality service. Thus, restaurants hinderance to offer a high level of customer service is closely related to 'load-shedding'.

Figure 7 displays three of the respondents stating their service delivery was at the same level during 'load-shedding' and in the absence of 'load-shedding'. This may be a result of restaurants using a generator and two of the three using gas as well. Another depiction in Figure 7, is the considerable difference in respondent 8's comparison of service delivery during 'load-shedding'. This response is appropriate as respondent 8 has not invested in an alternative power energy source. Resulting in a greater negative impact of 'load-shedding' (Thelwell, 2014).

4.1.6 REVENUE AS AN OUTPUT

Arlet (2017: 3), reveals the revenue of small enterprises suffer the most as they are unable to measure their production. Prof Assan & Masibi (2015: 57), expresses that 'load-shedding' alters the manner in which business decisions are carried out. For the reason that they have to deposit more revenue back into the business as they have to take care of machinery and equipment, preparing for 'load-shedding' occurrences and additional input costs such as: buying a generator and diesel. The loss of revenue may be endorsed by firms who lack the financial resources to invest in alternative energy sources and who are electricity intensive (Nyanzu & Adarkwah, 2016: 14). Figure 8 demonstrates the percentage of restaurants whose revenue was subjected by 'load-shedding'.

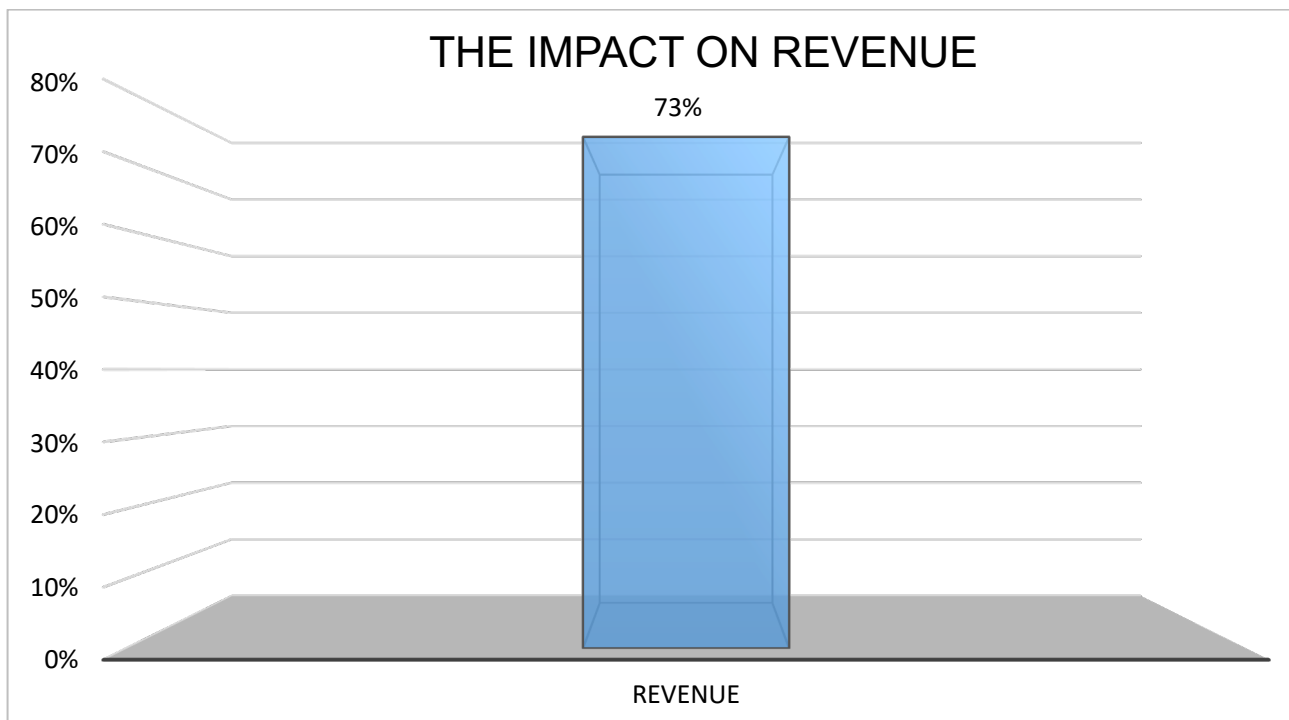


Figure 8: Revenue as an output

73% of restaurants felt that their revenue was negatively impacted by 'load-shedding'. This may be a result of an increase in additional costs of damaged machines and equipment; an increase in wastage; theft; decrease in customers; decreasing customer spending through a shortened menu and closing during 'load-shedding' due to not having an alternative power source. Only 7% were subjected to a decrease in energy consumption costs. Nyanzu & Adarkwah (2016: 14), findings agree with Cissokho & Secks (2013), research that most firms who rely on electricity for production and do not have the capital to spend on alternative power source, will be subjected to their revenue being negatively impacted.

4.1.7 SECONDARY ENERGY SOURCE

According to Scott et al, (2014: 18), 40% of electricity generated in Nigeria is produced by means of own-generation. Furthermore, 20-30% of firm's initial investment is to enhance the reliability of the electricity supply. Consequently, resulting in higher capital and operating costs and affecting a range of investment opportunities. Figure 9 below illustrates the percentage of restaurants who have invested in a secondary energy source.

INVESTMENT INTO A SECONDARY SOURCE OF ENERGY

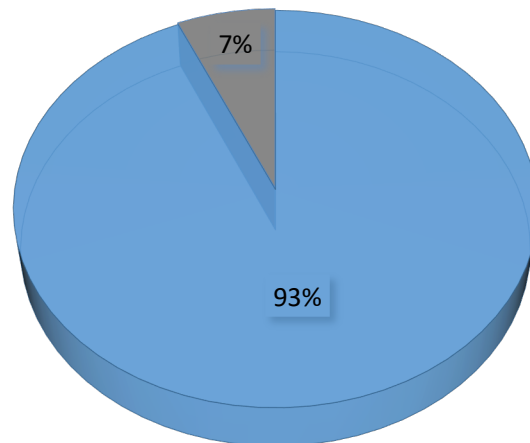


Figure 9: Percentage of restaurants invested in a secondary energy source.

The figure above, points out that a considerable 93% of restaurants in NMB have invested in secondary sources of energy in attempt to mitigate the effects of 'load-shedding' and only 7% have not. Illustrating, NMB restaurants investing into a secondary source to create reliable income, even if it affects their investment opportunities (Scott et al, 2014: 18).

4.1.8 DIFFERENT TYPES OF SECONDARY ENERGY SOURCES

SECONDARY ENERGY SOURCES

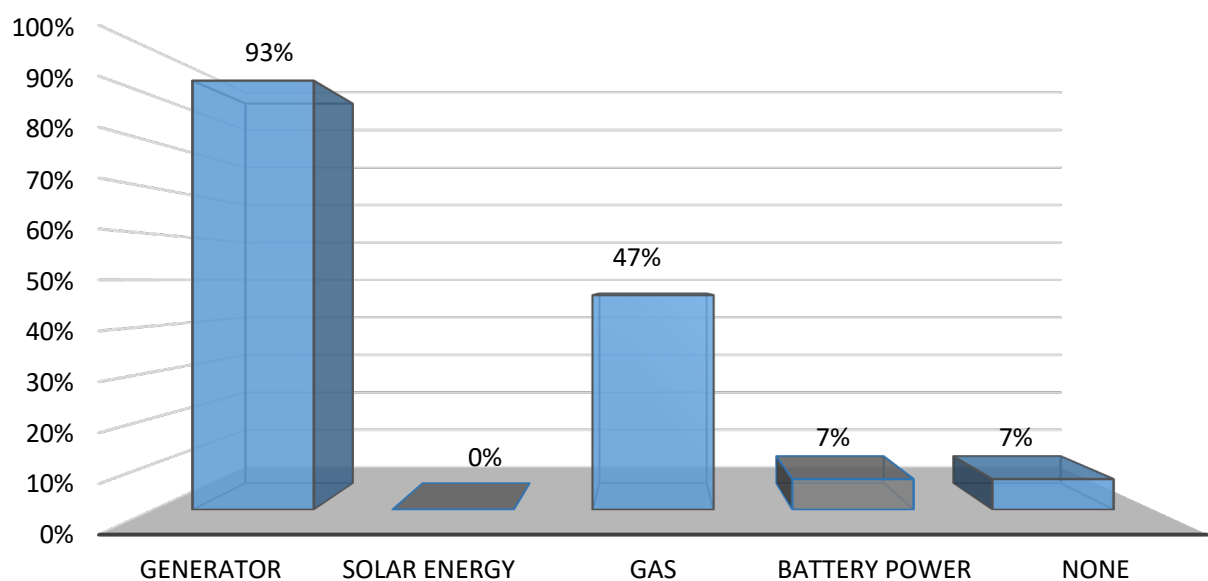


Figure 10: Percentage of alternative energy sources used by restaurants.

The illustrated figure indicates 93% of restaurants own generators as a secondary energy source. This result supports Schoeman & Saunders (2018: 332), study that the implementation of generators was owed to the evident history of 'load-shedding' between 2008 - 2015. Second to generators is the use of gas at 47% and thirdly battery power at 5%. Even though generators are restaurants first choice of alternative energy source, the most environmentally friendly and sustainable option of solar energy have not been implemented or considered. Lastly, 5% of the restaurant industry has implemented no means of energy generation when 'load-shedding' occurs (NERSA, 2018). This reinforces Schoeman & Saunders (2018: 332), study that unconverted 87% of business made use of back-up power owing to the domination of 'load-shedding' between the years of 2008 - 2015. The left over 13% felt that they were too small in size to justify the cost of back-up power.

THE COST OF INVESTING COMPARED TO A RELIABLE ENERGY SOURCE	
YES	80%
NO	20%

Figure 11: The cost of investing in a secondary energy source compared to reliable an energy source

Agreeing with Nurudeen et al, (2018: 4) as 80% of restaurants describing their secondary energy source investment being more costly compared to having reliable power supply, resulting in less capital to invest in other projects for a higher return. With only 20% stating no.

4.1.9 STRATEGIES TAKEN TO MITIGATE THE EFFECTS OF 'LOAD-SHEDDING'

Although 93% of restaurants in NMB own a generator, many generators do not operate at their full capacity all the time. The output of a generator fluctuates depending on maintenance issues, weather conditions and the capacity of the generator to meet the demand of the restaurant's capacity (NMPP Energy, 2017). If a restaurants generator can only power the lights and the fridges, other actions have to take place to cope with the effects of 'load-shedding'.

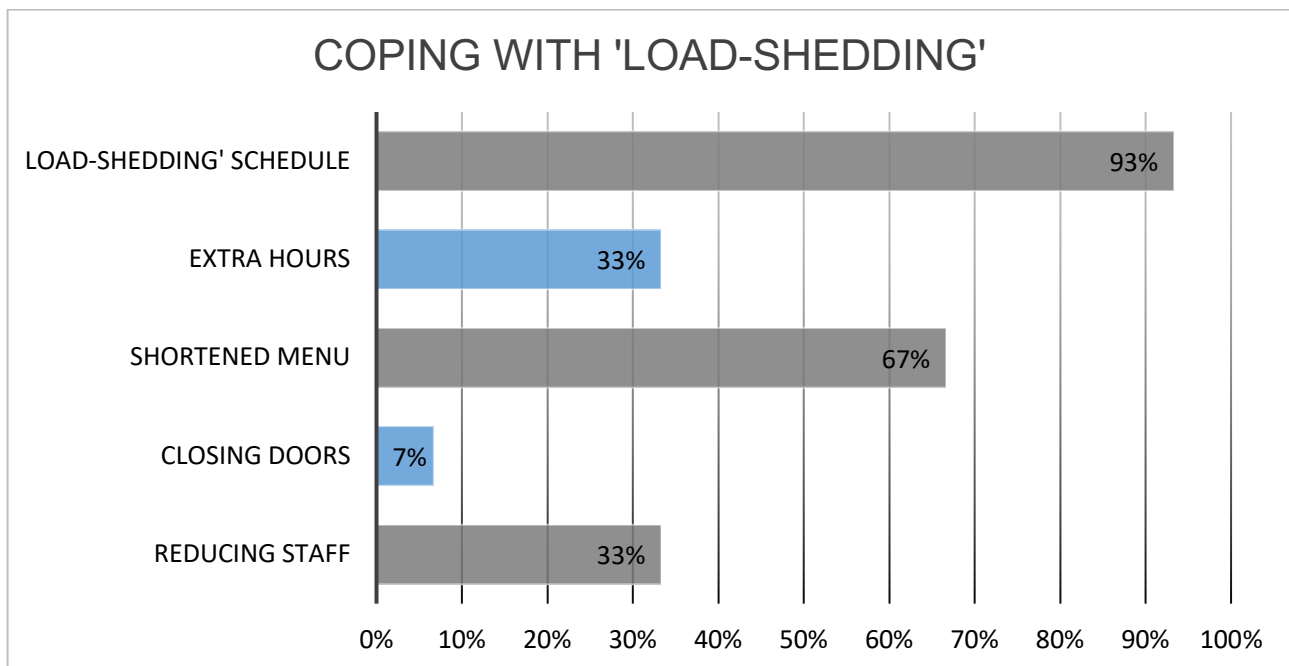


Figure 12: Actions taken by restaurants to cope with the effects of 'load-shedding'

The above figure reflects that the main action taken to minimise the impact of 'load-shedding' is restaurant managers/owners keeping up with the 'load-shedding' schedule as 93% express the same technique. In spite of this, the schedule is not always accurate and unplanned 'load-shedding' occur regularly (Schoeman & Saunders, 2018: 328). This result may also be owed to 93% of restaurants owning a generator. Followed by 67% stating they had to shorten their menu during 'load-shedding' as not all machines are powered by the generator (NMPP Energy, 2017). 33% of restaurants have been forced to reduce staff and work extra hours to prepare before the power cuts out during vital procedures. Lastly, 7% admitted to closing their doors to cope with 'load-shedding'.

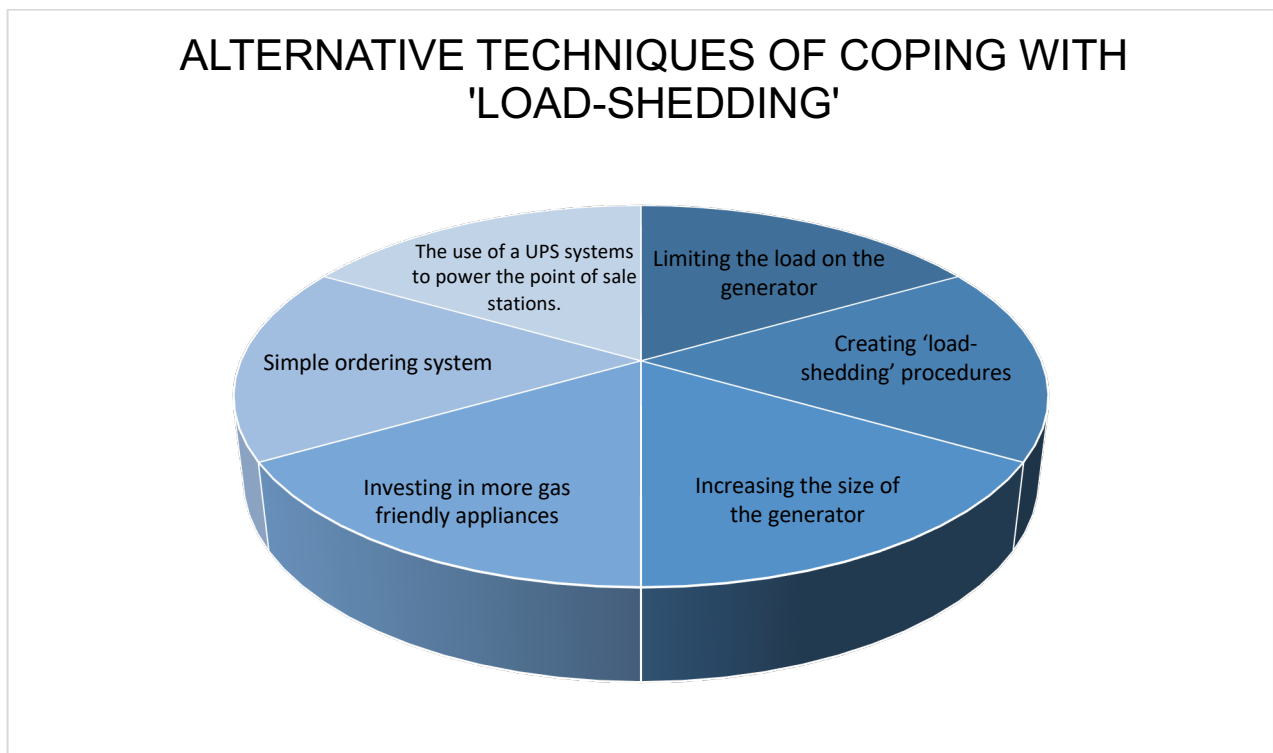


Figure 13: Alternative techniques of coping with 'load-shedding'

The primary data gathered required respondents to offer other forms of coping with 'load-shedding'. Figure 13 identifies other solutions restaurants implemented such as: limiting the load on the generator, creating 'load-shedding' procedures, increasing the size of the generator, investing in more gas friendly appliances, the implementation of a simple ordering system making use of a UPS (Uninterruptable Power Supply) system to power the point of sale stations.

4.1.10 POSITIVE OUTCOMES OF 'LOAD-SHEDDING'

Nyanzu & Adarkwah (2016: 15), found results that coincided with Cissokho & Seck (2013), when firms are faced with additional power cuts, they are able to increase revenue by 3.19%. This is obtained through developing coping techniques and strategies to mitigate the negative effects into revenue. The study asserted that power cuts turned into more of a motivation than an interference. As a result, the respondents were asked if they were subjected to any of the given positive outcomes of 'load-shedding'.

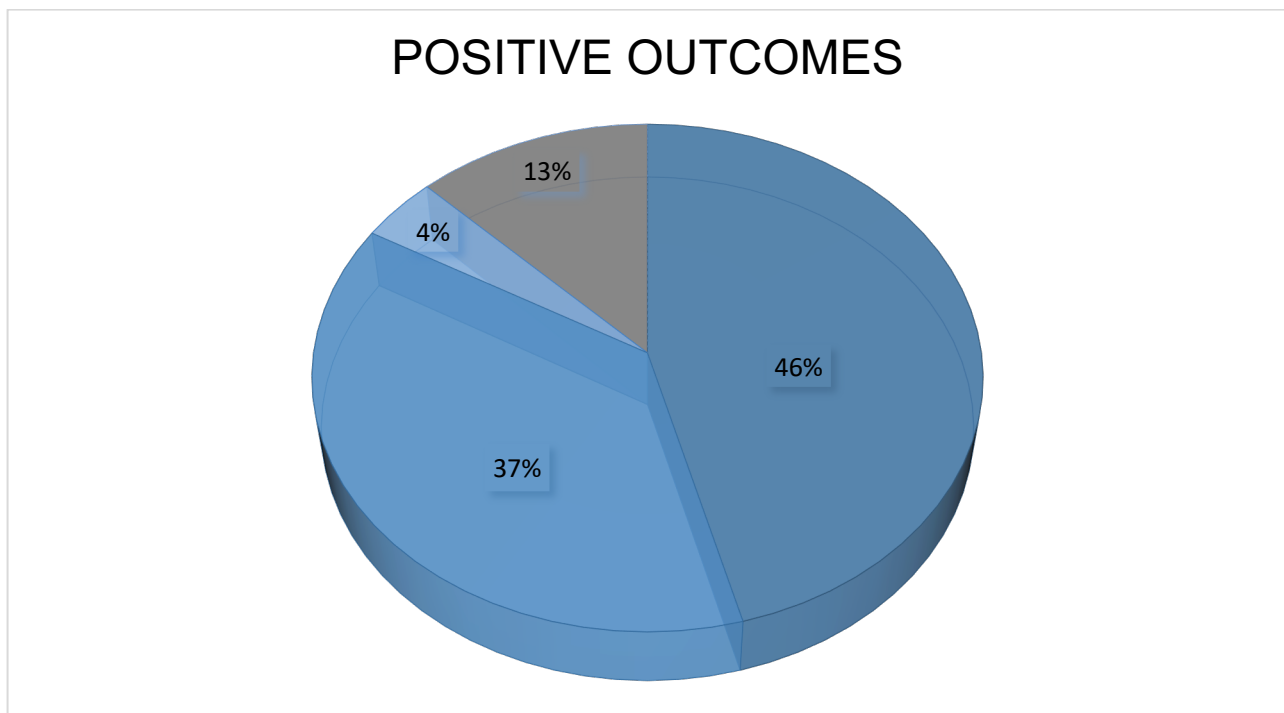


Figure 14: The percentage of positive outcomes from 'load-shedding'.

Taking the lead on positive outcomes at 73% is the awareness of sustainability. Indicating restaurants have become more aware of the sustainability of their restaurant, in terms of implementing more power saving equipment (Scott et al, 2014: 52). 60% of restaurants felt that they have a competitive advantage over restaurants who do not have a backup energy source as a positive outcome. On the contrary, as this study found 95% of restaurants make use of a secondary energy source. The positive outcome of a competitive advantage may be argued (Scott et al, 2014: 14). A low 20% of restaurants stated they had not experienced any positive outcomes and only 7% affirmed to having a decrease in energy consumption costs.

4.2 RELIABILITY AND VALIDITY OF THIS STUDY

An inter-rater or inter-coder type of reliability was implemented in this study as a measurement of agreement. This was established through the same questionnaire being administrated to different respondents. Two pre-requisite questions at the beginning of the questionnaire also ensured reliability, considering respondents would not have been able to continue with the rest of the questionnaire if they did not form part of the target population. Lastly, the execution of a Pilot study was commenced to secure the reliability of this study. The pilot study was administrated through four restaurants prior to the data collection phase, to confirm the essential components of the main study will be feasible through the administrated questionnaire as well as to identify any possible errors that may have

potentially emerged. The commenced pilot study highlighted that some questions were unclear and confusing. These changes were made before the data collection was initiated. This measurement of pre-testing assisted in enhancing the validity and reliability of the study (Du Plooy-Cilliers et al, 2016: 255-257).

Face validity, a type of validity determined whether the research measured what it was supposed to measure, meaning the magnitude in which the questionnaire reflected the main question being investigated. The validity was secured through a cross-sectional survey design by means of a questionnaire that satisfied the research objectives, which were answered by the study's sub-questions and main question. This was confirmed through previous secondary research and literature consisting of: academic journals and reports, electronic databases, and news articles (Du Plooy-Cilliers et al, 2016: 256).

5. CONCLUSION

In conclusion, the following will discuss how the research questions and objectives of this study were met, followed by the implications of findings for future practices and the heuristic value of the study. Lastly, the ethical considerations taken into account and the limitations that this study presented.

5.1 DISCUSSION OF RESEARCH QUESTIONS AND OBJECTIVES

5.1.1 DOES 'LOAD-SHEDDING' HAVE AN IMPACT ON RESTAURANTS WITHIN NMB?

The main objective of this research sub-question was acquired through the observation of how owners and managers view the impact of 'load-shedding' within their restaurants. This was acquired through questioning respondents on whether 'load-shedding' was a major concern amongst their operations, whether they were positively or negatively impacted, and the relative impact on the restaurant's inputs and outputs (Oseni, 2012: 2). 73% of respondents agreed to 'load-shedding' being a major concern, with only 7% stating 'load-shedding' as no concern to their operations, and 20% illustrating 'load-shedding' as a partial concern. A total 79% respondents affirmed that this major concern was owed to their restaurant being highly or moderately negatively impacted. With only 7% of respondents stating they were not impacted negatively or positively; in terms of this study it is clear that 'load-shedding' has had a negative impact on the restaurants in NMB (Scott et al, 2014: 8; Cissokho, 2015: 3; Nyanzu & Adarkwah, 2016: 1; and Arlet, 2017: 2).

5.1.2 WHAT INPUTS HAVE BEEN AFFECTED BY 'LOAD-SHEDDING'

To determine the impact of productivity as a whole, the total outputs needed to be analysed against the individual inputs (House of Commons, 2018: 7). Respondents were therefore required to choose all inputs that affected their restaurant by means of 'load-shedding'. As a result, operations were identified as the most negatively impacted input as 80% respondents indicated this as the most popular choice (Ado & Josiah, 2015: 244). Followed by 60% of respondent's alluding to damaged machines and equipment as the second most impacted, 53% stating additional costs were impacted, 47% affirmed security as an effected area and lastly, 33% confirmed an impact on staff occurred. Consequently, corresponding

with Cissokho (2015: 2) and Nyanzu & Adarkwah (2016: 6), in terms of 'load-shedding' effecting restaurants productivities through numerous networks, causing inputs to idle which leads to a lower output level. Hence, the next research question addresses the outputs that were affected as a result of the impact of 'load-shedding' had on the relevant inputs.

5.1.3 WHAT OUTPUTS HAVE BEEN AFFECTED BY 'LOAD-SHEDDING'?

The objective of this sub-question was to establish restaurants outputs that have been affected by 'Load-shedding' in terms of customer traffic, service delivery, and revenue. Contradictory to Schoeman & Saunders (2018: 328), study stating restaurants who experienced 'load-shedding' in Johannesburg, increased their customer traffic by 30%. This study illustrated 60% of respondents experienced a decrease in customer traffic, 20% stated there was no noticeable difference and 20% identified an increase in customer traffic. While a 20% increase in customer and 20% no noticeable difference is a positive outcome for restaurants, the large amount of 60% showing a decrease may be owed to the negative impact on the restaurant's inputs (Arlet, 2017: 17).

To determine the output of restaurants ability to offer an efficient service, during 'load-shedding' compared to their standard service without the effects of 'load-shedding'. Respondents were asked to rate their service delivery level with and without the impact of 'load-shedding' on a linear-numeric scale. It was found that the ability of restaurants in NMB service delivery level decreased by 32.7%, as the average respondent rated their service at a 9/10 compared to a 5.73/10 during 'load-shedding' (Du Plooy-Cilliers et al, 2014: 160 and Durdyev et al, 2014: 496).

Lastly, 73% of respondents confirmed their revenue was negatively impacted by 'load-shedding' (Nyanzu & Adarkwah, 2016: 14). Owing to the impacts incurred through inputs, such as: additional costs of damaged machines and equipment; an increase in wastage, theft and a paying staff for unproductive hours. The negative outputs of customer traffic and service delivery are also identified as impacts on the restaurant's revenue. As a decrease in customers, means a decrease in customer spending and service delivery may be the impact of a decrease in customer traffic (Johnston & Jones, 2003: 207).

5.1.4 WHAT TECHNIQUES COULD RESTAURANTS IMPLEMENT TO MANAGE THE IMPACTS OF 'LOAD-SHEDDING'?

Research confirms that those firms that rely on electricity for production and do not possess the capital to invest in an alternative power source, are in danger of suffering from a negative impact on revenue (Nyanzu & Adarkwah, 2016:14). Therefore, respondents stated whether they had invested in a secondary energy source, whether it was more costly to do so, what secondary energy source was chosen as well as alternative techniques implemented to mitigate 'load-shedding'. 93% of respondents indicated to have invested in a secondary energy source, while 7% did not. It was also found that 80% of restaurants established it to be more costly to invest, compared to having a reliable power supplier (Scott et al, 2014: 18). The most suitable mitigation technique used by respondents was a generator as 93% revealed their use, followed by 47% using gas and 5% implementing battery power. Interestingly the most environmentally friendly option of solar energy has not been considered by respondents. Leaving 5% signifying that they have not invested in any alternative energy source (NERSA, 2018).

As mentioned in Figure 11 page 31, many generators do not operate at their full capacity all the time. The output of a generator fluctuates depending on maintenance issues, weather conditions and the capacity of the generator to meet the demand of the restaurant's capacity (NMPP Energy, 2017). Thus, respondents were asked to state other techniques of mitigation that were implemented. 93% identified the action of keeping up with the 'load-shedding' schedule was the main choice, 67% expressed the technique of shortening the menu, 33% of respondents had to reduce staff as an action and 7% had to involuntarily close their doors as a mitigation technique (Jacobs, 2015 and Makgatho, 2019). Therefore, the above responded to the sub-question through determining the techniques utilised by respondents to mitigate the impact of 'load-shedding', by means of secondary energy sources and other course of actions.

5.1.5 WHAT IS THE IMPACT OF 'LOAD-SHEDDING' ON PRODUCTIVITY WITHIN THE RESTAURANT INDUSTRY, IN NMB?

Referring to Mhlenga (2018: 408), determining that 62% of restaurants fail within their first year of operation and 87% within their first five years, as a result of restaurants not able to reach their maximum productivity or effectively use their time and resources. Therefore, the

main objective of this study was to determine the impact 'load-shedding' had on the productivity of restaurants, in NMB.

It has been established that 73% of the restaurant industry affirmed 'load-shedding' a major concern within their business. Considering the vital input of electricity in the productivity of restaurants, the major concern of respondents is justified through the negative 'load-shedding' effects on restaurants inputs and outputs. As productivity is an index that measures the output relative to the input, this study's results are in agreement with Scott, et al., (2014: 8), Cissokho, (2015: 3), Nyanzu & Adarkwah, (2016: 1), and Arlet, (2017: 2), as the productivity within the restaurant industry is believed to be negatively impacted by 'load-shedding', regardless of the techniques implemented to mitigate the impacts. The consequence of a negative impact on productivity within the restaurant may poorly effect SA's economic growth and development (Mhlanga, 2018: 408). However, a positive outcome of this study was that 73% of respondents identified that 'load-shedding' had increased their awareness towards becoming more sustainable, in terms of power saving (Scott et al, 2014: 24).

5.2 IMPLICATIONS OF FUTURE FINDINGS

Depicting to the reviewed study, it is evident that 'load-shedding' has a negative impact on SMME's productivity, similarly correlating to the findings of Cissokho (2015:18), Nyanzu & Adarkwah (2016: 17), and Steenkamp et al, (2016: 75). These studies dealt with the qualitative approach towards 'load-shedding's' impacts amongst industries such as: The Information and Communications Technology industry and the hospitality industry (Prof Assan & Masibi, 2015 and Steenkamp et al, 2016). However, this study has offered a better understanding into the impacts of 'load-shedding' on the productivity of the restaurant industry, in NMB and the techniques restaurants have utilised for mitigation of 'load-shedding, through a quantitative approach.

5.3 RECOMMENDATIONS FOR FUTURE FINDINGS

Representing Du Plooy-Cilliers et al, (2014: 46), the understanding of the heuristic value, the findings of the study aids other new ideas to be further researched. This study briefly acknowledged the cost of 'load-shedding' and the effect it had on the revenue of restaurants. Limited research has been commenced on the in-depth cost and mitigation of 'load-

shedding' has on the revenue of restaurants. Another area that may be of interest to research would be a qualitative study on the implementation of sustainability within the restaurant industry (Scott et al, 2014). To improve the future findings of this study, a larger sample size is recommended in order to generalise the findings to a larger population.

5.4 ETHICAL CONSIDERATIONS

Depicting to Prof Assan & Masibi (2015: 41) and Du Plooy-Cilliers et al, (2016: 291), the following ethical principles were implemented to ensure anonymity and confidentiality. Respondents participation was voluntary as no owner or manager was forced to participate. Consent was given upon respondents answering the questionnaire as they understood the purpose of the study and the role they would play. Respondents were informed that they could have withdrawn at any time. Respondents anonymity was ensured as they were not asked details pertaining to the name of the restaurant. Respondents were not subjected to any physiological or physical pain or discomfort as no deeply personal questions were required. The researcher did not intervene with restaurants business operations as questionnaires were only distributed at off-peak hours.

5.5 LIMITATIONS

Limitations have an impact on the researcher but are out of the researcher's control. In terms of this study limitations of time and a small sample size were evident (Du Plooy-Cilliers et al, 2014:275). A time constraint of six-month was encountered as the completion period given for this research was six months. Considering the constraint of a small sample size hinders the results of this study to be generalised to the larger population, as required from quantitative studies.

6. REFERENCE LIST

Ado, A. & Josiah, M. M., 2015. Impact of deficient electricity supply on the operations of small scale businesses in North East Nigeria. *The Business & Management Review*, March, 6(2), pp. 240-250.

Al-Tit, A., 2015. *The Effect of Service and Food Quality on Customer Satisfaction and Hence Customer Retention*, Kingdom of Saudi Arabia : Canadian Center of Science and Education.

Arlet, J., 2017. Electricity Tariffs, Power Outages and Firm Performance: A Comparative Analysis. March.pp. 1-41.

Blimpo, M. & Cosgrove-Davie, M., 2019. Electricity Access in Sub-Saharan Africa. *Africa Development Forum*, pp. 1-167.

Botha, M., 2019. Loadshedding hits Sea Point restaurant business hard. [Online] Available at: <http://www.sabcnews.com/sabcnews/loadshedding-hits-sea-point-restaurant-business-hard/>[Accessed April 2019].

Business Tech, 2019. What stage 4 load shedding means for you. [Online] Available at: <https://businesstech.co.za/news/energy/298672/what-stage-4-load-shedding-means-for-you/>[Accessed June 2019].

Chance, T., 2018. OPINION: SMEs' contribution to economy should improve. [Online] Available at: <https://www.iol.co.za/business-report/entrepreneurs/opinion-smes-contribution-to-economy-should-improve-16419052>[Accessed June 2019].

Cissokho, L. & Seck, A., 2013. Electric Power Outages and the Productivity of Small and Medium Enterprises in Senegal. *Investment Climate and Business Environment Research Fund*, November.pp. 1-28.

Cissokho, L., 2015. Productivity of Small and Medium Enterprises in Senegal: the Effects of Power Outages. April.pp. 1-30.

Coetzee, D. & Els, M.-M., 2016. The impact of load shedding on the construction industry in South Africa. Emerging trends in construction organisational practices and project management knowledge area, 2-4 February, Volume 9, pp. 268-276.

Dresch, A., C. Collatto, D. & P. L, D., 2018. Theoretical understanding between competitiveness and productivity: firm level. Industrial Engineering, 20(2), pp. 69-86.

Du Plooy-Ciliers, F., Davis, C. & Bezuidenhout, R.-M., 2014. Research Matters. Claremont(Cape Town): Juta & Company Ltd.

Du Toit, P., 2019. 1922 - 2019: The rise and fall of Eskom. [Online] Available at: <https://www.fin24.com/Economy/1922-2019-the-rise-and-fall-of-eskom-20190213>[Accessed June 2019].

Durdyev, S. et al., 2014. Productivity and Service Quality: Factors Affecting in Service Industry. Social and Behavioral Sciences, January.pp. 487-491.

Eskom, 2019. Company Information Overview. [Online]Available at: [http://www.eskom.co.za/OurCompany/CompanyInformation/Pages/Company Information.aspx](http://www.eskom.co.za/OurCompany/CompanyInformation/Pages/Company%20Information.aspx)[Accessed June 2019].

Eyewitness News, 2019. Brace yourself for stage 4 load-shedding on Tuesday. [Online] Available at: <https://ewn.co.za/2019/03/18/brace-yourself-for-stage-4-load-shedding-on-tuesday-eskom>[Accessed July 2019].

House of Commons , 2018. Small businesses and productivity, s.l.: s.n.

Jacobs, K., 2015. Industry Insider: How loadshedding is affecting restaurants – and how some are surviving against the odds. Eat Out, 7th May.

Johnston, R. & Jones, P., 2003. Service productivity Towards understanding the relationship between operational and customer productivity. International Journal of Productivity and Performance Management, December, 53(3), pp. 201-213.

Joubert, R., 2019. Cable theft during loadshedding prolongs power outages in Ermelo. [Online] Available at: <https://highvelder.co.za/77152/cable-theft-loadshedding-prolongs-power-outages-ermelo/>[Accessed May 2019].

Kohler, C., 2019. How South African Businesses Can Take Advantage of Load Shedding. [Online]Available at: <https://www.nichemarket.co.za/blog/nichemarket-advice/south-african-business-loadshedding>[Accessed 8 May 2019].

Krugman, P., 1997. The age of diminished expectations. s.l.:Cambridge.

Kumar, D. S., 2018. Understanding Different Issues of Unit of Analysis in a Business Research. Journal of General Management Research, July, 5(2), pp. 70-82.

Le Fleur, H. et al., 2014. Informal Smal, Medium and Micro Enterprises (SMME) Retailers in South Africa, s.l.: s.n.

Makgatho, L., 2019. Businesses hit by load shedding say it's 'not viable to render services'. [Online]Available at: <https://www.iol.co.za/news/south-africa/businesses-hit-by-load-shedding-say-its-not-viable-to-render-services-19348044>[Accessed June 2019].

Mashimbye, E., 2018. Business Report. [Online] Available at: <https://www.iol.co.za/business-report/economy/opinion-why-is-there-such-a-spectacular-failure-rate-in-the-smme-sector-14348870>[Accessed June 2019].

Mhlanga, O. & Tichaawa, T., 2016. What are the current factors affecting consumer selection criteria in formal full service restaurants in Port Elizabeth, South Africa ?. African Journal of Hospitality, Tourism and Leisure, 5(2), pp. 1-11.

Mhlanga, O., 2018. Drivers of restaurant efficiency in South Africa: a stochastic frontier approach. International Journal of Culture, Tourism and Hospitality Research, 25 June, 12(4), pp. 407-419.

Nachum, L., 1999. The Productivity of Intangible Factors of Production: Some Measurement Issues Applied to Swedish Management Consulting Firms. Journal of Service Research, November.pp. 124-137.

NERSA, 2018. Annual Report 2017/2018, Pretoria: s.n.

NMPP Energy, 2017. Understanding Energy Capacity Factor. [Online] Available at: http://www.nmppenergy.org/feature/capacity_factor [Accessed 5 June 2019].

Nurudeen, Y., Nafiu, A. & Jibo, A., 2018. An Investigation of Electricity Power Fluctuations and Performance of Small and Medium Enterprises in Dekina, Kogi State. Journal of Energy Research and Reviews, 17 August.pp. 1-11.

Nyanzu, F. & Adarkwah, J., 2016. Effect of Power Supply on the performance of Small and Medium Size Enterprises: A comparative analysis between SMEs in Tema and the Northern part of Ghana. Munich Personal RePEc Archive, 1 October.pp. 1-17.

Oehsen, S. V., 2019. 'It's a crisis,' says Helen Zille about SA's electricity situation. [Online] Available at: <https://www.timeslive.co.za/news/south-africa/2019-04-15-its-a-crisis-says-helen-zille-about-sas-electricity-situation/>[Accessed June 2019].

Oseni, M. O., 2012. Power Outages and the Costs of Unsupplied Electricity: Evidence from Backup Generation among Firms in Africa, s.l.: s.n.

Prof Assan, T. & Masibi, K., 2015. The impact of load shedding on ICT enterprises in Matlosana. Dissertation submitted in fulfilment for Master's in Business Administration at the Mafikeng Campus of the North West University, November .pp. 1-94.

Rouse, M., 2019. Tech Target. [Online] Available at: <https://searchdatacenter.techtarget.com/definition/load-shedding>[Accessed 10 June 2019].

Saunders, M. & Tosey, P., 2013. The Layers of Research Design. Research, pp. 58-59.

Scerri, M., 2015. Defining New Productivity Measures for Service and Network- Based Firms, Sydney, Australia: s.n.

Schoeman, T. & Saunders, M., 2018. The impact of power outages on small businesses in the City of Johannesburg. Conference on Education, Business, Humanities and Social Sciences Studies, 18 November, Volume 10, pp. 328-333.

Scott, A., Darko, E., Lemma, A. & Rud, J.-P., 2014. How does electricity insecurity affect businesses in low and middle income countries?, London: Creative Commons Attribution.

Steenkamp, H. et al., 2016. The Influence of Load Shedding on the Productivity of Hotel Staff in Cape Town, South Africa. *Expert Journal of Business and Management*, 6 July, pp. 69-77.

Tang, Y., 2014. The Analysis of Restaurant Industry in Kuopio Region, s.l.: s.n.

Thelwell, E., 2014. SA electricity compared to other countries. [Online] Available at: <https://www.fin24.com/Economy/SA-electricity-compared-to-other-countries-20141212>[Accessed May 2019].

Thomas, J. E., 2017. Scholarly Views on Theory: Its Nature, Practical Application, and Relation to World View in Business Research. *International Journal of Business and Management*, 20 August, 12(9), pp. 231-240.

Villiers, J. D., 2019. 11 ways to stay safe in your home during load shedding – including having frozen water and avoiding carbon monoxide. [Online] Available at: <https://www.businessinsider.co.za/ways-to-stay-safe-during-eskom-loadshedding-2019-2>[Accessed 6 May 2019].

Von Ketelhodt, A. & Wöcke, A., 2008. The impact of electricity crises on the consumption behaviour of small and medium enterprises. *Journal of Energy in Southern Africa*, February ,19(1), pp. 4-12.

Yadav, P. & Marwah, S., 2015. The Concept of Productivity. *International Journal of Engineering and Technical Research*, May, 3(5), pp. 192-196.

Zulu, L. D., 2019. Revised Shedule 1 of the National Definition of Small Enterprise in South Africa. *Government Gazette*, 15 March, Issue 42304, p. 110.

7. ANNEXURES

7.1 ANNEXTURE: QUESTIONNAIRE

THE IMPACTS OF 'LOAD-SHEDDING' ON NELSON MANDELA BAYS RESTURANT INDUSTRY.

My name is Tamsyn Botha and the current research forms part of my Honours thesis and will contribute to the body of knowledge.

This survey shouldn't take longer than 10 minutes to complete as well as it is confidential and anonymous. Your participation is voluntary, and you may withdraw at any time.

The following survey is aimed at identifying and collecting data with regards to the impacts 'load-shedding' has on the restaurant industry, within Nelson Mandela Bay.

Thank you in advance for your participation.

Required*

1. Please choose the enterprise category applicable to the restaurant. *

If none of the following are applicable, please do not continue with the rest of the questionnaire.

Mark only one oval.

- ☐ Micro Enterprise: Employing (0-10) full-time employees
- ☐ Small Enterprise: Employing (11-50) full-time employees
- ☐ Medium Enterprise: Employing (51-250) full-time employees

2. Is the restaurant affected by 'load-shedding'? *

If your answer is no, please do not continue with the rest of the questionnaire.

Mark only one oval.

- ☐ Yes
- ☐ No

3. Do you consider 'load-shedding' as a major concern in the restaurant's operations?

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ Partially

4. At what level has 'load shedding' impacted the productivity of the restaurant? *

Check all that apply.

- ☐ High Negative Impact
- ☐ Moderate Negative Impact
- ☐ No Impact at all
- ☐ Moderate Positive Impact
- ☐ High Positive impact

5. 'Load shedding' has had an impact on your restaurants service delivery. On a rating scale of 1 to 10, please rate the level at which 'load-shedding' has affected the standard service delivery?

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low Service Delivery	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	High Service Delivery

6. On a rating scale of 1 to 10, please rate the level in which the restaurants standard service delivery is when not affected by 'load-shedding'?

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low Service Delivery	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	High Service Delivery

7. Please select the options that have been affected by 'load-shedding'? *

Check all that apply.

- ☐ 1: Staff (e.g. minimizing the number of employees due to unproductive hours)
- ☐ 2: Operations (e.g. the challenge to place orders to the kitchen)
- ☐ 3: Additional Costs (e.g. Increase in wastage)
- ☐ 4: Security (e.g. alarm system not activated during 'load-shedding' hours)
- ☐ 5: Damaged machinery and equipment (e.g. problems occurring with the Point-Of-Sale terminals)
- ☐ 6: Revenue (e.g. decrease in income)

8. Please tick the applicable boxes of actions taken as a result of 'load-shedding'? *

Check all that apply.

- ☐ 1: Reducing the amount of staff
- ☐ 2: Closing doors for the duration of 'load-shedding'
- ☐ 3: Shortened menu during 'load-shedding' hours
- ☐ 4: Working extra hours to prepare for load-shedding
- ☐ 5: Keeping up with the 'load-shedding' schedule

9. Does the restaurant make use of a secondary energy source?

Mark only one oval.

- ☐ Yes
- ☐ No

10. What secondary energy sources have been implemented?

Mark only one oval.

- ☐ A generator
- ☐ Solar energy
- ☐ Gas
- ☐ Battery power
- ☐ None

11. Is it more costly to invest in a secondary energy source compared to having reliable power supply from Eskom?

Mark only one oval.

- ☐ Yes
☐ No

12. Thinking about the months were 'load shedding' was most frequent within the restaurant, how long did the average load shedding period last?

Mark only one oval.

- ☐ Below 2 hours
☐ 2-4 hours
☐ 5-8 hours
☐ Above 8 hours

13. Has the traffic of customers increased or decreased in the restaurant during 'load-shedding' hours?

Mark only one oval.

- ☐ Increased
☐ Decreased
☐ No Noticeable difference

14. What has been the biggest impact/s of 'load-shedding' on the restaurant?

15. What has the restaurant implemented to manage the impact/s of 'load-shedding'?

16. Have there been any positive outcomes of 'load-shedding'?

Check all that apply.

- ☐ 1. Awareness to become more sustainable (e.g. replacing equipment with power saving equipment)
 - ☐ 2. Having a competitive advantage over restaurants who do not have a backup plan during 'load- shedding
 - ☐ 3. Decrease in energy consumption costs
 - ☐ 4. None
-

Powered by



7.2 ANNEXTURE: ETHICS CLEARANCE LETTER

7.3 ANNEXTURE: ORIGINALITY REPORT



TAMSYN BOTHA

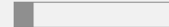
15 008 221

THE IMPACT OF 'LOAD-SHEDDING' WITHIN THE NELSON MANDELA BAY

RESM8419P_2019_HBC1P_VCPE1 - RESM8419P_VCPE1

Research Report 1

Tamsyn Botha on Thu, Aug 01 2019, 8:39 AM



12% highest match

Submission ID: d9a1f03b-40bf-44e0-9159-9f3a7039317a

7.5: ANNEXTURE: THE FINAL RESEARCH REPORT SUMMARY DOCUMENT

THE IMPACT OF 'LOAD-SHEDDING' WITHIN THE NELSON MANDELA BAY RESTAURANT INDUSTRY

Research Purpose/ Objective	Primary Research Question	Research Rationale	Seminal Authors/ Sources	Literature Review/ Conceptual Framework	Paradigm	Approach	Data Collection Method(s)	Ethical considerations	Anticipated Findings	References
To identify a relationship between 'load-shedding' and restaurants productivity as well as to distinguish the mitigation techniques that restaurants have implemented to alleviate these effects.	What is the impact of 'load-shedding' on productivity within the restaurant industry, in NMB?	This study is important as a number of studies have shown that the uncertainty of reliable electricity supply may cause businesses to hold back on investing in the growth of their firms and face potential liquidation. Which may result in a restriction of the economy's growth and development.	Kumar, D. S., 2018. Understanding Different Issues of Unit of Analysis in a Business Research. Journal of General Management Research, July 5(2). Du Plooy-Cilliers, F., Davis, C. & Bezuidenhout, R.-M., 2014. Research Matters. Claremont (Cape Town): Juta & Company Ltd.	Input-Process-Output Model Service Productivity The reason for 'Load-shedding' The importance of electricity The impact on restaurants inputs The impact on restaurants outputs The techniques implemented to mitigate the effects of 'load-shedding'	Positivism: A positivistic paradigm was conducted according to the study's empirical-analytical nature. In terms of a causal (cause and effect) relationships between variables concerning 'load-shedding' and the productivity of restaurants' through structured observation.	Quantitative Analysis Population All restaurants impacted by 'load-shedding' that are situated in Marine drive, Summerstrand and Humewood area, in NMB, SA.	Questionnaires were developed, administrated, collected and evaluated by the researcher, through a cross-sectional survey design. The survey included close-ended, multiple choice, matrix and linear numeric scale questions sign.	Participation was voluntary. Consent through survey Could have withdrawn at any time. Anonymity was ensured. Not subjected to any physiological or physical pain or discomfort.	The anticipated findings of this study were to discover a negative impact on restaurants productivity from the impact of 'load-shedding' and the popular use of generators to mitigate the impact.	Ado, A. & Josiah, M. M., 2017 Arlet, J., 2015 Cissokho, L., 2015 Coetzee, D. & Els, M.-M., 2016 Eskom, 2019. Mhlanga, O., 2018.
Research Problem	Secondary Questions	Secondary Objectives	Key Theories	Key Concepts		Sampling	Data Analysis Method(s)	Limitations	Anticipated Contribution	Nyanzu, F. & Adarkwah, J., 2016. Oseni, M. O., 2012.
'Load-shedding' contributes to the high failure rate of restaurants as they are not capable of reaching their maximum productivity as businesses activities rely on the continuous and efficient flow of electricity.	1. Is there an impact of 'load-shedding' restaurants in NMB? 2. What inputs have been affected by 'Load-shedding'? 3. What outputs have been affected by 'Load-shedding'? 4. What techniques could restaurants implement to manage the impacts of 'Load-shedding'?	1. To determine the impact of through observing managers/ owners' views. 2. To establish he impact on restaurants inputs. 3.To establish restaurants outputs affected. 4.To determine the implemented techniques of mitigation.	Input-Process-Output Model Service Productivity	'Load-shedding' Unplanned/Planned 'Load-shedding' Mitigation Productivity Restaurant Industry Inputs Outputs		Convenience sampling Sampling Size: 20 respondents	Descriptive statistics were utilised to analyse the data. The data set was inspected for any incomplete questionnaires. Graphical representation of findings was presented in pie graphs, bar graphs and tables.	Time frame (six months) Small Sample of 20 hindered the results to be generalised to the larger population	An understanding of the negative impact 'load-shedding' has on the productivity of restaurants in NMB. Discovering techniques of mitigation that may have been unforeseen and uncovering the most popular mitigation method.	Prof Assan, T. & Masibi, K., 201. Schoeman, T. & Saunders, M., 2018. Scott, A., Darko, E., Lemma, A. & Rudi, J.-P., 2014 Steenkamp, H. et al., 2016.

7.5 ANNEXTURE: REVISED SHEDULE 1 OF THE NATIONAL DEFINITION OF SMALL ENTERPRISE IN SOUTH AFRICA

Revised Shedule 1 of the National Definition of Small Enterprise in South Africa

I, **Lindiwe D Zulu**, Minister of Small Business Development, acting in terms of section 20 (2) of the National Small Enterprise Act, 1996 (Act No. 102 of 1996), hereby proclaim as follows, in matters pertaining to the Definition of Small Enterprise in South Africa-

Amend the Schedule of the Small Enterprise Definition as contained in the National Small Enterprise Act, 1996 (Act No. 102 of 1996), read with the National Enterprise Amendment Act, 2003 (Act No. 26 of 2003) and the National Small Enterprises Act, 2004 (Act No. 29 of 2004) to:

- 1) New turnover threshold values to account for inflation, since the Schedule was last revised in 2003.
- 2) Two proxies instead of three. The new schedule defines small enterprise using two proxies - 'total full-time equivalent of paid employees' and 'total annual turnover'.
- 3) Removal of the third proxy of Total Gross Asset Value in the current definition as the proxy is often inappropriate and difficult to measure.
- 4) The size or class category 'very small enterprise' collapsed into the 'micro enterprise' category. Many users found this size or class category unhelpful and inconsistent with international practice.

In this proposed proclamation:

Definition of Small Enterprise

"Small enterprise" means a separate and distinct business entity, together with its branches or subsidiaries, if any, including cooperative enterprises, managed by one owner or more predominantly carried on in any sector or subsector of the economy mentioned in column 1 of the Schedule and classified as a micro, a small or a medium enterprise by satisfying the criteria mentioned in columns 3 and 4 of the Schedule.

SCHEDULE 1

The new National Small Enterprise Act thresholds for defining enterprise size classes by sector, using two proxies

Column 1	Column 2	Column 3	Column 4
Sectors or sub-sectors in accordance with the Standard Industrial Classification	Size or class of enterprise	Total full-time equivalent of paid employees	Total annual turnover
Agriculture	Medium	51 - 250	≤ 35,0 million
	Small	11- 50	≤ 17,0 million
	Micro	0 – 10	≤ 7,0 million
Mining and Quarrying	Medium	51 - 250	≤ 210,0 million
	Small	11- 50	≤ 50,0 million
	Micro	0 – 10	≤ 15,0 million
Manufacturing	Medium	51 - 250	≤ 170,0 million
	Small	11- 50	≤ 50,0 million
	Micro	0 – 10	≤ 10,0 million
Electricity, Gas and Water	Medium	51 - 250	≤ 180,0 million
	Small	11- 50	≤ 60,0 million
	Micro	0- 10	≤ 10,0 million
Construction	Medium	51 - 250	≤ 170,0 million
	Small	11- 50	≤ 75,0 million
	Micro	0- 10	≤ 10,0 million
Retail, motor trade and repair services.	Medium	51 - 250	≤ 80,0 million
	Small	11- 50	≤ 25,0 million
	Micro	0 – 10	≤ 7,5 million
Wholesale	Medium	51 - 250	≤ 220,0 million
	Small	11- 50	≤ 80,0 million
	Micro	0 – 10	≤ 20,0 million
Catering, Accommodation and other Trade	Medium	51 - 250	≤ 40,0 million
	Small	11- 50	≤ 15,0 million
	Micro	0 – 10	≤ 5,0 million
Transport, Storage and Communications	Medium	51 - 250	≤ 140,0 million
	Small	11- 50	≤ 45,0 million
	Micro	0 – 10	≤ 7,5 million
Finance and Business Services	Medium	51 - 250	≤ 85,0 million
	Small	11- 50	≤ 35,0 million
	Micro	0- 10	≤ 7,5 million
Community, Social and Personal Services	Medium	51 - 250	≤ 70,0 million
	Small	11- 50	≤ 22,0 million
	Micro	0 – 10	≤ 5,0 million

Lindiwe D Zulu, MP
Minister of Small Business Development

Date: 27/02/2019