Master of Commerce in Management Practice

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Dissertation

The decline of piston manufacturers in the Southern African Customs Union

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ABSTRACT

During the period of the years 1952 to 2009, there have been only two automotive piston manufacturers in the Southern African Customs Union (SACU). SACU is comprised of the following five member states; South Africa, Botswana, Lesotho, Namibia and Swaziland. Owing to the SACU agreement, these countries have enjoyed fairly good trade flows in goods and services amongst each other. The role of the abovementioned piston manufacturers was the provision of piston components to engine assembling companies in the SACU region as well as for sale to the aftermarket.

The aim of this study was to investigate how strategic-level stakeholders, within the piston manufacturing industry, understood and responded to the factors that led to the closure of piston manufacturers in the SACU region. Firstly, this paper outlines the background of the piston-manufacturing sector within SACU and presents a development plan for the research paper. It then investigates literature pertaining to automotive pistons manufacturing within the scope Motor Industry Development Programme (MIDP) and other relevant government policies. The literature review uncovered the challenges and successes that faced the automotive sector both at a global and local level. The paper then outlines the aims and objectives of the study, with emphasis on the research design and data collection methods. Interviews were conducted with key automotive stakeholders who were involved in the sector at the time of the closures. Lastly, the paper analyses the results of the study and provides a discussion viewpoint which then leads to the conclusion and recommendations of the study.

It is apparent through the empirical study that though the MIDP implemented by the South African government made significant improvements in the automotive sector; it was unfortunately unsuccessful in supporting the piston manufacturers. The study found that at the time of the closure of the piston manufacturers, there was a significant presence of large vehicle manufacturers in South Africa. However, the multi-national/global nature of these companies highly limited the demand they had for automotive components such as pistons in the export market. It is therefore inferred that the competitiveness, size of the SACU market and investments in manufacturing played a huge role in the impediments of the SACU piston manufacturing business.

Keywords: Pistons, SACU, Automotive Components, MIDP

TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF TABLES

ACRONYMS

TERM	DESCRIPTION
AIEC	Automotive Industry Export Council
APDP	Automotive Production and Development Programme
BIT	Bilateral investment treaty
BLNS	Botswana, Lesotho, Namibia and Swaziland
DTI	Department of Trade and Industry
EU	European Union
FDI	Foreign direct investment
FTA	Free trade agreement
IGO	Intergovernmental organization
ITAC	International Trade Administration Commission
MIDP	Motor Industry Development Programme
NAACAM	National Association of Automotive Component and Allied Manufacturers
NIPF	National Industrial Policy Framework
OEM	Original equipment manufacturer
SACU	Southern African Customs Union
SADC	Southern African Development Community
SARS	South African Revenue Service
UK	United Kingdom
USA	United States of America
WTO	World Trade Organization

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To my entire family members and friends, *ngithi kini 'nalapho kungakhali khona qhude kuyasa'*

CHAPTER 1 – INTRODUCTION

1.1 BACKGROUND

The piston manufacturing in the Southern African Customs Union (SACU) region dates back to 1952. With only two manufacturers (Federal Mogul South Africa (Pty) Ltd and Kolbenco South Africa (Pty) Ltd) of the piston components in the region; these manufacturers were competing largely to supply their components to the local engine assemblers and for the aftermarket.

The first company to manufacture the pistons in the SACU was Federal Mogul South Africa. Federal Mogul is a multinational company, which originated in the United States of America (USA). The company's existence dates back to 1899. Apart from manufacturing automotive components, the company has a presence in other sectors such as aerospace, marine and the commercial sector (Federal Mogul South Africa, 2013). The company designs and engineers different products specifically to reduce emission and improve fuel economy such as bearings, gaskets, brake pads, and windscreen wipers. To date, Federal Mogul has a strong global presence with manufacturing plants across South and North America, Asia, Europe, Middle East and Africa (Federal Mogul South Africa, 2013). Remarkably, in the African continent, Federal Mogul only exists in South Africa.

In South Africa, Federal Mogul has four branches across the country in Port Elizabeth, Pinetown, Johannesburg and Durban. The pistons were manufactured at the Johannesburg plant whilst the other plants were manufacturing other products (Federal Mogul South Africa, 2013). After the closure of the piston manufacturing line, the company continued to manufacture other automotive components hence the company is still in existence in the SACU (Federal Mogul South Africa, 2013).

In 1969, Kolbenco South Africa was the second company to manufacture pistons in the SACU. Kolbenco South Africa was a subsidiary of KS Kolbenschmidt Automotive. The name Kolbenschmidt derives from a German word "kolben" which means "pistons" if translated in English." KS Kolbenschmidt Automotive is a Germany based company and it was founded in 1910. The company is a manufacturer of different petrol and diesel pistons for motor vehicles, marine and locomotive engines. KS Kolbenschmidt Automotive has pistons manufacturing plants across Europe, North and South America and Asia (KS Kolbenschmidt Automotive, 2013). Unlike Federal Mogul, Kolbenco was only manufacturing pistons.

The two piston manufacturers in the SACU were both based in South Africa at the time. However, despite being in the SACU market for up to sixty years, between 2007 and 2009, both these companies opted to close down their pistons manufacturing lines resulting in the 0% representation of piston manufacturing in the region.

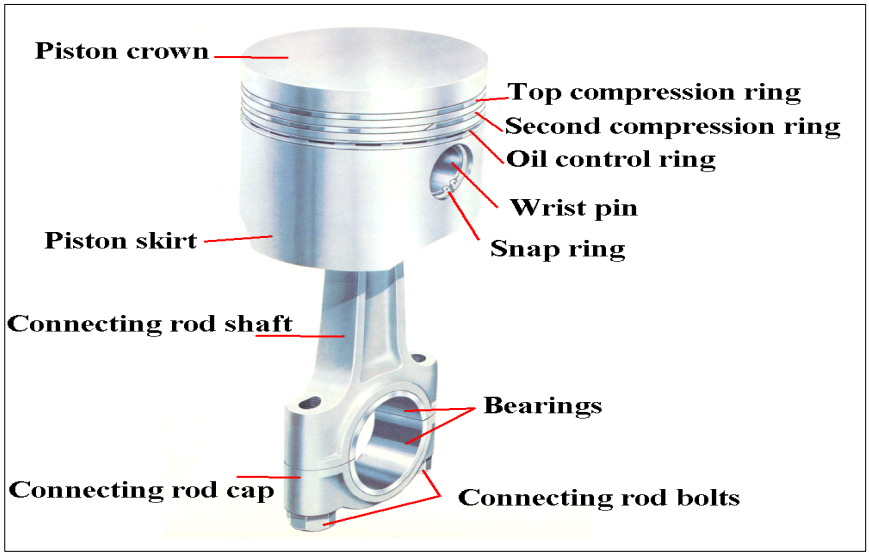
Notwithstanding all the positive improvements on the side of South African government through introducing the automotive sector programme, the Motor Industry Development Programme (MIDP), Moolman (2012) argues that local piston manufacturers seem to have missed the boat. According to Moolman (2012) the local automotive sector registered significant benefits that resulted in economic growth. However the piston manufacturers struggled to survive. Moolman (2012) explains that the piston manufacturers were unable to secure contract with the local Original Equipment Manufacturers (OEMs) hence they had to close their manufacturing operations and the companies did not meet the eligibility criteria under the MIDP. Adding to the challenges Moolman (2012) argues that the local piston manufacturers were unable to keep up with the rising electricity costs and high priced raw material cost.

This study is therefore an attempt to investigate the basis behind the decline of the piston manufacturers in the SACU region during the above mentioned period. The paper seeks to draw from South African government support of the automotive sector through the then MIDP and other enabling policies such as the National Industrial Policy Framework (NIPF). The automotive sector in South Africa remains as one of the heavily subsidizes sectors hence the sudden decline of the piston manufacturers is not yet properly conceptualized.

1.2 PISTON DEFINITION AND TARIFF POSITION

A piston is an automotive component used in the assembling of engines. It is a component that transfers the explosive impact from the explosion chamber to the connecting rod in automotive engines (Choi et al., 2006, p. 1). Light and heavy vehicle engines use pistons. The pistons are categorized into two; the piston for petrol engines and the pistons for diesel engines. Pistons are also used in engines of other transport machinery, such as aviation, rail and marine to name a few. For classification purposes, pistons for both diesel and petrol engines are classified under Chapter 84 to Schedule 1 Part 1 (Customs and Excise Act of 1964). Specifically, the pistons for diesel engines are classifiable under tariff subheading 8409.99.30 whilst the pistons for petrol engines are classifiable under tariff subheading 8409.91.27 of the South African Tariff Book. Pistons are currently imported at duty free, and prior the reduction of customs duties, the piston importers were subjected to a duty of 20% *ad valorem.* The South Africa's WTO bound rate on piston is 30%. The subject products are manufactured out of steel or aluminum depending on an engine type, size and performance.

Figure 1: Piston



Source: Confident Instruments

The picture above shows a complete piston component with its sub-components used in the assembly of automotive engines.

1.2 RESEARCH QUESTIONS AND THE PURPOSE OF THE STUDY

***Main Questions**: What caused the closure of pistons manufacturers in the SACU region?*

***Sub Question**: Why did the piston manufactures fail to secure further contracts with the local engine assemblers?*

This study will seek to investigate the reasons for the closure of the two previously existing piston manufacturers within the SACU. The study will investigate the piston manufacturing business in South Africa and the rest of the world and to ascertain the real factors that contributed to the decline of the local piston industry. The study will also look at the value chain of the manufacturing of pistons and try to understand which stages of the manufacturing process were critical to the demise of these two manufactures.

In response to the sub question, the study will investigate the local OEMs who are/were assembling engines in the local market. The aim of this will be to understand the nature of relationship that existed between piston manufacturers and engine assemblers.

1.3 SIGNIFICANCE OF THE STUDY

In the year 2010 and 2011, the International Trade Administration Commission (ITAC) conducted a study which investigated the reduction in the general rate of customs duty on pistons for petrol and diesel engines

respectively. The study was triggered by two applications received from a Kenilworth based company, Masterparts (Pty) Ltd, who argued that lack of piston manufacturers in the SACU region necessitates that the import duties on these products be phased down (ITAC, 2012). South Africa uses tariffs as an industrial tool to serve as support and encouragement for some local manufacturers who are struggling to compete against imports (Customs Tariff Policy, 2010, p. 8).

The investigations for petrol and diesel pistons were conducted by ITAC within the confines of the Customs Tariff Policy (2010, p. 9) on a "*case by case principle*". In order for the reduction of customs duty application to be supported, an ITAC investigation must confirm that there are no local manufacturers of a particular product in the entire SACU region. Similarly, the applications that are rejected required the ITAC investigation to prove that the SACU region had manufactures of the exact product, close substitute or a potential for future manufacturing. Following the completion of the ITAC investigation on pistons, it was found that indeed the SACU pistons manufacturers were no longer in existence in the region, hence the reduction in the rate of customs duties as per the applicant's request (ITAC, 2012, p. 4).

However, the investigations conducted did not investigate the reasons behind the decline of pistons manufacturing sector in the SACU region. This research therefore attempts to provide findings on the SACU piston industry beyond the ITAC scope of investigations. This research will require engagement with the relevant automotive stakeholders as part of uncovering the key factors that led to the demise of the SACU piston manufacturing sector. Through the MIDP, the South African government provided support to different manufacturers in the automotive sector. The MIDP support was targeted at the locally manufactured vehicles and components that were produced exclusively for the export market. It is unclear whether this exclusivity disadvantaged Kolbenco and Federal Mogul's business model.

This research will also look at other forms of government support in creating an enabling environment for the local manufacturing sector, the NIPF in particular. The NIPF intends to assist the local manufacturers to compete in the international market and to boost levels of diversifications in the South African market (DTI; 2007). This research therefore seeks to uncover the extent to which the piston manufacturers operated within the government's policy framework.

Going forward, especially in light of the new Automotive Production Development Programme (APDP) which has replaced the MIDP since the 1st of January 2013; as well as any other similar program that government would deploy; it would be imperative to understand which factors should be cautioned against in order to avoid the demise such as the one experienced by Federal Mogul and Kolbenco from occurring again.

1.4 OVERVIEW OF THE RESEARCH METHODOLOGY

The nature of the research questions requires a qualitative study to be undertaken. Where it was necessary, facts and figures were sourced from prior empirical studies on the subject area. The research was conducted through engaging with different stakeholders from the companies who used to manufacture pistons, to automotive associations and local engine assemblers through interviews.

The details of the respondents and their responses are presented in the Appendix A and B of this document. The research papers and reports that have been used have been cited throughout the research paper, where appropriate. Further to this, the References section displays a listing of all readings utilized for the purposes of the study.

1.5 DEVELOPMENT PLAN

This paper will be structured in the following manner:

Literature Review: This section will discuss the academic research that has been conducted in the automotive industry, especially for the SACU region. A brief history of SACU, followed by the pistons manufacturing business in South Africa is uncovered. The literature then investigates the role of the South African government, the OEMs, as well as other industry stakeholders leading up to the closure of the piston manufacturers in question. Lastly, the literature investigates the global automotive component industries and how they link to the local markets.

Research Methodology: This section will discuss the nature of the empirical study undertaken. It will also outline the data collection process. The section will unpack and analyse the information received through a qualitative data analysis approach with the emphasis being on the qualitative information collected.

Results of the study and discussions: This section will present the factual findings of the study. Furthermore, this section will deliberate on the findings of the study against those deducted from the literature review. It will also discuss the challenges encountered whilst conducting the research.

Conclusion and recommendations for future research: This section consolidates the study by analyzing the findings, the value the findings have on industry and impacts that this study will have on industry going forward. Lastly, the researcher will use this section to note areas that might be interesting for future research.

CHAPTER 2 – LITERATURE REVIEW

Extensive research has been conducted in order to investigate the manufacturing of pistons in the SACU and the result of the subsequent closure in the years 2007 – 2009. The literature gathered covers a spectrum of information that provides plausible arguments of what could have led to the closures of the manufacturers in question. However there still exist some gaps in the literature gathered owing to the absence of relevant pistons studies and statistics that this research could have benefited from.

In order to best understand the causes that led to the closure of piston manufacturers in the SACU region, it was firstly important to unpack the elements of the SACU Agreement and how these impacts on trade within the region. This will also provide an explanation as to why this research seems to be focused on the developments taking place in one member state. Secondly, it was important to investigate the pistons manufacturing business model, as well as the industry value chain specifically in South Africa, this country being where the two manufactures were located. This chapter also investigates the role of the South African government policies (NIPF and MIDP) in uplifting the automotive sector and to determine whether these interventions that were implemented had a positive or negative effect on the two manufactures in question. The performance of the SACU engine component manufacturers will be tracked and discussed extensively in this chapter since the pistons falls under such components. In addition, the role of other industry stakeholders during this process was also important to understand. Lastly, the literature investigated the global automotive component industry and how its developments match or impacted the SACU industry.

2.1 HISTORY OF THE SACU REGION

The Southern African Customs Union (SACU) is a customs union involving South Africa and the BLNS countries namely; Botswana, Lesotho, Namibia and Swaziland. It was established in 1910 with the agreements being renegotiated in 1969 and in 1994. The reasons for these renegotiations were due to the changing political and economic environments within the aforementioned member states. The basis for the union is to provide member states, with a common external tariff as well as a common revenue pool (Southern African Customs Union, 2002). Customs and excise duties that are collected within the SACU region are shared and distributed to all the member states in line with the revenue formula determined by the SACU agreement of 2002 (McCarthy, 2013, p. 6). Other than having a common tariff zone and sharing a revenue pool, the ambition of the SACU is to expand its industrial development base across its member states. This is an endeavor to be pursued through developing common industrial development policies (SACU, 2007, p. 22).

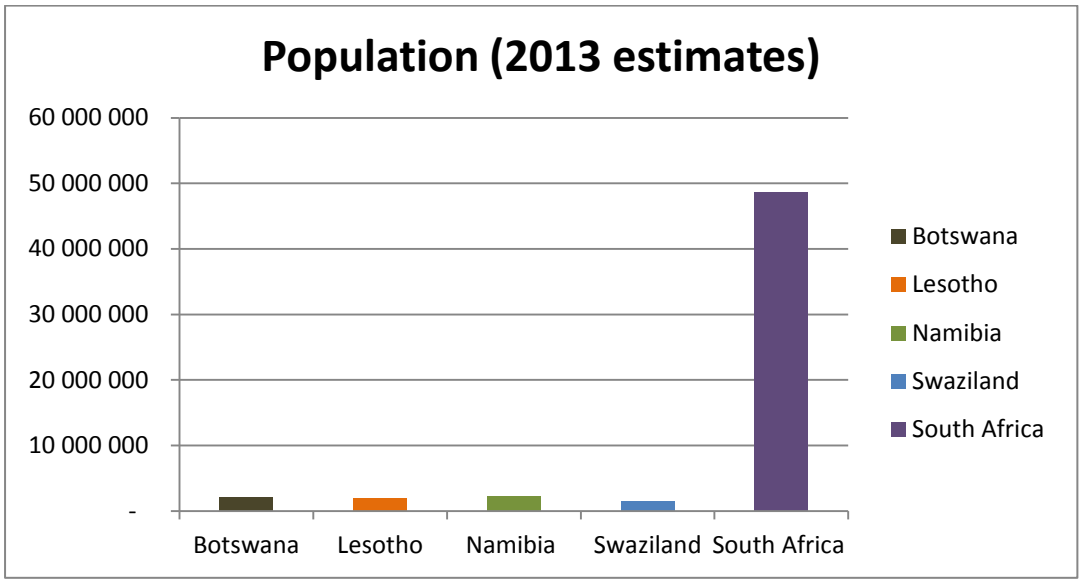
Despite the SACU vision to develop the competitiveness of the region through emphasizing industrialisation, there seem to be no real manufacturing activities taking place in other member states. The automotive sector seems to be following this trend given that most companies that are manufacturing automotive components

and vehicles are scattered across South Africa. Due to this development, this research will be benchmarked through using South Africa's industrialisation policy and industry performance to generalize over the SACU region. South Africa strives to produce and trade manufactured products with the rest of the world. This is part of promoting industrialisation within the country and across the SACU region. Evident from several manufacturing and sector-based incentives such as Manufacturing Competitiveness Enhancement Programme (MCEP) and Production Incentive (PI), the country envisions that in return to attracting foreign investors to its shores, these incentives will yield positive results for economic growth and employment creation (Department of Trade and Industry, 2007).

The SACU agreement (2002) echoes the member states aspirations on the envisaged industrialisation model intended to take the region forward. Through the SACU Agreement (2002, p. 33), the member states aspire that the region should develop common policies as indicated in Part Eight of the Agreement – Industrial Development Policy, Article 38 Agricultural Policy, Article 39 and Competition Policy, Article 40. These polices are aimed towards the forging of stronger regional integration and ensuring cooperation on an economic and industrialisation front. It must however be noted that despite the aspirations of the SACU member states to develop common policies, there seems to have been very little progress thus far (McCarthy, 2013, p. 2). Vickers (2008, p. 119) explains that despite the slow progress on the development of the industrial policy in the SACU, the completion of this process will afford the SACU region a competitive manufacturing platform. Vickers (2008, p. 21) argues that SACU needs to establish common policies and institutions that will result in a balance between economic and industrial development for the ease of deeper integration in the region. The uneven levels of industrial and economic development amongst the SACU member states might have contributed to the lack of pace for the development of SACU's common policies.

The development of the SACU industrial policy strategy requires that various factors be taken into consideration including the fact that the character of the SACU member states economies are vastly different, especially when compared to South Africa. The SACU member states (with the exception of South Africa) are characterised by low levels of industrialisation and economic growth. McCarthy (2013, p. 9) argues that despite the numerous challenges that already exist in as far as financial markets and labour are concerned; SACU politics is proving to be difficult to overcome when it comes to forging deeper integration. McCarthy's (2013) outlook implies that the decision making process in the SACU, regarding the establishment of common institutions and policies is challenging due to political differences amongst the regional partners and that this is inhibiting the SACU agreements. The following is the contribution of each member states in the SACU i.e. population size and gross domestic product (GDP):

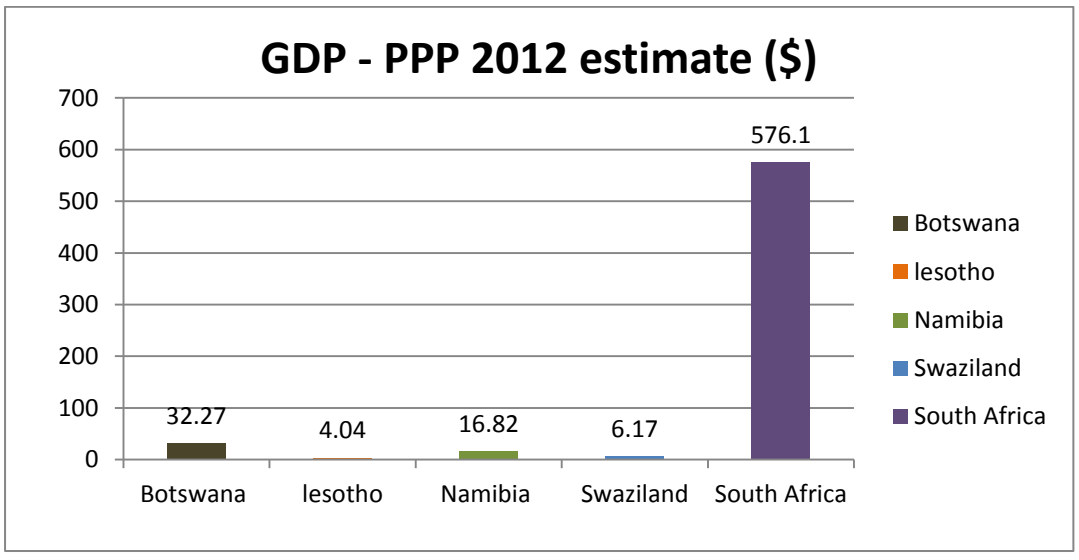
Figure 2: SACU member states



Source: Central Intelligence Agency – 2014

The graph above shows that South Africa has a biggest population size compared to other member states. The 2013 population estimates reveals that South Africa's population size was approaching 50 million. Lesotho and Swaziland population size is under 2 million whilst Namibia and Botswana's population size is just above 2 million. The combined population size of Swaziland, Botswana, Lesotho and Namibia is 7.6 million whilst the combined population size of the whole SACU region is 56 million.

Figure 3: Combined GDP of the SACU countries



Source: Central Intelligence Agency – 2014

The graph above depicts the 2012 estimates of growth domestic product – Purchasing Power Parity (GDP – PPP) of all the SACU member states. According to the graph, South Africa's contribution to the combined GDP of the SACU is $576.1 billion. Botswana has the second largest GDP in the region with $32.27 billion followed by Namibia with $16.82 billion whilst Swaziland and Lesotho contributes $6.17 billion and $4.04 billion respectively.

It can be deducted from the graphs above that South Africa plays a leading role both in terms of population size and GDP contribution in the SACU region. South Africa draws its strength from its fairly diversified manufacturing base from different sectors compared to the rest of the region. Whilst the study focuses on the decline of pistons manufacturers, it is noted that the SACU pistons manufacturers only existed in the one member state. According to Vickers (2008, p. 58) the trend of manufacturing taking place mainly in South Africa will continue due to the fact that currently the SACU industrial policy deliberations have been overlooked and the focus is on issues such as revenue sharing formula. Owing to this, deliberations on the establishment of common policies, as stipulated in Article 38 seem to be lagging behind. McCarthy (2013, p. 13) explains that the South Africa accounts for 94% of the manufacturing value added in the SACU, thus making South Africa's economy the dominant in the region as it contributes 92% of the combined SACU GDP. The manufacturing of pistons in the SACU should therefore be understood within the context of South Africa's manufacturing dominance in the region since the piston manufacturing took place in South Africa and the subsequent closure effectively meant that the region no longer has the manufacturers of the subject product.

2.2 THE ROLE OF THE SOUTH AFRICAN GOVERNMENT – MIDP & NIPF

The MIDP is a programme that was implemented in 1995 to help the South African automotive sector to integrate into the global arena (Flatters, 2005, p. 2). The MIDP programme was designed to benefit both the local vehicle assemblers and the automotive components manufacturers. Prior the MIDP, the automotive sector was protected by high tariff walls in excess of 100% and high levels of local content requirements (Flatters, 2005, p. 3). The programme' s objective was to incentivize the local automotive sector through an "export – import complementation scheme under which vehicle and components exported can earn tradable 'Import Rebate Credit Certificates' (IRCC)" (Flatters, 2005, p. 2). The export orientation nature of the MIDP was in line with the DTI (2007, p. 2) strategy of trying to change South Africa's economic structure through diversifying its manufacturing base and exports. In this regard, the MIDP was also aimed at increasing the competitiveness of the local automotive sector into in the international market.

The MIDP was based on four elements which are summarized by Barrett (2012) below:

Table 1: Summary outline of MIDP

MIDP (1995 – 2012)	
Tariffs	The level of protection offered by tariffs reduced consistently from 65% and 49% for CBUs and CKDs respectively in 1995, to 25% and 20% in 2012
Local OEMs Vehicle Assembly Allowance (VAA)	DFA (Duty Free Allowance): 27% of the local assembled vehicle's wholesale price is rebated against the duty payable on imported components that are used in the production of vehicles for the domestic market
Industry Incentives	Export linked duty credits earned: Benefits calculated on local material used
Investment assistance	PAA (Productive Asset Allowance): • Only benefits OEM and 1st tier suppliers whose investment is linked to a local OEM • 20% benefit, payable over 5 years (4% per year)

Source: (Barrett, 2012)

The table shows levels of tariff reductions on the automotive sector since 1995. In accordance with the MIDP, light motor vehicles (CBUs) were expected to reduce tariffs from 65% (1995) to 25% (2012). The components manufacturers (CKDs) had to reduce the tariffs from 49% in 1995 to 20% in 2012. The phasing down on tariffs was consistent with South Africa's trade liberation commitments (Customs Tariff Policy, 2010, p. 5). With Regards to the VAA support, the locally assembled vehicles were getting free duty credits based on 27% of ex-factory selling price. The credits earned under VAA were used by the vehicle assemblers to offset imported components on vehicles that were produced for the local market. Barrett (2012) shows that some of the MIDP gains were linked to exports. The export benefits of the MIDP were calculated on qualifying local material used in the manufacture of components. Lastly, the MIDP under the PAA element offered the local vehicle assemblers and components manufacturers to claim back 20% of investment made on plant improvements.

Black (2002, p. 2) argues that the automotive sector is one of the most critical sectors in the South African economy given its contribution to the GDP and employment. Barnes (1998, p.3) explains that the automotive sector is differentiated into three segments namely; the Original Equipment Supply (OES), Original Equipment Manufacturers (OEMs) and the independent aftermarket. An OEM refers to a company that purchases components and incorporates them into a new product using its own brand name. In the automotive sector, this refers to companies such as Ford Company SA, who purchase pistons for use in the assembling of Ford engines from other component manufacturers. An automotive aftermarket is a secondary market which

occurs after the motor vehicle has been sold to the consumer by the OEM. The aftermarket may include manufacturing, distribution and retailing of automotive components. The OES is a segment that comprises of automotive components manufacturers who supply to the OEMs as well as the aftermarket (Barnes, 1998). This study will therefore focus mainly on the OES sector.

According to Black (2002) since the introduction of MIDP in 1995, South Africa's components manufacturers have been more efficient thus they have increased their competitiveness in both the local and international market. The Automotive Industry Export Council (2013) summarizes the key performances of the MIDP from 1995 to 2002 in the table below:

Table 2: MIDP performance indicators (1995 vs. 2012)

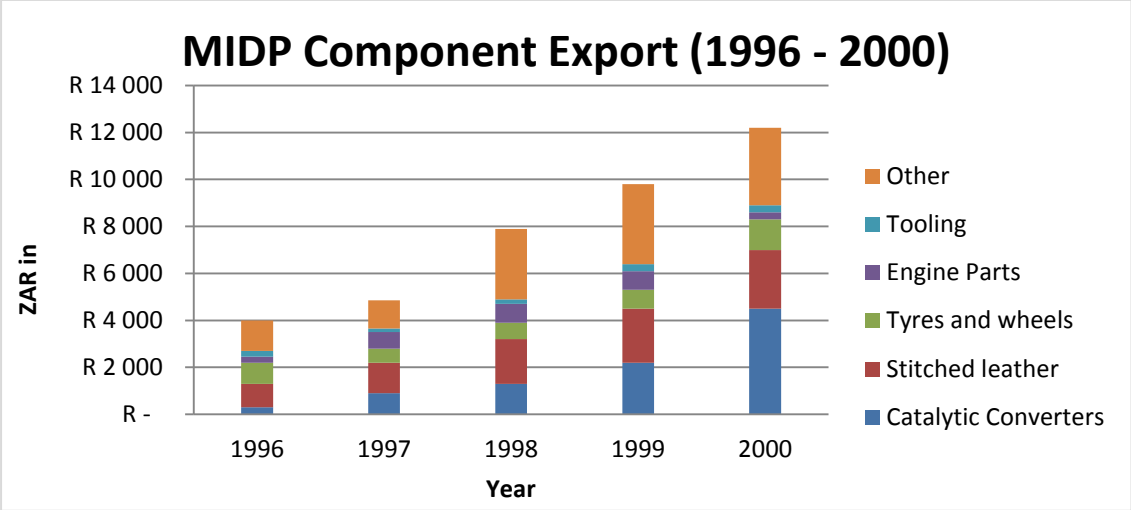
Activity	1995	2012
Capital expenditure by the OEMs	R847 million	R4.7 billion
Export value (vehicle and components)	R4.2 billion	R86.9 billion
Total vehicles exported (units)	15 764	277 893
Top vehicle export destinations	1. China 2. Zimbabwe 3. Malawi	1. USA 2. UK 3. Algeria
Top automotive components exported	1. Stitched leather seat parts 2. Catalytic convertors 3. Tyres	1. Catalytic converters 2. Engine parts 3. Silencers/exhaust pipes
Top vehicle countries of origin: imports	1. Germany 2. Japan 3. UK	1. Germany 2. India 3. Japan
Production (Average number of vehicles produced per employee)	10.0	18.5
Automotive industry contribution to GDP	6.5%	7%
Number of passenger car models derivatives	356	2 159
Export destinations for vehicles and components	62	152
Total vehicles produced (units)	389 392	539 538
Total new vehicle sales (units)	399 967	624 035
Number of models platforms	41	13
Models with production volumes > 40 000 units	0	5

Source: Automotive Industry Export Council (2013)

The table above illustrates the comparison of the year 1995 (commencement of the MIDP) and year 2012 (end of MIDP). According to the table, when the MIDP was introduced in 1995 the export value was R4.2 billion. This figure increased to R86.9 billion in 2012. South Africa's export destinations were China, Zimbabwe and Malawi. However, this trend changed in the data presented for 2012. Towards the end of the programme, South Africa's exports were destined to USA, United Kingdom and Algeria. Interestingly, the engine parts did not feature as one of the major exported components during the commencement of the programme. The engine components consist of different products including pistons. Components such as stitched leather, catalytic converters and tyres dominated the list of the South African exports. However the 2012 information furnished by Automotive Industry Export Council (2013, p. 20) reveals that the engine components were on the rise and have since featured on the top three most exported components under the MIDP. The table also shows that the export value for both the vehicles and components rose from R4.2 billion in 1995 to a staggering R86.9 billion in 2012. In 1995 South Africa registered export volume of 15 764 vehicle units whilst in 2012 the country exported 277 893 units. Despite the significant rise in export volumes and values, the contribution of the automotive sector into the South Africa's GDP between 1995 and 2012 was just between 6.5% and 7%.

Since the introduction of the MIDP, South Africa currently manufactures 80% of vehicles made in Africa (Global Emissions Management, 2008, p. 8). Despite its contribution to the local automotive sector, the MIDP was faced with challenges during its tenure. According to Flatters (2005, p. 13), the MIDP was an export subsidy and therefore it was not consistent with the WTO rules. Flatters (2005) argued that different member state under the WTO needed to lodge formal complaints and oppose the architecture of the MIDP. The programme seems to have boosted the local automotive sector especially when it comes to the exports of components. The graph below shows the export performance (in Rand's values) of the components that were exported under the MIDP in its first five years (1996 – 2000).

Figure 2: MIDP Component Exports (1996 - 2000)



Source: (Global Emissions Management, 2008)

As shown in Figure 4 above, there has been a high increase in the export of vehicle components made through the support of the MIDP in South Africa. The table depicts the positive developments on the exportation of South African automotive components under the MIDP during the period 1996 to 2000. According to the table, the catalytic converters followed by stitched leather were the most exported components from the SACU. Engine parts were ranked number four on the SACU exports during this period. The table also shows that the SACU export values were in a consistent increase from R4 billion in 1996 to just above R12 billion in 2000.

Black (2002, p. 2) argues that because of the MIDP, South African exports grew substantially since the programme allowed the international vehicle assemblers a greater flexibility when it comes to sourcing of locally manufactured components. According to Black (2002) part of the outcomes from the MIDP was that the local components manufacturers managed to export their products under the MIDP. For the local component manufacturers to continue exporting and supplying the local market, Black (2002, p. 3) argues that there is a need for adequate investments to boost the manufacturing. The Global Emission Management (2008, p. 9) supports this statement as it explains that inward investments are indeed critical to ensure that South Africa's component manufacturers meet the required standards and that our manufacturing facilities are world class. The DTI (2007, p. 10) envisioned that the NIPF will yield good results as it will strive to provide clarity and certainty for the private sector on investment decisions.

Despite all the positive improvements noted in the automotive sector as a result of the MIDP. The piston manufacturers seem to have missed the boat. According to Moolman (2012) the local automotive sector registered significant benefits that resulted in economic growth. However the piston manufacturers struggled to survive. Moolman (2012) explains that the piston manufacturers were unable to secure contract with the local OEMs hence they had to close their manufacturing operations and the companies did not meet the

eligibility criteria under the MIDP. Adding to the challenges Moolman (2012) argues that the local piston manufacturers were unable to keep up with the rising electricity costs and high priced raw material cost. Choi et al. (2006, p. 8) explains that the manufacturing process of automotive pistons involves different stages of processing such as casting, squeeze casting and hot forging. Choi et al. (2006, p. 8) also explains that the some piston manufacturers in the global market are using technology that is not up to date therefore they run a risk of producing high levels of defects and that impedes the manufacturer's production estimates.

2.3 SACU ENGINE ASSEMBLERS AND OTHER AUTOMOTIVE STAKEHOLDERS

The SACU only has two assemblers of engines, which are Ford South Africa and Volkswagen South Africa. Companies such as Toyota South Africa were once involved in the business of assembling engines. However, the company closed down its engine assembling operations towards the end of the 1990s (Pretorius, personal communication, November 27, 2013). For the manufacture of engines, the assemblers are sourcing several components in the local and international markets, the pistons were also part of this sourcing tradition. Schoeman (personal communication, April 22, 2014) explains that Volkswagen South Africa was sourcing components such as pistons from the local and international markets (mainly China) owing to the fact that the SACU engine components manufacturers did not have capacity to manufacture all components that goes into the engine. Kolbenco was supplying VWSA, Ford SA and Toyota for the assembly of engines in the local market. (C. Eddy, personal communication, October 30, 2013), whilst Federal Mogul was involved in the business of supplying mainly Ford South Africa (C. Hillier, personal communication, October 25, 2013

Compared to the rest of African countries, the South Africa's automotive sector boasts about the existence of several components and subcomponents manufacturers. Another important stakeholder in the automotive sector is car assemblers who are generally referred to as (Original Equipment Manufacturers (OEMs). These SACU OEMs are Toyota South Africa, Ford South Africa, General Motors South Africa, BMW South Africa and Volkswagen South Africa. This sector has been in existence in the South African economy for several decades. The local automotive sector has been manufacturing components and motor vehicles for both local and export market. According to the Automotive Industry Export Council (2013, p. 16) the automotive industry has continued to perform positively in the South African economy over the years. The exports performance during 2012 for example, increased substantially to R86.9 billion compared to 2011's export figure of R82.2 billion. This represented a 5.7% increase during the above mentioned period.

The Automotive Industry Export Council (2013, p. 9) reveals that the South Africa automotive sector is considered as one of the most diversified exporters in the world. According to Flatters (2005, p. 13) South Africa's automotive sector progress thus far can also be understood in the context of the availability of labour, credit and enabling regulatory framework provided by the government. This assertion is affirmed by the Automotive Industry Export Council (2013, p. 7) as it attributes to South Africa's automotive sector success to several factors including infrastructure development, availability of raw materials, emerging market cost

advantages, flexible production capability and government support. As indicated above the MIDP objective was to assist the domestic component manufacturers such as pistons producers to compete in the international market. The DTI (2007, p. 21) explains that the MIDP has resulted in some local manufacturers getting globally competitive.

2.4 GLOBAL AUTOMOTIVE COMPONENT INDUSTRIES

Automotive components are manufactured by different players across the globe. Sutton (2004, p. 1) and Morison (2013, p. 12) explains that India and China are destinations for the manufacturer of several automotive components including the engine parts such as piston. Sutton (2004, p. 8) explains that China and India positive developments in the automotive sector was largely because of these countries efforts of encouraging domestic suppliers in the sector. These demands contributed extensively in the development of the automotive components industry approach, including the engine components and ultimately the entire automotive value chain. Morrison (2013, p. 17) argues that industrialisation in China across all sectors was intrinsically linked to various manufacturing incentives. According to Morrison (2013, p. 23) China's introduction of manufacturing incentives was responsible for a surge in FDI during the 1990s; furthermore the incentives had spinoffs in the Chinese economy given that it accounted for the attraction of 445,244 foreign enterprises as of 2010. The manufacturing incentives in China created 55.2 million jobs across the country (Morison, 2013).

Similarly, the DTI (2007, p. 2) through the NIPF wishes to create employment by promoting labour absorbing sectors and industrial linkages. The automotive sector is one of sectors that have been targeted for this endeavor. South Africa's industrialisation path is forged through a multifaceted approach including the provision of different types of protection and incentives to infant industries by the government. The impacts of government interventions are a subject to different interpretations in the public and academic discourse since it appears that some industries benefited and some did not.

The Automotive Industry Export Council (2013, p. 86) lists countries such as India and China as one of the leading trading partners in the automotive sector, especially on engine parts. The following table depicts the levels of trade between South Africa and India in the automotive industry specifically for the year 2012. The report notes that by 2012, the local piston manufacturers were no longer in existence; therefore this table only identifies some interests on the development of engine parts despite the failures of local piston manufacturers. The engine parts in this table still play a pivotal role on tradable components between South Africa and India.

Table 3: India (Total trade R6 878, 8 million) – 2012

SA EXPORTS TO INDIA			SA IMPORTS TO INDIA		
RANK	MAIN PRODUCTS	R421,7 million	RANK	MAIN PRODUCTS	R6 457,1 million
1	Catalytic converters	276.0	1	Light vehicles	5 149.1
2	Engine parts	34.3	2	Original equipment comments	486.6
3	Body parts	29.3	3	Engine parts	84.4
4	Tyres	17.1	4	Gauges/instrument parts	82.0
5	Clutches/shaft couplings	12.9	5	Automotive tooling	68.6
6	Radiators and parts	11.6	6	MCV/HCV	47.4
7	Automotive tooling	5.7	7	Tyres	41.9
8	Road wheels/parts	4.6	8	Engines	41.9
9	Gauges/instruments parts	1.7	9	Ignition/starting equipment	36.7
10	Batteries	1.2	10	Transmission shafts/cranks	25.1
	Other	27.3		Other	393.4

Source: Automotive Industry Export Council (2013)

The table above shows the automotive trade balance between South Africa and India. The total value for automotive trade during 2012 amounted to approximately R6.9 billion between these two countries of which South African exports accounts for R421.7 million representing 6% of the total trade; whilst the India's exports to South Africa amounted to R6 457.1 billion and that represents 94% of the total value. With regard to the engine parts, South African exports amounted to R34.3 million whilst the Indian exports of the similar products amounted to R84, 4 million.

As an attempt to understand trade in automotive components between South Africa and its trading partners such as India and China, the table below shows the category of components utilized in assembling vehicles and the rate at which Indian and Chinese organisation choose to manufacture or outsource different components.

Table 4: Categories of Components

Group 1 (Normally made in-house)	Group II (Often outsourced)	Group 3 (Normally outsourced)
Cylinder Head	Engine mounting Bumpers	Pistons
Cylinder Block	Crankshaft	Timing belt
	Camshaft and valve	Exhaust system
	Transmission	Clutch
	Transmission case	Bumpers
	Gear box	Seats
	Front axle	Door panels
	Rear axle: Centre bracket	Door fittings
	Rear axle: Shaft	Instrument panel
	Body (skin) panels	Wiring harness
		Suspension, front and rear
		Braking system

Source: (Sutton, 2004)

Table 4 above indicates that large vehicle corporations often outsource the manufacturing of certain vehicle components to external companies. The extent of the outsourcing for each component is categorized in groups, with Group 1 being those that are 'normally' made in house; Group 2 being those that are 'often outsourced'; and Group 3 being those that are 'normally' outsourced. Pistons, fall into the third group indicating that they are normally outsourced. The Chinese automotive manufacturers choose to outsource 90% of the components in Group 3 versus 83% for Indian firms (Sutton (2004, p. 10). South Africa enjoys relatively good relations with both China and India, a relationship that other local components manufacturers could leverage on (Sutton, 2004).

Similarly to the other automotive components manufacturers, the SACU engine parts manufacturers have been exploring both the local and the international markets for their products. Black (2002, p. 13) reveals that between the year 1996 to 2001 South Africa registered a consistent increase (in Rand values) in exports on engine parts. See the table below.

Table 5: South African Vehicle Component Exports 1996-2001 (Figures displayed in Million SA Rands)

Component Category	1996	1997	1998	1999	2000	2001
Catalytic Converters	485	835	1520	2569	4683	8989
Stitched leather components	1259	1408	1854	1888	1926	2391
Tyres	296	342	498	639	682	781
Silencers / exhaust pipes	170	151	493	598	337	282
Road wheels and parts	227	325	446	518	551	725
*Engine parts	137	285	390	383	409	520
Wiring harnesses	92	136	207	304	319	391
Automotive Tooling	279	309	256	264	362	441
Glass	71	105	112	147	171	241
Radiators	107	93	108	111	72	70
Other Components	928	1126	2011	2253	3088	3795

Source: Black (2002)

The table above indicates the value of exports of various vehicle components by South Africa to other parts of the world. The table depicts that exports on engine component rose by 47% from R137 million to R520 million during the 1996 to 2001 period. The table also gathers that the exports of SACU engine parts have been on the upward trend between 1996 and 2001 period. This is a trend that continued beyond 2001, since the information obtained from Automotive Industry Export Council (2013, p. 20) shows that the engine parts featured as one leading components exported by South Africa in 2012.

2.5 SUMMARY

The literature review conducted for the purposes of this study dictates that the outcome of this research can only be realized through a qualitative approach. This is as a result of limited statistical information on the performance of piston manufacturing industry. Other notable gaps identified by the researcher are in the following areas:

- The economic value of the piston manufactures relative to the entire automotive sector in the SACU region;

- The economic value of the two manufacturing companies that closed their piston manufacturing businesses in South Africa;
- An analysis of the changes in industry since the exit of the two manufacturers; and
- The economic success of the pistons' after-sales market before, during and after the manufacturing of piston in South Africa.

The following hypothesis can be made based on the literature studied:

2.5.1. Government Intervention

The MIDP did not benefit the pistons manufacturers in SACU.

The South African government through the DTI has implemented a number of programs to support local businesses in the automotive sector. The Motor Industry Development Programme (MIDP), which was established in 1995, is one of the government flagship programs that were designed to protect local manufacturers (Flatters, 2005, p. 2). By its very nature, the MIDP was an export orientated incentive. This meant that the participants under the programme had to export their final product outside the SACU region. As a result, only engine manufacturers such as Ford and Volkswagen benefited from the programme since they were assembling engines for the international market. Piston manufacturers, being lower down the value chain, were not the ultimate exporters of their components and therefore did not benefit. These frustrations came out strongly in the interviews conducted with Kolbenco and Federal Mogul.

2.5.2. Global Competitiveness

There is no correlation between the locations in which the automotive engine is manufactured (assembled), to the location in which pistons are manufactured.

The literature review conducted suggest that the global vehicle manufacturing business has enjoyed significant and steady growth both in terms of values and quantities produced (Black, 2002, p. 6). This growth also took place in the SACU market during the period in which the two pistons manufacturers opted to close down their manufacturing operations. In South Africa export values on vehicles and components increased from R4.2 billion in 1994 to R86.9 billion in 2012 (Automotive Industry Export Council, 2013, p. 20). The trends in the exportation of automotive engine parts from the South Africa market are also supporting by Black (2002, p. 13) observation. The exports of automotive engine parts rose from R137 million to R520 million between 1996 and 2001. Furthermore, the engine parts were ranked number two in 2012 after the catalytic convertors as one of the SACU leading exported components (Automotive Industry Export Council, 2013). The automotive companies that are based in the South African market are generally multi-national companies who enjoy manufacturing bases in different locations across the world. This provides them with the flexibility to move certain parts of their operations without impacting their manufacturing outputs. This mobility is further supported by the existence of trade agreements which often results in duty free trade between regions who

have an agreement. The extent to which the components such as pistons are sourced by engine assemblers will be investigated in this study to ascertain if there is any relationship between the geographical location of pistons manufacturers and the automotive engine assemblers. This will enable the study to observe if the failure of pistons manufacturers had any impact to the local engine assemblers.

2.5.3. Investment

Manufacturing of pistons is not done by the engine assemblers, but rather outsourced to engine components manufacturers.

The literature reviewed indicated that the manufacturing process of pistons was prone to casting defects which had a direct impact on the manufacturer's production volume (Choi et al., 2006, p. 2). It is evident from the literature studied that vehicle manufacturers opt to outsource the manufacturing of pistons to other companies as a way of minimizing the risk to their own manufacturing lines. Sutton (2004, p. 10) proves that vehicle manufacturers in China and India, being among the largest manufacturers of vehicles in the world, choose to outsource close to 90% of the manufacturing of engine parts, pistons included. However, the literature reviewed failed to ascertain the regions in which these outsourced components are manufactured.

CHAPTER 3 – RESEARCH METHODOLOGY

This chapter will provide research methodology details. It will outline the rationale behind the method chosen to collect data and the tools used to analyse and interpret the data gathered from the participants and resources. Different stakeholders were identified to participate in this study. Attracting various stakeholders in the study of this nature boosted the study in terms of assessing different perspectives from interested parties. This chapter will also address issues pertaining to dependability of the research design, fairness of the process and the techniques used to substantiate the findings. The last parts of this chapter will emphasis as to why the research methods and tools were relevant for this type of a study.

3.1 RESEARCH APPROACH

This research was conducted by using a qualitative research methodology. Corbin and Strauss (2008, p. 1) explains that qualitative research is a methodology that aims to gather an in-depth understanding of particular behavior and that this methodology asks questions such as “why” and “how” things unfolded as it seeks to understand the rationale behind decision making. The qualitative research method was relevant to this study as it intend to investigate the reasons that led to the decline of the piston manufacturing sector in the SACU. The approach to this study was therefore based on engaging with different automotive stakeholders who provided valuable insight on the research question and about the automotive sector in general.

Corbin and Strauss (2008, p. 12) argue that it is not upon the researcher to determine the research methodology; instead the research question should dictate the approach to be employed in a particular study. The qualitative research approach was used by the researcher because of a need to explore the root cause leading to the closure of this business sector within the SACU market. Accordingly, the qualitative research approach assisted the researcher in comprehending the challenges faced by the local engine component industry, the piston manufacturers in particular.

The researcher used semi-structured interviews when discussing with the research participants. Cohen and Crabtree (2006, p. 3) explains that the semi-structured interviews are more open and vigorous as they allow more ideas to be brought throughout the interview process.

The following are some of the key questions that were asked to different participants for this study:

Table 6: List of questions asked for the research

Questions	Category of Participant
When did you start manufacturing the pistons and what type of pistons were manufactured by your company?	Piston Manufacturers
Who were your international clients?	
Which local engine assemblers were you supplying with pistons and for how long?	
How was your relationship with your suppliers?	
What challenges did you experience in the local and international market?	
Did you experience problems with the Motor Industry Development Programme?	
When did you start assembling engines in the SACU region?	SACU Engine Assemblers
Which markets were engines destined to?	
Where were you sourcing your engine components such as pistons?	
How was your relationship with your pistons suppliers?	
What challenges did you encounter with your pistons suppliers?	
Did you experience problems with the Motor Industry Development Programme?	
Are you aware that the pistons manufacturers are no longer in existence in the SACU market?	Automotive Components Association
What support do you provide to your members should they decide to close down their manufacturing?	
What role would the MIDP have played in assisting pistons manufacturers?	

These questions were divided according to the respective stakeholders who participated during the collection of data. Each stakeholder's perspective was engaged in relation to his or her role within the pistons industry. It is also important to note that these questions were not static since the researcher had an opportunity to pose follow-up questions. Face-to- face interviews were conducted with different industry expects who provided the researcher with the opportunity to interrogate the respondent and to deepen the understanding around the research problem. This approach was relevant to the research question given that it seeks to understand the factors that led to the decline of the piston manufacturing industry. It is the researcher's considered opinion that the decline of the pistons manufacturers in the SACU can be best understood through using qualitative research methods.

The semi structured interviews provided the researcher with the flexibility to deliberate with the participants and to obtain insights on the dynamics faced by the piston manufacturers at the time. It was a worthwhile

experience for the researcher to observe the participants recollecting their thoughts on what actually led to the collapse of manufacturing of pistons in the SACU market. Some participants diverted from discussing the pistons research to raising their frustration either about the government policy or the conduct of certain players in the automotive sector. The researcher's role in the context was to ensure that the participants are guided accordingly.

3.2 DATA COLLECTION

During the data collection period, the researcher spent an average of sixty minutes per interview with each respondent. This was meant to ensure that there was adequate time to deliberate on the piston manufacturing industry issues. However some participants were unable to spend more time with the researcher due to time constraints and busy schedules.

3.2.1 Selection of Research Participants

The participants of this research were selected based on their knowledge and experience in the automotive sector. This refers to the automotive sector associations, local engine assemblers and companies who used to manufacture pistons in the SACU region. The research participants were classified as follows:

Manufacturers: As indicated in both Chapter 1 and Chapter 2, the SACU region only had two manufacturers of pistons: Federal Mogul South Africa (Pty) Ltd and Kolbenco (Pty) Ltd. As part of data collection, the research was focused on engaging with these two local manufacturers who provided valuable information that enriched this research. These two companies are no longer involved in the business of manufacturing the product in question; hence it was imperative for the researcher to engage with these companies on what exactly led to the demise of the piston manufacturing industry in the SACU region.

Engine manufacturers: The pistons manufactured by Federal Mogul and Kolbenco were mainly supplied to the local engine assemblers, namely, Toyota South Africa, Ford South Africa and Volkswagen South Africa (Pty) Ltd. Toyota is no longer assembling engines in the SACU although Ford South Africa and Volkswagen South Africa are still assembling engines in the SACU. These stakeholders were also invited to participate in this study. Toyota was represented by Mr. Henry Pretorius (Senior Executive Advisor to the President of Toyota South Africa). VWSA was represented by Shaun Schoeman (Manager: Technical Controlling Division). It must be borne in mind that the findings of this research do not include the perspective of Ford South Africa as the company was unable to participate in the research as requested.

Automotive Association: Federal Mogul and Kolbenco were members of the local components manufacturers association, the National Association of Automotive Components and Allied Manufacturers (NAACAM). The researcher then saw if fit that as part of conducting the research the automotive components should be given an opportunity to deliberate on the decline of the piston manufacturers. The contribution from the association assisted in terms of providing the perspective around the engine components manufacturers specifically the pistons industry. The interview with the association was convened with Roger Pitot (former Executive Director of NAACAM) in Pretoria.

3.2.2 Data analysis

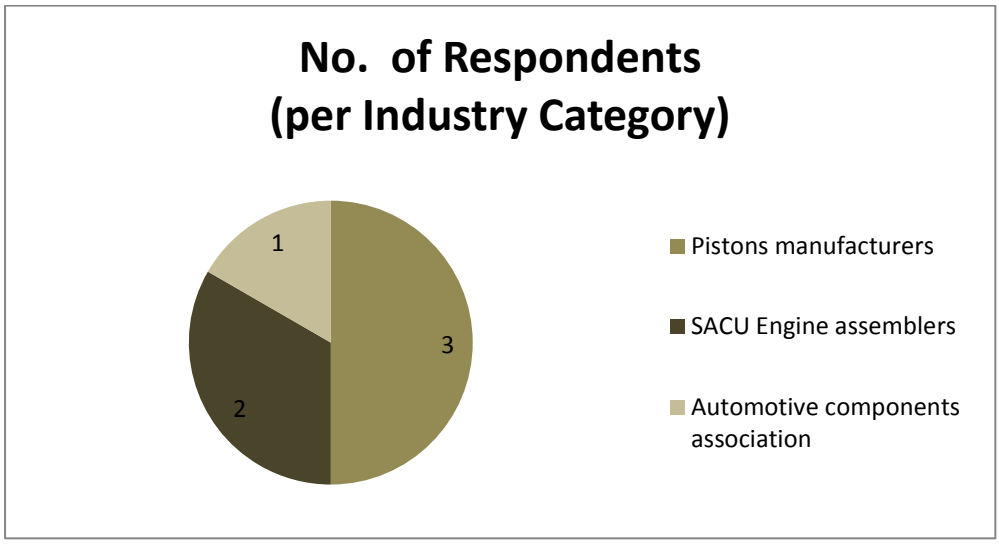
Following the collection of data from the stakeholders, the researcher had to compile and analyze the data obtained. Each stakeholder interview was transcribed. The data from the stakeholders was carefully analysed by the researcher through highlighting and developing insights. These insights were further grouped into specific themes and categories. The themes have been deliberated upon on this research since they form part of the research outcomes.

CHAPTER 4 – RESEARCH FINDINGS AND DISCUSSIONS

The purpose of this study was to investigate the causes that led to the decline of piston manufacturers in the SACU region. In particular, the study intended to ascertain whether or not piston manufactures failed to secure contracts with original equipment manufacturers (OEMs). In search of answers to these questions, this study undertook a journey of discovery through literature already undertaken in this subject area. The literature findings are outlined in Chapter 2 above.

Furthermore, the study underwent a series of interviews with various industry stakeholders to gather more information on the subject matter. All discussions took place in the form of one-on-one interviews. Stakeholders came from various sectors of the industry. The illustration below indicates the categories represented by the respondents, as well as their percentage representation.

Figure 3: No. of Respondents (per Industry Category)



In attempting to answer the research questions, the research areas were used as a basis for gathering empirical findings. The correlation between the literature findings as well as data findings will provide a basis for the research question to be answered.

Table 7: Hypothesis Statements

Hypotheses Statement	Hypotheses (short description)
The MIDP did not benefit the pistons manufacturers in SACU.	Government Intervention
There is no correlation between the locations in which the vehicle is manufactured (assembled), to the location in which pistons are manufactured.	Local and Global Competitiveness
Manufacturing of pistons is not done by the engine assemblers, but rather outsourced to engine components manufacturers	Investment

The findings in this section are presented based on each of these hypotheses. Each hypothesis is unpacked and deliberated upon based on the empirical research conducted for this study. Findings relating to each hypothesis are discussed in detail in sub-sections to follow.

4.1 HYPOTHESIS - GOVERNMENT INTERVENTION

The South African government, between the years 1995 to 2012, provided an incentive to the automotive sector as a whole. This incentive was geared towards ensuring that the local manufacturers were competing in the international market through exporting locally manufactured goods to other destinations. The semi structured interviews that were conducted with both the local manufacturers and other stakeholder regarding the role of government in the pistons manufacturing revealed the following:

Local content: For the eligibility under the MIDP programme, participants were expected to atleast meet 25% of local value addition (Flatters, p. 7). The local value addition requirements are as per the MIDP eligibility conditions. Furthermore, the DTI (2007, p. 2) visions the encouragement of local value addition in the light of promoting industrialisation locally as well as supporting other local manufacturing sectors. Emphases on percentages of local value additions are ultimately envisioned to contribute to industrial linkages across sectors. Both Kolbenco and Federal Mogul submitted that for the manufacturer of pistons they were sourcing their inputs such as steel and aluminum locally from Richards Bay and Pietermaritzburg. According to the manufacturers, steel and aluminum contributes to more than 90% of the final product. This suggests the local manufacturers were far ahead in terms of meeting the local content requirements under the programme and therefore were eligible for participating in the programme. Through the NIPF, the DTI (2007, p. 6) intends to change the structure of industrial growth by ensuring that local value addition requirements are geared towards creating diversification in the local manufacturing.

Exports: Key to the MIDP eligibility, the products manufactured locally must be exported outside the SACU region. This suggests that the local piston manufacturers had a responsibility to secure export contracts with

other companies outside the region in order to fully benefit under the programme. This has proven to be a difficult endeavor for both the companies who used to manufacture the pistons. These companies indicated that they managed to claim MIDP benefits since they exported to Brazil, United Kingdom and Germany though in very small quantities. F. Stoltz (personal communication, October 25, 2013) indicated that for the local manufacturers, their desire to enter the export market was limited by the fact that their companies were international companies with manufacturing plants across the world. Therefore they had clearly defined export territories to avoid competing with other manufacturing plants in the international market. C. Hillier (personal communication, October 25, 2013) explained that Federal Mogul contract to export in the United Kingdom had to be negotiated and agreed upon with the international group under strict conditions. In this regard, both the SACU piston manufacturers were propelled by contracts with their parent organizations to depend solely in the domestic market. Accordingly, H. Pretorius (personal communication November 27, 2013) the local manufacturers were supplying pistons to local engine assemblers such as Volkswagen, Toyota and Ford who were assembling engines for the local and export market. However, under the MIDP, the beneficiaries should be the direct exporter of the final products. The local manufacturers stipulated that since the pistons were assembled into engines and exported by the engine manufacturers, they were unable to claim benefits due to the fact that they were not the direct exporters.

The DTI (2007, p. 17) seeks to use the industrial policy for the creation of conducive environment for local manufacturers in order to compete in the export market and to change the pre-1994 industrial economy outlook where South Africa was exporting mainly raw materials that were not beneficiated. In this regard, the NIPF intended to ensure that the South African economy is integrated into the world economy in the more export-oriented and diversified manner" (2007, p. 17)). Evident from the responses from the piston manufacturers, exportation of their products was already limited by contractual agreements with their parent organizations. This affected any potential opportunities for the manufacturers to fully explore the international market thus compromising their chances to benefit under the MIDP.

Tariffs: The DTI (2007, p. 41) recognizes that South Africa uses tariffs as one of the industrial tools and that has an impact on productivity growth, investment and technology of different manufacturers. The local manufacturers revealed that they had to compete for the SACU market with cheap imports from other countries. Despite not meeting some of the MIDP conditions, the piston manufactured in the SACU had a customs duty protection of 20% at the time. Furthermore, the SACU pistons had a bound rate of 30%. Invariably, some local manufacturers, across all sectors, who are facing competition against imports, apply to the government to increase the customs duties to a WTO bound rate. This is a practice meant to give an edge to local manufacturers in the domestic market. However, increasing customs duties does not automatically mean the local manufacturers will be competitive. As evident from the interviews conducted, it appears that the increase in import duties was not seen as an option to mitigate on the challenges faced by the local manufactures against imports. C. Hillier (personal communication, October 25, 2013) revealed that the

challenges that were faced by pistons manufacturers were much bigger than trade instruments such as import duties and that the business was no longer sustainable. Even if the government intervened through increasing the import duties from 20% to a WTO bound rate of 30%, the SACU piston manufacturing sector would have continued its steady demise. This outlook was further supported by C. Eddy (personal communication October 30, 2013) who dismissed the relevance of import duty protection in the pistons industry and that the manufacture of piston in the SACU market would not be viable even if the import duties were pushed to a maximum WTO bound rate. The DTI (2007, p. 42) supports the local manufacturers opinion that tariffs are not always the barrier or only measure for maximum protection.

4.1.1 Discussions

The MIDP eligibility requirements should be viewed in the context of the trying to complement the local industrial policy. By it very design, the MIDP was an export oriented programme. This meant that the components eligible to participate under the programme had to be exported outside the SACU market. It was evident from the interviews conducted that central to the local manufacturers not meeting the MIDP conditions was the fact that they were limited from exporting their products. The piston manufacturers' challenges to export their products should be understood in two folds. Firstly, it was their inability to secure contracts with engine assemblers outside the SACU market and secondly, it is apparent from the data collected that the companies who used to manufacture pistons were in some ways prohibited from exporting to other regions. The prohibition to export to other regions was decided by their parent organizations. It was determined that initially local manufacturers strived to export their products though not in sufficient quantities. Due to this, the piston manufacturing business was focused on trying to compete in the local aftermarket sales and supplying the local OEMs. The Global Emissions Management (2008, p. 9) argues that the success of the South Africa's automotive sector depends on the performance of car assemblers and components manufacturers to compete in the export market without earning benefits under the MIDP. The literature review and interviews conducted shows that the automotive sector in South Africa owes most of the positive developments to MIDP. The pistons manufacturers divulged that not meeting the MIDP requirement hindered their development prospects since they were no other government incentive they could benefit from.

The export orientation nature of the MIDP was merely a strategy meant to expose local production to the international markets. Ultimately, the government envisioned that exporting South African manufactured products to other regions will yield positive results in the form of economic growth (DTI, 2007). C. Eddy (personal communication, October 30, 2013) argued that despite the MIDP not having provided adequate protection to the piston manufacturers, but the existence of several OEMs and other components manufacturers owes their existence to the export credits earned from participating in the programme. It can therefore be concluded that, although the government had good intentions to incentivize the local automotive

sector in order to compete at an international level, the piston manufacturers had their own unique challenges that were outside the scope of government intervention.

4.2 HYPOTHESIS – LOCAL AND GLOBAL COMPETITIVENESS

Through the NIPF, the DTI (2007, p. 46) recognizes that South Africa's manufacturing sectors faces pressures from other foreign manufacturers such as India and China. According to the NIPF, some of these pressures are as a result of trade liberalisation and "*cut-throat price competition"*, therefore local industries should undergo for an industrial upgrading programme to ensure that local firms upgrade their capacities to enhance their performance in other markets.

The literature that was reviewed exposes that engine assemblers locally and internationally are sourcing components from different regions for the assembling of engines (Sutton; 2004). Pistons as engine components were part of this sourcing tradition. Black (2002, p. 13) and the (Automotive Industry Export Council, 2013, p. 20) show that the SACU exports of engine parts has been on the rise - since 1996. This also includes the fact that the local engine parts sector performance was ranked as number two on the SACU's leading exported components (Automotive Industry Export Council, 2013). This supports the assertion that the engine assemblers from other regions were indeed importing some of their components from the SACU region.

Sutton (2004, p. 10) explains that large vehicle corporations from countries such as China and India are importing components such as piston as they generally do not manufacture these products in-house. As expected, identifying a supplier of a particular product requires the OEMs to scrutinize the capacity and the efficiency of the respective supplier (Sutton; 2004). For this reason, the question of quality and cost comes to play. The component manufacturers are expected to demonstrate their viability to the OEMs that they can deliver regardless of their geographical location. Schoeman (personal communication, April 22, 2014) revealed that VWSA, once investigated Federal Mogul pistons and they did not meet their required standards. This implies that the piston manufactured by Federal Mogul did not meet the technical requirements of the local OEM and therefore the company was unable to compete.

The literature review also shows that there seem to be positive growth trends in the local automotive sector since the introduction of the MIDP in 1995. These growth trends are registered in a form of export values and quantities. However, the DTI (2013, p 78) argues that despite successes in the automotive industry, the local components manufacturers are not yet internationally optimal.

The table below indicates the growth spurts that occurred in the different regions for passenger vehicle production. These growths in different regions for passenger vehicles signals the stage of development in which South Africa finds itself in the automotive sector in general and therefore can be used to make logical developments on the trends and demands for locally manufactured components in the international market.

Table 8: Passenger vehicle production in selected developing regions/countries

Region	1991	1993	1995	1997	Growth (%) 91 – 97	1998*	Growth (%) 97 - 98
Eastern Europe**	340,804	565,650	608,434	921,203	170.3	1,007,000	9.3
India	209,344	243,869	388,520	486,132	132.2	450,000	-7.4
Mercosur***	819,416	1,387,242	1,529,438	2,045,784	149.7	1,680,000	-17.9
China	81,055	221,697	320,578	481,611	494.2	458,000	-4.9
ASEAN****	N/A	364,360	492,149	486,895	(93) 33.6	215,000	-55.8
Mexico	720,384	835,090	699,312	854,809	18.7	920,000	7.6
South Africa	197,750	195,032	242,488	228,179	15.4	200,000	-12.7
TOTAL	3,368,753	3,812,940	4,280,919	5,504,613	(93) 44.4	4,930,000	-10.4
* Projected production levels			** Poland, Hungary and Czech Republic				
*** Brazil and Argentina			**** Malaysia, Thailand, Philippines, Indonesia				

Source: (Barnes, 1998)

As can be seen in the table above, South Africa's growth rate was insignificant compared to countries such as China and India. This table only observes the trends of the local automotive sector compared to other regions, this despite the fact that it does not cover the period under investigation. Between 1991 and 1997, South Africa only registered a 15% growth rate compared to 132% of India and 494.2% of China. The table above also shows that the Mercosur and Eastern Europe region registered a steady increase in passenger vehicle production by 170.03% and 149.7% respectively.

The data collected through the literature reviewed and interviews with the stakeholders suggests that SACU piston manufacturers underwent rigorous competition from the global market (C. Hillier, personal communication, October 25, 2013). A number of changes that were witnessed in the international automotive sector resulted in ripple effects to regions throughout the world. Barnes (1998) asserts that despite automotive component manufacturers efforts to export their products; the global market has been faced with overcapacity challenges in the automotive components space. Barnes (1998) argues that global overcapacity challenges resulted in the automotive component manufacturers having to restructure their manufacturing plants in order to respond to stiff global competition. The global overcapacity referred to coincide with the decline of SACU pistons manufacturers at the same time as there was stiff competition across all

manufacturers within the automotive sector. Despite being limited by the contractual agreements with their parent organizations, the local pistons manufacturers attested to the fact that their pistons manufacturing equipment did not match the international trends, hence their cost of manufacturing was high and therefore resulted in them being uncompetitive. C. Eddy (personal communication, October 30, 2013) stated that their manufacturing lines produced high rate of defects and as a result their input costs were significantly high rendering their plant not viable.

It became clear from the deliberations held with participants that both South African automotive components manufacturers are facing stiff competition from other international manufacturers. The SACU piston manufacturers attested that global competiveness was indeed a challenge. This challenge was attributed to the fact that China and India had companies who were competing in the pistons manufacturing sphere. Both the SACU pistons manufactures asserted that as much as they would have appreciated being able to obtain long term export contracts with OEMs outside the SACU market, their competitors from both China and India were much stronger .Consequently, the local piston manufacturers had to compete in the SACU space both for the OEMs business well as for and the aftermarket. Regrettably, with the local manufacturers' inabilities to compete at international level, this also applied to the SACU market sphere since they were expected to compete with the imported products from other regions. Both the manufactures confirmed during their interviews that the selling price of the imported product was far less when compared to their ex-factory selling price. C. Eddy (personal communication, October 30, 2013) indicated the SACU major competitors in the international market were from countries such as China (Taiwan), India and Turkey. The local manufacturers attributed the success of the piston manufacturing plants of India and China to their global competitiveness with high end technologies that have helped them to increase their quality and volumes to dominate their domestic markets as well as to penetrate international markets.

4.2.1 Discussions

What can be confirmed under this hypothesis is that the automotive sector sourcing decisions have everything to do with cost. The SACU piston manufacturers accepted that over and above their manufacturing inefficiencies, the cost of their products was certainly a challenge. Moolman (2012) argued that despite the positive growths in the automotive industry over the years, the pistons manufacturers struggled since it was cheaper to import the pistons from other countries than to source them locally. The local cost of production and ultimately the ex-factory selling price were not competitive in both the international and local markets hence the decision to close down manufacturing operations.

4.3 HYPOTHESIS - INVESTMENTS ON CAPITAL EQUIPMENT

South Africa manufactures several automotive components. These manufactured components are mainly destined for the local and international markets. South Africa's involvement in the manufacture of automotive components resulted in the presence of different multinational corporations who are involved in the business of manufacturing different automotive components. The manufacture of components in South Africa and elsewhere therefore relies on levels of investments, especially on capital equipment on a continuous basis. Buthe and Milner (2008, p. 741) explains that multinational corporations have over the years, increased their level of investment in developing countries. According to Buthe and Milner (2008, p. 741) in 2005 alone, foreign direct investments to developing countries rose to a staggering $334 billion. Black (2002, p. 15) confirms that investments are intrinsically linked to plant upgrades to achieve increased quality requirements and higher volumes.

In South Africa, the presence of different manufacturing sectors has benefitted the country on different fronts including the creation of employment, diversifying the manufacturing base and economic development. Black (2002, p. 3) points out that with the manufacturing of automotive components, foreign direct investments have played a positive role in the increase of South African production volumes of automotive components. Investments, especially on capital equipment boost organizations in terms of ensuring that they produce products efficiently and effectively.

The interviews conducted with the stakeholders confirmed two assertions. Firstly, the local manufacturers stated that the manufacturing of pistons was indeed a challenge, especially when it comes to defects. According to the manufacturers, the difficultly in the manufacturing of pistons was experienced due to the fact that their manufacturing operations were old. Over and above the machine manufacturing errors in producing defects, the manufacturers stated that the temperature management was also a challenge (F. Stoltz, personal communication, October 25, 2013). They argued that the pistons had to be manufactured in a *"pistons temperature"* since the piston operates at hot temperatures. The manufacturing of pistons requires that they guard against any changes in weather since this can affect the metals used for pistons manufacturing (F. Stoltz, personal communication, October 25, 2013). The companies stated that any change in the weather causes the metal to expand hence the defects. Due to the defect challenges a number pistons did not meet the required standard (C. Hillier, personal communication, October 25, 2013). It is evident from the interviews with the stakeholders that the manufacturers also indicated that they did not have adequate technology to melt the defects for re-use purposes.

The manufacturers indicated that their competitors from other markets had all the necessary technology required to address temperature challenges and defects (C. Hillier, personal communication, October 25,

2013). Therefore, the defects challenges resulting from outdated capital equipment negatively affected the local manufacturers. On a continuous basis, the local manufacturers had to rely on their old machines to manufacture the products (C. Hillier, personal communication, October 25, 2013). Furthermore, the interviews revealed that some local engine assemblers terminated contracts with local piston manufacturers mainly because of quality related issues. The companies that were manufacturing pistons stated that most of their capital equipment had been capitalized years ago. The machines were breaking frequently and companies had to employ more people to maintain the machines. The manufacturers indicated that based on the 2008 estimates, each plant would have needed R400 million investments. This amount would have ensured that their plants purchase modern machinery and all the required technologies to compete in the international market (C. Eddy, personal communication, October 25, 2013).

4.3.1 Discussions

Feedback obtained during the interviews suggests that the SACU pistons manufacturers did not possess latest technologies and capital equipment to manufacture efficiently. The local manufacturers confirmed that matching the production trends in the pistons industry would have required heavy investments on capital equipment. Due to a lack of investment in this manufacturing segment, this led the piston manufacturers to make the decision that maintaining the plant with outdated equipment was not sustainable. It therefore appears that the closure of the piston manufacturing in SACU was coupled with inadequate technological changes in the manufacturing line.

It also seems that local manufacturers were unable to invest in the latest technology to enable them to compete with other manufacturers. The companies admitted that due to the unattractive nature of the piston business at the time, they were unable to attract investments for the purposes of modernizing their manufacturing plant. The research compiled does not suggest that the only form of investment available for companies should be from external sources. Many companies do fund their own projects. However, it is evident that the local manufacturers were only hoping for external intervention to rescue their manufacturing business. With the absence of proper investments, the local manufacturers continued to use their old equipment and to hire companies to service their machines. The environment under which the pistons manufacturers were operating on was no longer viable to compete both on local and international markets.

4.4 ADDITIONAL FINDING - ECONOMIC RECESSION

The year 2008 marked the beginning of the world economic crisis. The economic crisis affected the world economy on many levels especially the manufacturing and services sectors. The entire automotive sector

value chain across the globe was also affected by the economic crisis during this period. The impact of the economic crisis stretched to a loss of company profits, sharp reductions on manufacturing volumes, decommissioning of capital equipment and ultimately, retrenchments (Sturgeon and Biesebroeck, 2010).

The SACU pistons manufacturers closed down operation between 2007 and 2009. The manufacturer that closed down in 2007 was not affected by the economic recession, whilst the manufacturer that closed down in 2009 experienced additional challenges owing to the economic crisis at the time. F. Stoltz (personal communication, October 25, 2013) mentioned that the impact of the economic crisis in the piston manufacturing sector made things worse. The economic crisis was an additional burden for the already stressed Kolbenco. According to Sturgeon and Biesebroeck (2010, p. 6) the component manufacturers from developing countries were hit hard by the economic recession, given that the several OEMs resorted to "cancelling orders, unpaid supplier invoices and temporarily shuttering manufacturing plants". The research respondents attested to this assertion. The global economic crisis had a negative impact on the automotive industry as a whole. Sturgeon and Biesebroeck (2010, p. 6) argues that due to the economic crisis, this halted consumer's appetite for purchasing vehicles and vehicle components. The consumer response to the economic recession through savings eventually affected the entire automotive value chain (Sturgeon and Biesebroeck, 2010). The research participants further divulged that during the economic crisis the nature of doing business locally and internationally became inflexible (C. Eddy, personal communication, October 30, 2013)

F. Stoltz (personal communication, October 25, 2013) indicated that at the beginning of the economic meltdown, the company was manufacturing an average of 1000 pistons per day. This figure was further reduced to about 250 pistons per day due to impinging economic challenges and lack of product demand in the market. This was a challenge in the light of the fact that the company's manufacturing capacity was about 200 000 pistons per month. Prior to the global economic recession, the company's actual production was between 60 000 to 70 000 pistons per month.

4.4.1 Discussions

The findings to this research point on the fact that the closure of the piston manufacturers coincided with the crisis period. The economic meltdown was a global phenomenon that affected the international economy as a whole. Many manufacturing sectors struggled to operate profitably as a result of the economic crisis. The automotive sector both in the international and local market also experienced the hardships brought by the economic meltdown. OEMs in other markets also had to reduce their vehicle production volumes and others had to stop the manufacturing of certain vehicle components due to a serious lack of demand within the market (Sturgeon and Biesebroeck, 2010). The OEMs strategy meant that the component suppliers had to

follow the trend of reducing their volumes. In this regard the piston manufacturers indicated in the interviews that their volumes were heavily reduced during the economic meltdown.

As indicated, the SACU market had only two piston manufacturers. The first company (*Federal Mogul*) to close down the piston manufacturing operations was in 2007 and the last company (*Kolbenco*) closed manufacturing operations of their pistons in 2009. The period under which the SACU piston manufacturers closed down indicates that the global economic crisis cannot be blamed for the demise of the piston industry in the SACU. This finding on this study only shows that the economic crisis aggravated the challenges faced by one of the piston manufactures, Kolbenco since the company that closed down in 2009. Prior to the economic crisis, the pistons manufacturers were faced by other challenges that made it difficult for them to take advantage of both the local and international markets.

4.5 ADDITIONAL FINDING - SIZE OF THE SACU MARKET

The SACU region consists of five member states (South Africa, Botswana, Lesotho, Namibia and Swaziland). These member states entered into an agreement to, amongst others, help bring about trade facilitation and industrialisation within region. Article 38 of the SACU Agreement (2002, p. 33) explains the need for member states to have a balanced industrial development and to develop common policies. The literature review conducted shows that contrary to the SACU's *"balance industrial development"* ambitions, South Africa continues to be a dominant player in the region. In 2013, South Africa's contribution to the SACU combined population was 86%, with regards to SACU combined GDP, South Africa contributed 90.7% (Central Intelligence Agency, 2014). What can be deduced from these statistics is that the SACU region is dependent to one member state i.e. South Africa. Both the SACU pistons manufacturers were based in South Africa.

F. Stoltz (personal communication, October 25, 2013) argued that the SACU market was very small and therefore the piston manufacturers struggled to survive. This is because they were only focused on the local market. H. Pretorius (personal communication, November 27, 2013) revealed that the SACU engine assemblers were sourcing the pistons locally and internationally. This means that the local manufacturers had to compete for the local OEMs business and the aftermarket against imports. Owing to this scenario, the SACU market became very small for the local manufacturers. An issue of local engine assemblers importing pistons from China was also confirmed by S. Schoeman (personal communication, April 22, 2014).

4.5.1 Discussions

The automotive sector in South Africa is spread across four provinces namely KwaZulu-Natal, Western Cape, and Eastern Cape and Gauteng provinces. In South Africa, pistons were only manufactured in Gauteng. Compared to other SACU member states, South Africa is generally regarded as the most industrialized member state in the region. McCarthy (2013) explains that some of the SACU member states are landlocked and therefore depending on the South African harbours for trade. What is also notable about the SACU region is that most manufacturing activities take place within the South African borders.

The demand for the piston in the SACU market versus the production capacity of the local manufacturers was also a challenge. It emerge from the interviews that the pistons business is volume driven. In order for local manufacturers to survive they needed to manufacture more pistons. This was going to atleast give a boost for the local business. The local manufacturers had a capacity to manufacture for the entire region; however the demand for their product in both the aftermarket and OEM business was shared with the imports.

4.6 RESEARCH LIMITATIONS

The discussions and findings contained in this research study are only intended to answer the research question posed in this paper. In this regard, the findings cannot be used as conclusive remarks on other engine components manufactured within the SACU region.

Pistons for diesel and petrol engines are classified under tariff subheading 8409.99.30 and 8409.91.27 respectively. These classifications include other products such as cylinder liners and piston rings. The inclusion of different products under the same classification inhibited the researcher from using the import and export statistical information to observe the trade and performance of the pistons in the SACU and international markets.

The decline of pistons manufacturers in the SACU took place between four and five years ago and one of the manufacturers filed for liquidation after the closure. Conducting a study on the industry which is no longer in existence posed a challenge to the researcher given that both the companies that were investigated could not provide any further information over and above interview questions. This information would have referred to cost and price build-up, accurate values of investments and their levels of price disadvantages compared to imports from countries such as China. Furthermore, this information would have provided an in-depth understanding of the piston manufacturing sector for future research.

Lastly, regardless of the role played by the automotive industry in the SACU, there seems to be limited information in as far as available literature is concerned. As a result of this limited information, it forced the researcher to rely mainly on studies written about the automotive sectors from other regions and made it difficult to compile a succinct literature review. Due to the lack of relevant studies and quantifiable data regarding the piston industry in the SACU market, the researcher was propelled to investigate this industry through qualitative means. Conducting a research study on a problem that has not been explored before has proved to be a challenge on the side of the researcher given that the researcher had no similar studies to use as a benchmark.

CHAPTER 5 – CONCLUSION

The purpose of this study was to investigate the factors that led to the closure of pistons manufacturers in the SACU region. As a follow up to this, the study also aimed to determine whether or not the piston manufacturers failed to secure further contracts with OEMs. The study was carried out with the intention to understand the relationships that existed between business practices and government policy, particularly the MIDP. This research has uncovered that the role played by government during the period 1995 to 2012, through the MIDP programme, was to attempt to increase the competitiveness of both the local vehicle and component manufacturers into the international market. Further, the research noted that the MIDP made some improvements on the automotive sector thus helping the SACU region to increase its scope of industrialisation as well as achieving other government objectives such as the creation of employment.

This study was meant to go beyond the initial investigation conducted by ITAC that culminated in the import duties on pistons for petrol and diesel engine being faced down from 20% *ad valorem* to free of duty. Linked to the findings of the study is that the local manufacturers were limited to export their products outside the SACU region. As a result of this limitation, the local piston manufacturers were only limited to operate in the SACU market. It was also found in the study that the SACU market was not big enough for the local manufacturers to produce sufficient volumes for the survival of their business.

It was found that despite the good intention of the South Africa's industrial policy trying to encourage local manufacturing, the piston manufacturers were unable to benefit from the government framework. The literature review in this study highlighted a number of advancements in the local automotive sector, especially the increased export volumes on engine parts. It can therefore be concluded that the government's enabling framework, the NIPF and the MIDP, did not benefit all the stakeholders in the automotive sector. It is evident that some of the challenges faced by the piston manufacturers such as; market sharing agreements with their parent organizations, the extent of investments on capital equipment and constraints around the size of the SACU market were beyond the scope of government intervention. The study therefore concludes that the government industrial policy cannot be used to remedy all industry related challenges.

Going forward, this research presents another window of opportunity for future research on how automotive components such as pistons would benefit under the new APDP programme. There is also a need for future research to determine whether government support on industrial upgrading programme was sufficient to support struggling manufacturers such as pistons. Such research should intend to benchmark the manufacturing infrastructure possessed by the local firms with other international firms that are competitive.

Over and above the piston manufacturing business, this study has shown the trends that other local component manufacturers benefitted from the MIDP and thus they still exist in the local market. There is therefore the need for the study that will investigate the extent to which the MIDP benefited these local manufacturers especially when it comes to assisting them to export their products to other markets. The study should also weigh if at all the local manufacturers would have been able to export to other regions without the MIDP support. Lessons can then be drawn on how the South Africa's industrial policy was beneficial to these different engine parts that continued to rise despite the challenges faced by the piston manufacturers.

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APPENDIX A: LIST OF PARTICIPANTS

Name	Position	Company	Contact details	Interview date	Venue
Mr. Henry Pretorius	Executive Advisor to the President of Toyota South Africa (Pty) Ltd	Toyota South Africa (Pty) Ltd, Isipingo (KwaZulu Natal)	Tel: 031 910 2500 Email: pretorius4@toyota.co.za	27 Nov 2013	Department of Trade and Industry campus, Sunnyside, Pretoria
Mr. Colin Eddy	Former founder and Managing Director of Kolbenco South Africa	Kolbenco South Africa (Pty) Ltd	Tel: 011 864 7930 Email: colin@deltecpower.co.za	30 Oct 2013	Deltec Power Offices, Alberton, Johannesburg
Mr. Chris Hillier	Former Sales & Marketing Director	Federal Mogul South Africa (Pty) Ltd	Tel: 011 630 3000 Email: chris.hillier@federalmogul.com	25 Oct 2013	Federal Mogul offices, Western Boulevard, Johannesburg
Mr. Fanie Stoltz	Former Sales Representative at Kolbenco	Kolbenco South Africa (Pty) Ltd	Fanie.stoltz@federalmogul.com	25 Oct 2013	Federal Mogul offices, Western Boulevard, Johannesburg
Mr. Roger Pitot	Former Executive Director	National Association of Automotive Component and Allied Manufacturers (NAACAM)	Tel: 082 789 5368 Email: investments@mweb.coza	15 Jan 2014	Department of trade and Industry campus, Sunnyside, Pretoria
Shaun Schoeman	Manager – Technical Controlling Division	Volkswagen South Africa (Pty) ltd	Tel. 041 944 5650 Email: schoe07@vwsa.co.za	22 April 2014	WVSA, Uitenhage

APPENDIX B: INTERVIEW LOG

B1 Federal Mogul and Kolbenco Interview

Securing interviews with this stakeholder was not a complicated process; this despite the fact the Kolbenco no longer exists as the company was closed down. In this regard, the researcher had to trace the contacts of the former Chief Executive Officer (CEO) who was more than willing to participate in the research programme and to share his experience on the performance of pistons manufacturers in the SACU market. Federal Mogul also accepted the request for the interview. Interesting to note is that despite the fact that Federal Mogul no longer manufacturing pistons, the company is currently manufacturing several automotive components. Federal Mogul was represented by the Mr. Chris Hillier (Sales and Marketing Director – Africa) on the other hand, Kolbenco was represented by Mr. Colin Eddey (interview log B3) (former CEO of Kolbenco, now CEO of Deltec Power (Pty) ltd. Also present in the Federal Mogul interview was Mr. Fanie Stoltz (Former Sales Representative at Kolbenco). Mr. Fanie Stoltz now works for Federal Mogul. The meeting with Federal Mogul was held in Western Boulevard (Johannesburg) whilst the meeting with Kolbenco was held in Alberton (Johannesburg).

Date: Friday, 25 October 2013, 11:24am
Duration Clip 1: 00:14:43 hours **Duration Clip 2**: 00:26:50 hours
Attendance: 1. **Interviewer**: Mr. Sipho Tshabalala (M.Com UCT Student) 2. **Participant 1**: M. Chris Hillier (Sales and Marketing Director – Federal Mogul (Africa)) 3. **Participant 2**: Mr. Fanie Stoltz (Former Sales Representative at Kolbenco)
Interviewer: Thanks for accepting my request for the meeting. As I have indicated that I am doing an academic research about the decline of the SACU piston manufacturers. I am trying to understand this industry by engaging with different stakeholders…. **Participant 1**: Ok. Post 1994, all technology was allowed. Sanctions were dropped. Therefore, we had companies, for arguments sake, e.g. Toyota saying that old engines were no longer needed in South Africa. They wanted to new technology. Therefore, what ended up happening was that engine plants were now closing at South Africa OEMs level. Therefore, Ford and Toyota started to close their engine manufacturing plants. With that, we had no longer built engines in this country. So then, what ended up happening is that all the engines started being imported from Germany, Japan, or wherever the cars were coming from. Therefore, you had the latest technology from an engine manufacturing perspective. Now as a piston manufacturer, that meant we no longer had OEMs who were assembling engines in this country. Therefore, we were only relying on the aftermarket. Simultaneously, because sanctions had now dropped, imports were being made from China and

the Chinese were very competitive.

Interviewer:

The applied rate on pistons for both petrol and diesel engines was 20%. Invariably, the local manufacturers who were facing competition from Chinese products normally apply for an increase in the customs duty to the WTO bound rate. However, when it comes to the pistons that was not the case…

Participant 1:

In that respect, you are quite right, we probably missed a trick there. However, it was more than that. From our factory perspective, it was not just a question of duty protection. It was a question based on the volumes that we were pushing through the factory, and our perceived future volumes of where we saw the market going. If we wanted to keep up to date with the latest technology and retain volumes or grow volumes, we were going to have to put in huge investments. We had to start a new plant and put in a new foundry, new tools. In addition, piston tools they cost several hundred thousand Rands. The problem would have been, if we did not sell thousands of pistons to match our investments. When we projected the business going forward, it was unsustainable. So even at 30% *ad valorem the business was* unsustainable. Therefore, from an OEM perspective, we took the decision that it was not going to work. We in fact, when ABE started closing their plant down, we were the supplier to ABE, so when they started shutting their plants, that just took volumes out of our factory, it just put further pressure on the factory. We took the view that the time was right to actually close the factory. Kolbenco carried on for a while afterwards.

Participant 2:

Yes, the biggest problem was the global economic recession. During the recession, Kolbenco used to manufacture pistons for engines at approximately 1,000 units per day. This figure declined to approximately 250 pistons per day. Another challenge from the Kolbenco side was that the OEMs were not prepared to accept increases. Therefore, if your volumes go down, your cost goes up, and they would not accept any increases in prices, so you cannot, we were selling a piston to OEMs at a loss. Even with the contracts, negotiated with Ford to agree to take the pistons despite the low volumes at higher prices, it was difficult. The economy was extremely hard that year and that was the biggest factor. We had a couple of contracts with the OEMs. Unfortunately, the SACU aftermarket was just not big enough. To have a sustainable plant in South Africa, you need to manufacture about 200,000 pistons per month. Then you will have a decent plant. You will need to attract more investors Prior the global recession; Kolbenco was producing approximately 120,000 pistons per month. We had a manufacturing capacity for about 200,000 units per month. This means that we were manufacturing less than our capacity. Therefore, that was not helping either. In addition, the market for South Africa was about 100,000 units, including OEMs. Therefore, to have a plant in South African you needed to penetrate the international market through exports. In addition, since Kolbenco was an international

company, that made it difficult for us to export.

Interviewer:

What do you mean?

Participant 2:

Because we were not allowed to export to countries where Kolbenco had manufacturing plants. We were trying to avoid competing with other Kolbenco companies in the international markets. This means that for Kolbenco South Africa to survive, we need to focus on the domestic market. Unfortunately, the SACU market was too small.

Interviewer:

When did you start manufacturing?

Participant 2:

The first set of pistons was manufactured in 1969. Kolbenco closed down in 2009.

Participant 1:

Federal Mogul shut in 2007. We opened 1952 we started with aluminium pistons.

Interviewer:

The OEMS, when did they close down their engine assembly plants?

Participant 1:

They started in 1994, 1995... They started holding it out in the mid 90'S. TOYOTA shut the four-yard plants down in about 2003. They were manufacturing taxi engines. VW stopped the Golf assembly somewhere around there. Some of our pistons were exported to the international market by VW through the MIDP. However, that had to be negotiating with our sister companies in other countries. We did not have this technology in here in South Africa, E.g. diesel engines nowadays run split pistons or articulated pistons. In addition, to have that type of casting technology here in South Africa was going to cost millions of Rand's worth of investments.

Participant 2:

A good example before we close down at our plant, we used to manufacture the BR900 piston, Mercedes piston, and exported to Brazil since Brazil was assembling engines. Brazilian engines were worth about 18,000 euros each. The machine that we use to manufacture pistons was worth R18 million each. That makes one part of the piston and costs R18 million rand, and you sell those pistons at R300 each, it cost you R280 to manufacture. How many pistons do you have to manufacture to pay off one machine? Not even taking into

factor other cost factors.

Participant 1:

The engineering in a modern piston is just awesome. Because the OEM's are driving for lighter vehicles, more powerful vehicles, less emission. Therefore, the engineering in the manufacture of pistons is huge. In addition, the cost of machinery now to manufacture pistons it is just frightening. I mean globally, piston plants have gone to robotics. Take out cost, and to take out scrap. The biggest issue you have as well is scrap rates. In a plant, you have two areas of scrapage. Firstly, it is in the casting process where if you get any form of porosity in the casting process, you throw that piston away. The other one is what they call glow holes where you get a bit of air bubbles in the castings. You no longer have a clean casting, and you cannot machine it. You throw it away. That is one side of the process; the other is machining errors. What happens is when you are setting up a machine to run at certain tolerances. The machine runs out. In addition, the weather, you will not believe it, because pistons have to be made at piston temperatures. Because the design is such that pistons are operating at hugely warm temperatures. When a piston/metal gets hot, it expands. So when the ambient temperature changes, the metal moves up and down. Therefore, if you have not considered those when you are setting up the machine, the machining is set wrong. So it can be cold in the morning when you set the machine up, it runs correctly. However by 10am the sun comes out and this interrupts the machine and the pistons have to be rejected because the temperature has risen. That is how complex it is.

Participant 2:

You have two sides in it. The casting has the amount of fog in the air those stuffs up your casting setting. Therefore, if it is a rainy day, there are problems with aluminium casting.

Interviewer:

So what is the right temperature?

Participant 2:

There is no right temperature. You have to invest in getting the plant to be in one temperature.

Interviewer:

How do you do that?

Participant 2:

Aircons. Heaters. Running through specialised areas.

Interviewer:

For the manufacture of pistons. What else do you use either than aluminium?

Participant 1:

Steel. They put in the ring lenses; they have a thing called an alfern insert that is made of steel. The strut. Then you have a special type of steel, which they machine, called the gudgeon pin. You use spring steel for the clips. The rings used are special steel, which could be a variety of different, rings e.g. Chrome.

Interviewer:

Where were you sourcing your inputs?

Participant 1:

Aluminium was sourced locally from companies such as ALUSAF in Richards Bay

Interviewer:

What was your production capacity for Kolbenco? In addition, what was the actual production?

Participant 1:

200,000 pistons per month for Kolbenco. Their actual production was about 120, 000 per month before they closed down. When all things were going well, they were manufacturing approximately 140,000 units. We were far behind them. We were probably less than they were because they had ore OEM business that we did not. We had capacity for approximately 150,000 units a month. We were probably producing approximately 60/70 000 units of actual production. Between the two of us, we were manufacturing 180,000 pistons, into a market that can only accept only 100,000 units. That was the problem, apart from OEM and things like that. We were exporting to people like Perkins in the UK and things like that. It was a problem.

Interviewer:

So the SACU local actual production would have been 180,000 units per month.

Participant 1:

Yes

Interviewer:

And how were your investments on capital equipment for the manufacture the pistons?

Participant 1:

We had most of the machines paid off many years ago. However, because the business did not make a profit, it is very difficult to invest in new capital equipment. Therefore, as our machines got older, one has to employ more people and that cost more money to maintain the machines. It is more expensive because the machines break more frequently.

Interviewer:

If you were to estimate, how much did you have to invest to establish new piston capital equipment?

Participant 1:

To make another piston plant in this country. About four years ago (i.e. 2008), we had a calculation of about R400 million to start another company which was similar to Kolbenco. In addition, I think it is close to R600 million now. The total piston volumes in the aftermarket, from 1997 – 2005, the market did nothing. We were selling about 1, 2 million pistons a year for the whole SA market. We had too much capacity for the South African Market. Between the two of us, we had capacity to make 350,000 pistons a month. Therefore, that is four million pistons a year. However, the market was 1, 2 million in total. Therefore, we had too much capacity locally. In addition, that excludes imports. So imports now take away that. We reckon we had about 30-35% market share. They probably had similar. 20-25% that was just imported at the time. So if you take 20% of that that is another 250,000 off that. Therefore, between us, we could make four million pistons, but we were only selling 750,000.

Participant 2:

So if you think about it, even in hindsight, even if you were to increase the import duties to 70%, we would have only taken out a small part of the market.

Interviewer:

How many people did you employ?

Participant 2:

At the time, 350 people for pistons manufacturing. Federal Mogul had 270 people.

Interviewer:

Now what happened to your employees after the closure?

Participant 2:

They were unfortunately retrenched. The company went bankrupt. The plant was closed down in 2009. In addition, the amount of skills that went into that part of the business was also lost.

Interviewer:

Where were you exporting your products as Kolbenco?

Participant 1:

We exported very little across the border to Botswana and Zimbabwe. We were exporting to Ford, VW and Nissan.

Participant 2:

I was part of the process when the last few parts were being sold and the machines. Remember I started

working at Kolbenco right out of school. That place changed you. There was love for the place. In addition, to see it being pulled apart was heart breaking.

Interviewer:

Where were you manufacturing?

Participant 2:

Alberton, Gauteng.

Participant 1:

For Federal Mogul, we were manufacturing in Roodepoort, Gauteng.

Interviewer:

So now, you are saying you did not apply for the MIDP permit?

Participant 1:

We did for local exports. It never went offshore. It only stayed well within the SADC.

Interviewer:

So in other words, you never benefitted from the MIDP. Despite the fact that you were the manufacture of automotive components?

Participant 1:

Yes.

Interviewer:

However, for Federal Mogul, you were exporting under the MIDP?

Participant 1:

Yes, we were exporting to Perkins in the UK and one or two other places. However, they were not volumes that were big enough to sustain the factory.

Participant 2:

Yes, we were supplying some to Germany. We had a VW contract on the Golf 1. That contract fell through as soon as the plant closed down. We also had a Polo contract. As result, we had to stay open from January to July of the year after closure to complete that contract. What would have been the replacement was the roadcam in a sense of volumes. It would have been able to sustain the plant. However, that also fell through.

Participant 1:

Perkins is an engine manufacturer in the UK.

Interviewer:

You were only facing competition from China.

Participant 1:

No. Taiwan, Turkey. Then you had specialised applications Germany, Turkey and Brazil. Then on the real big heavy market, there was no production here on things like pistons for caterpillars, etc. So that was all imported from places like the US, Turkey and the UK. China came in with small petrol engines. In addition, the Japanese LDV, they did very well. Taiwan is still a big/strong supplier.

Participant 1:

In addition, things like aluminium and steel. We are not priced locally, i.e. parity priced. It is based on the LME London metal exchange priced. So as that moved up and down monthly, so did your input costs based on the exchange rates and things like that.

Interviewer:

I would have thought that you were sourcing your aluminium from Hulamin in PMB.

Participant 1:

Yes we did. That Hullets Aluminium. They used to be called Hullets Aluminium. They are part of ALUSAF. It's a domestic company. So you would think that you would be getting it out of your local company. Every month, you get a price adjustment. ALUSAF is in Richards Bay with a huge foundry. They have now just moved to Mozambique. They are now one of the biggest investors in Mozambique

Interviewer:

Therefore, you were supplying which OEM companies.

Participant 1:

We did a little bit of Toyota on the 4Y project. Perkins on the export contract. The Nissan 1400 we (with participant 2) shared that contract. We never did VW. We did some stuff for BMW. That as about it. Isuzu has always imported. GM has always imported. We shared Ford. We shared Nissan. In addition, we shared Toyota. We had the ADE Mercedes, and you (Kolbenco) had the Perkins. We always thought it should have been the other way around.

Interviewer:

But you also exported under the MIDP?

Participant 1:

So yes, we exported, but those volumes are never big enough. You have to understand that as a global company, you cannot just decide you are going to Brazil today. Because we have factories in Brazil. We had factories in South America, in the Europe, in the States, and all over. So if I go and try sell in Brazil, I'm going to be competing with my factory in Brazil or wherever I'm going to go to. Therefore, we had clearly defined sales territories as to where we could go. In addition, we have that same factory today.

Participant 1:

We were down in a wiper factory a few days ago in Durban. If I take those wipers and I send them into Europe, the people will have heartache. We have a couple of big wiper factories in Europe. So now, all I do is load my wiper factories over there. Therefore, we are restricted as to where we are allowed to go. The transfer the technology bit, you cannot just sell it anywhere. The exports contact we had under MIDP, the one contract with people like Perkins, been under agreement with our international group. That contract had to be negotiated under very strict conditions with our international group. They gave us problems when we want to export to other countries. In addition, other MIDP exports were done into Africa where we were allowed to go and sell e.g. We were selling in Zimbabwe, so we were claiming MIDP in Zimbabwe, Kenya, Angola, etc. In most cases, we were claiming MIDP for the African contracts but the volumes were small. Almost like a tenth, e.g. South Africa got 6.5 million vehicles. Zimbabwe had maybe a million. Therefore, they were tiny.

Interviewer:

So we can conclude here by saying the main reason for closing down was the OEM?

Participant 1 and Participant 2:

I would say.

1. OEMs
2. Pure economics
3. Cost of re-investments (i.e. Modern machinery for modern engines), remember we even struggled to attract investors.
4. Skills (i.e. technology to run the kind of machinery, we were sending guys to Europe to train) the technology is robotic plants because you are pushing volumes through those robotic plants. It is the only way you can get economies of scale and with it, drive cost down. Therefore, instead of ten people, you have one highly skilled person operating the assembly line. Therefore, he is highly skilled; he still costs you half the price of ten people operating it. However, he is worth twenty of them in skills.)

B2 Toyota Interview

Date: 27 November 2013

Duration Clip 1: 00:06:27

Attendance:

1. **Interviewer**: Mr Sipho Tshabalala (M.Com UCT Student)
2. **Participant 1**: Mr Henry Pretorius (Executive Advisor to the President of Toyota South Africa)

Interviewer:

When did Toyota start assembling engines in the SACU market?

Participant 1:

For the Toyota Hilux, we manufactured what was called a Y-Engine at our plant in Durban. This engine had high local content castings and stuff like that and we fitted it into the Hilux. However, when the new engine came up which was about fifteen years ago. They did not need our capacity; Japan did not need our capacity anymore, because they built new engine plants with enough capacity to supply everybody. In addition, they could not invest on the tooling and the equipment and the machines in another place just for local sales. We were not exporting in those days; it was just for local productions. The volumes were too small and we had to close the engine plant down.

Interviewer:

When did this happen?

Participant 1:

That was fifteen years ago. We were only manufacturing for the local market. We did not export anything. We had a good operation but it was quite small. For domestic Hilux and domestic Hi-Ace sales, that is what we built the engines for. It called 2-Y and 3-Y engines.

Interviewer:

Where were you sourcing your inputs, like pistons?

Participant 1:

The engines are globally sourced; of course, we have the Hilux Fortuner. Those engines come from Japan. In addition, I think, its Philippines, they have an engine plant there. Then for the Corolla, the engines come from the UK. It is the Wales engine plant, they make Corolla engines there. Japans also manufacturer's engines for Corolla.

Interviewer:

For the Hilux project, where were you sourcing your pistons?

Participant 1:

Yes, there was of local content, but I honestly cannot remember if Kolbenco was one of our suppliers. I am sure there supplying us, because Toyota South Africa knows Kolbenco very well. About Federal Mogul, they supplied us with some parts. We got casting done locally. However, this was many years ago, I cannot remember all our local suppliers. We did all the machining in our plant and we were assembling. We also had local casting for crankshafts and camshafts. Basically, our plant was getting the casting business. We wanted to control the machining and engine assembly business. Pistons and rings at one stage were sourced locally, but I have this memory that the local manufacturers had quality problems. Due to quality problems in the local market, were therefore decided to import the pistons and rings.

Interviewer:

You terminated contracts with local suppliers because of quality problems?

Participant 1:

We terminated the contracts mainly because of quality problems and more important to that, during that time, Japan was building engine plants across the world such that there was no longer a need for the SACU to continue assembling the engines. An engine plant is a huge expense and it is normally referred to as a "light-up plant" since it can produce engines without using people. Engine plants are fully automated. The SACU cannot afford these types of investments and we did not have an export market. Today, we export more units in the Hilux project. Roughly 135 000 units per annum. However, this figure is not sufficient to start an engine plant. For an engine plant to be operational, at least you must manufacture 500 000 units per annum. The 135 000 that we are manufacturing is not enough. Therefore, Toyota South Africa does not have enough volumes to justify an engine plant. Ford South Africa and Volkswagen South Africa make their engines for the global market and they have huge volumes, at least they can justify their engine plants. Toyota SA does not have that.

Interviewer:

Are you saying to me, part of the reasons for the termination of contracts with the local suppliers was that there was no sufficient demand for the Toyota SA engines in the global market?

Participant 1:

I think there was two sides to that, when the global economic meltdown hit us, the Germans pulled all operations back into Germany to keep jobs in Germany and they closed local operations. They did that to many suppliers. During the global credit crisis, the Germans right here had operations like clutch manufacturers, brake manufacturers etc. When the global demand and the vehicles sales dropped, they found

that they could not operate plants all over the world. They had to close some plants and then consolidate these plants in Germany. They had to look after German jobs first. I do not blame them; one can understand that countries look after their own industries. We know that these things happened during the global economic meltdown. Second to this is that, I do not think it was the volume issue for companies such as Kolbenco. Assuming that Kolbenco and Federal Mogul were also supplying Ford and VW, surely the volumes were huge for them. I think their closure in the pistons manufacturing has more to it than just volumes. As for Toyota, we closed down our engine assembly plant long before the closure of Federal Mogul and Kolbenco.

B3 Kolbenco Interview

Date: Wednesday, 30 October 2013 12:00pm

Duration Clip 1: 00:14:56 hours

Duration Clip 2: 00:10:35 hours

Duration Clip 3: 00:06:28 hours

Duration Clip 4: 00:03:05 hours

Duration Clip 5: 00:05:53 hours

Attendance:

1. **Interviewer**: Mr Sipho Tshabalala (M.Com UCT Student)
2. **Participant 1**: Mr Colin Eddey (former CEO of Kolbenco, now CEO of Deltec Power (Pty) ltd

Interviewer:

Thanks for agreeing to meet with me. As I have indicated that this is an academic research. I am investigating the piston industry and I am trying to understand the reasons behind the closure of the SACU piston manufacturers.

Participant 1:

Meltdown in the automotive industry. The big players in the United States were all going bankruptcy. All information regarding GM was very well publicised. At that time, Ford South Africa was our biggest customer. They walked into our office, I do not know what instructions they had from their Head Office overseas, they just walked in and said the programs that they had running in South Africa, which was the manufacture of engines down in Port Elizabeth, was going to come to a stop. Therefore, they no longer required pistons from us. So I said, well you cannot do that. We have a contract. Well, I rather recognised that it would take three years to go to court. I would not have a business running at the time, and the legal fees. Therefore, it was inevitable that this plant would close. Which if there was the opportunity to keep the plant going, I would have sued them. However, as it happened, common sense prevailed. In addition, we manufactured two types of products for them. The smaller volume product, the 1.6. roadcam piston. There was a roadcam version, a 1300 and a 1600. The 1300 was the big volume and a 1600 was a small one. In addition, they wanted to stop the 1300, but continue with the 1600 for a relatively short period, eighteen months. Therefore, we reached an

agreement that we would make all of their future requirements for the 1600 within six months; they would pay double the price for the pistons. They would pre-fund it. So they would pay as we manufacture the products, they would pay for it whether they took delivery or not. In addition, we were able to put money into the kitty to rather facilitate the closure of the premises. Therefore, if you want to know what broke the camel's back that was the final straw that broke the camel's back? If you want to know whether I would ever manufacture anything in South Africa again, the answer is clearly no.

Interviewer:
Other than pistons, what else did you manufacture?
Participant 1:
Only pistons.

Interviewer:
How long was the contract with Ford?
Participant 1:
Still to run, we still had a couple of years. With the hope that it would be renewed because they had an engine plant sitting in Port Elizabeth and they wanted it to keep building the engines in that plant and they were exporting the engines because of the MIDP. Therefore, from our perspective, it was going to be an on-going thing. We were also exporting pistons to Daimler Chrysler in Germany. We were selling pistons to Volkswagen. We had to go to them and tell them that we were closing down, they were very unhappy. However, you know there is nothing you can do about it, if you are in manufacturing you needs some critical mass.

Interviewer:
So locally, you were supporting Ford?
Participant 1:
The only people who built engines were Ford and on a smaller scale for Volkswagen. Toyota had already stopped a few years ago. We were also supplying Toyota.

Interviewer:
What was your actual production?
Participant 1:

For Ford, it was just over a one million per annum. For Daimler Chrysler, this was exported back to Germany that was another 200,000. Then there was the aftermarket, which were also about 400,000. We would have had quite a nicely loaded plant. In addition, it would have been obviously more profitable if people actually made the product right the first time. Than we would have made money. However, the skills, the training was just throwing money into an endless bucket.

Interviewer:

What do you mean?

Participant 1:

I mean the people that come out of school, in South Africa, are no longer trainable. I would look for people to employ here. They would arrive with a matric certificate. Then I would make them write a test. They need to be able to do basic maths, arithmetic, and then they needed to be able to read and write. Many of them did not pass that test. It was essential for me that they have a grasp of mathematics because production is all about measuring. It was essential that they needed to be able to read all the safety instructions. In addition, you know when people say they want to work, it is a lie. South African people do not want to work. They want a job. They want a pay check. So that was hugely unproductive.

Interviewer:

So in other words, you did not have adequate skills.

Participant 1:

Look, the productivity became low. Because the person doing the job does not have the full understanding of their actions. Therefore, they think it looks okay. In addition, please understand I invested huge money in training, and retraining. In addition, retraining. Therefore, I am not making this statement without having been at the cold face and really experienced how this country is being destroyed at the degradation of education system. I saw it with my own eyes.

Participant 1:

Now the impact of this is quite simple. It affects your competitiveness because you make everything twice. If you have, a scrap rate or reject rate of 10% or 14%. That comes right off your bottom line. Every time you make it twice, that money you have is gone and thrown away. That in essence was a problem. Now what happens with that is that it affects your cost baseline. Now when you go to contract and secure a new business to bring to South Africa, you have to be globally competitive. However, you cannot be globally competitive if you have an unproductive workforce. Regardless of how much you spend on training, and how well you try to get everybody to cooperate. That is South Africa's Achilles hill.

Interviewer:

And how long were you in existence? In addition, how long did you start manufacturing pistons?

Participant 1:

30 years. It is more. This building was built back in the 1970s. We were manufacturing on this premises. There is a little building at the back that that used to be the whole factory. Then we built another building next door and another building. Therefore, we built these premises over time.

Interviewer:

And how many people did you employ?

Participant 1:

At the time that we closed, there was between 350 and 400. I cannot remember exactly.

Interviewer:

And after you stopped manufacturing, what happened to those employees?

Participant 1:

Well, they were retrenched. The company went into liquidation. Some of them still work for me in a very different capacity, in a different line of work. I mean, those that I was able to save I saved.

Interviewer:

And what happened to your capital equipment?

Participant 1:

We sold it all to whoever would buy it. The bulk we actually sold back to the supplier who was our licence partner in Germany, Kolbenschmidt. Therefore, we sold everything we could. What was left, they came back and made us an offer for it. In addition, we sold it to them basically log stock and barrel.

Interviewer:

So we can conclude that you did not get any benefits whatsoever through the MIDP?

Participant 1:

Marginal. If I did direct export in the aftermarket, as an example, to neighbouring countries. I could then go and sell that credit, that export credit. I could not do anything with it. I had to sell it to either Toyota or Volkswagen. I could not redeem that credit as a component manufacturer. Therefore, we got the fraction of the face value.

Interviewer:

I think there was a reference on the ITAC database indicating that you exported to the African market.

Participant 1:

Yes we did. I had two people in a department that dealt with exports.

Interviewer:

But generally, who were your international competitors.

Participant 1:

The whole world. Our customers and my customers in the aftermarket were my competitors. Therefore, they would buy from me and they import. First the import product was cheaper, and the quality was acceptable, they would buy the imported. Now there was a 20% duty protection that was attached to it. That was wrong. There should be no import duties on anything. It is wrong. Because it carries an unnatural playing field. That 20% protection that there was on pistons which was there to protect us and Federal Mogul from the imported

product. All it did was to prolong the time until we had to deal with the fact that we were not globally competitive because we were unproductive and inefficient.

Interviewer:

But the import duty will help you to be competitive in the domestic market, not the global market.

Participant 1:

Yes. Well, but that is half the problem. If it was me, if I was Rob Davies, or whoever's job it is, I would scrap all protection. I would say that you need to either become competitive and you lift yours standards and you realise it a global village. In addition, put the incentive somewhere else. Put the incentive into skilling and training people. Upgrading people. Put the money there. Do not put the money into duties and all that.

Interviewer: So what you are saying if it was not for import duties, you would have closed down long before 2008.

Participant 1:

Yes, the pressure would have been there. If you look at Federal Mogul, who only sold into the aftermarket. They did not sell to the OEM market. Eventually, we making their products for them, I was supplying them. In addition, that had become largely unsuccessful. I mean obviously we got some extra volume through the plant. However, from our point of view, it was a very technical product. So all the tolerances were in microns. We had the best equipment, the best technology, fantastic support.

Participant 1:

The people that did have skills, for example if you look at the SETAs for example, they don't have stability. Because they were in demand because they were a small skill school. They would work for you today and leave you tomorrow for an extra 50c an hour or whatever. There was no stability. We had a fantastic tool room. In addition, guess what happened. That tool room, which should have been a fantastic training centre and development centre for apprentices, was wasted because you could not find apprentices.

Interviewer:

Tell me, for the manufacture of pistons, where you sourced your inputs?

Participant 1:

99, .9% locally. The problem was, one of the best input to make piston alloys which was quite sophisticated because pistons operate under extreme temperature, I don't know if you know, but every time there is a spark plug in your car and there is a little explosion that generate heat of 2,000 centre grade. So your alloys had to be correct and one of the biggest problems here was that there was no restriction whatsoever that worked on the exported aluminium. So all of the raw materials that should have been staying in South Africa and being used by ourselves and Federal Mogul and all these other people in the aluminium industry were being exported. In addition, guess where it as going, It was as going to our competitors in. India, China and Taiwan. They were all buying the scarce alluvium used to make pistons and then sending it back here.

Interviewer:

Was there any competition from the Mercosur region?

Participant 1:

Yes, there was a bit from Brazil but not significant. However, most was from the East Asia.

Participant 1:

Let me tell you something, all the time that we dealt with Ford, they kept on threatening us, we can this piston cheaper from India. When we closed down and they had to go and source this product from exactly the people they thought they could get it from, they could not. India was indeed a problem. They were told that could not that product at that price and that this was the Indian price. Therefore, Ford did not have a supplier. Then they found another Indian company producing pistons that was able to meet their price. I know that they failed four engine tests. So the quality was lapsing. So you know on the one hand we had Ford saying we are too expensive, we can't buy cheaper, you know that the OEM was trying to bully the components manufacturers. However, at the end of the end of the day, they were not telling us the whole truth.

Interviewer:

So coming down to Ford, can we conclude that the main reason why they had to terminate their contract with you was because of the economic recession and there was no longer the demand?

Participant 1:

I think two things, I think when they were motivating the establishment of their engine plant in Port Elizabeth they overestimated their ability. They were never able to produce what they said they were going to produce. Therefore, they had the same problem we did. We tooled up and we put in the plant to make a certain number of pistons. In addition, they tooled up to make a certain number of engines. However, because of the productivity issues, they never could make the engines. This means they couldn't buy the pistons. Which meant all the people that were part of that supply chain had excess capacity. Guess what? Excess capacity does, it just adds cost. So that one-off the issues.

What has happened Ford. They had challenges with their international company in the US especially during the economic crisis. That also affected us. It was really bad.

Participant 1:

I worked with all of these people for many years, for me to stand up and tell them, just before Christmas, that it was goodbye. In addition, I was not going to see them again. That was very difficult. Even now I am talking to you I get very emotional. Because it was part of our lives. It has all of our lives. There was massive commitment into that. So yes, There was lots of difficulty over that whole issue. So yes, I am not forgiving of Ford. I've really have no reason to support them

Interviewer:

Did you try to convene some meetings with the DTI for whatever intervention?

Participant 1:

There was no DTI. There was only the DT. That whole "Industry" they destroyed. So now, I see it as just the department of Trade. Those are the every people that we had meeting after meeting after meeting to stop the export of the alluvium scrap and they did nothing about it. I went to the DTI when we closed, and I went to see the people we have been dealing with - there and I said to them "I want you to know that this is on you. You export all the raw material. You have a huge role to play in the competitive balance here. In addition, you refused to do anything about it because you were too scared of all the scrap metal merges." Because we were obviously the people exporting the scrap. Whatever was happening, I have no idea, but they were doing it. You know what happened to these people I spoke to at the DTI, they laughed at me. They laughed. I said to them when you sitting down on Christmas day and your family are going to have a nice meal and Christmas presents, think about my 350 people here who have nothing because you didn't do your jobs.

Interviewer:

What divisions in the DTI did you deal with you?

Participant 1::

It would have been the automotive section. In addition, there was a section there that dealt with tariffs and the control of goods going out. I cannot remember exactly.

Interviewer:

I remember in 2010, the DTI entertained two applications from a company called Masterparts requesting to remove the import duties because there were no longer local manufacturers.

Participant 1:

Yes, that is true. I agreed with what Masterparts was requesting.

Interviewer:

And the comments received from the industry were that the import duties can be removed… is that correct?

Participant 1:

However, you see, that is exactly the wrong process. That is addressing the issue at the wrong end. The issue to address the problem from is 'why am I not globally competitive?' 'Why I cannot compete with the rest in the world?' Do those couriers that now are producing the prime product, did they have import protection to stop people selling pistons say e.g. into Taiwan. If the answer is yes, then maybe there is a question of cross subsidisation. If the answer is no, then we should be going to visit those businesses and finding out why they are efficient and why they are doing the job better than we can. For me, the worst thing you can do is put tariff protection in place. We enjoyed the benefits of it. I'm not arguing about that. I had to think after you

called me. It was never an issue in my life. I was not expecting to ever have to hear about this again. I thought what were the really macro level issues that affected our business and our efficiencies. It was the:

1. Underlying skills issue, which South Africa is never going to get rid of aces there, is no will to get rid of it.
2. Productivity issues, in terms of being globally competitive, in the true sense of the word. Now protection says you can hide away from the issue. It does not say, fix the issue.

Interviewer:

What were the reasons that led to your inefficiencies?

Participant 1:

Skills. I suppose really in an essence, NUMSA did more to damage this plant than any other single entity. Take four weeks production out of a year. Than take another four weeks out of the year so they can go on strikes. So now, you have 10 months of the year to pay for equipment that you have standing here for 12 months. It cannot work. There is no will to do anything about it. It is a political decision is not it. Manufacturing in this country will becoming smaller and smaller its gang drove, purely by two things, lack of will to deal with productivity issues, which is the coast issues and all of it. In addition, the erosion of the skills base because we do not educate people properly. Because we think it is okay to pass matric with 30% and give somebody mathematics on the matric certificate when they cannot add any numbers, there is something fundamentally wrong. That obviously undermines our competitiveness. If you to countries like Korea for example, South Korea, I would expect that South Korea has probably had a huge amount of foreign aid over the year because of their geographical location. Then South Africa has also had a huge amount of foreign aid over the years. I would submit that you would find that the way they've applied that aid in productivity and skilling and raising livings standards in Korea, South Korea, its far better than what we've done here. Unless we fix the education, and that is part of the cycle that will in turn drive the productivity up, because people will see and realise that they have the capacity to improve their lives, we cannot fix anything.

Participant 1:

What is the fastest way to give you a salary increase in South Africa? It is to do less work for the same pay.

Interviewer:

What do you mean?

Participant 1:

I mean in your 40-hour week that you attend your place of employment, instead of working for 40 hours, work for 30 hours. Therefore, instead of earning R1 an hour, and getting R40 a week, you are now earning R40 a week for working 30 hours. You have just given yourself a 15% increase because you are getting the same money for doing less.

Interviewer:

It sounds like you had series challenges in terms of honouring your contract with Ford because of organised

employees.

Participant 1:

I will tell you what we were fortunate in - it is that when we had a strike, they were also striking at Ford. Therefore, we were both out of synch together. Therefore, I did not have the pressure from the customer in terms of one time delivery. What I did have the pressure from was no factories recoveries. Now you make nothing, so that fixed cost just stands there and you have to finance it yourself.

Interviewer:

Therefore, did you people have challenges with the MIDP?

Participant 1:

The truth of the matter is that the MIDP created business for us. Created business for the OEMs. We would never have exported to Daimler Chrysler in Germany if we were not getting the export credits. We would never have manufactured. Ford would never have built the engine plant in South Africa. All those engines, 99% of those engines were going to be exported. They would never have built that engine facility in Port Elizabeth if they had no MIDP. Therefore, while one thinks in principle these kinds of things are counterproductive in terms of being globally competitive, they certainly created a bee that brought jobs into South Africa. From that point of view, one has to say that it was a success.

Interviewer:

So in other words the challenges that led to the decline of piston manufacturers in SAC were beyond the mood?

Participant 1:

Sure, if Ford had been able to meet their own targets that set themselves globally, the business would have continued. We would still be manufacturing today. There is not a factory in the world that can lose 30% of the volumes and survive. It is just cannot be.

Participant 1:

Therefore, the argument should be, why did I have all of my eggs in one basket. That is the series question. I was only manufacturing for Ford. The reality of that is that the reason that we were unsuccessful in tendering contracts, and I tendered in many overseas contracts with a lot of support from Kolbenco, was because of productivity issues. We were not globally competitive in terms of our rejection rates. That was the reason. To setup a new piston facility, would take you the best part of R40 million rand. Now you only go to invest R40 million rand if you are convinced that you are going to get an adequate recovery. In addition, because we were not competitive, because of productivity issues, you were never sure that you were going to get any kind of returns that would enable to go to a bank or financial institution.

Interviewer:

You were not competitive in the export market?

Participant 1:

Yes, because all the engines were imported. All the cars running engines here, all those engines are imported from overseas. Ford and VW to a small degree, Toyota used to manufacture engines, but they closed down. We also supplied them for the small engines running in taxis. However, then the whole structure of taxi changed. Now we are moving to bigger taxis and those have different engines and so they stopped manufacturing.

Participant 1:

We manufactured many different types of engines. Basically, if his car was running in South Africa, and it was more than 5 years old, we would manufacture a piston for that for the aftermarket.

Participant 1:

If you supply the South African markets, the aftermarket, the Masterparts. It is a small markets and it is fragmented. If you have short production runs, they are very expensive because you have to change the tooling every time you make the different pistons. You have to stop what you are doing and you have reset that production line. Your plant is at the standstill. Therefore, it is very expensive to make short runs. In South Africa you can buy every kind of car and vehicle that's available in the world, to make products for the aftermarkets is very expensive to produce because of the short runs. Therefore, that is the reason. That is another reason why were not globally competitive on that basis.

Participant 1:

When we started to make the Ford piston. All of the capital equipment was imported. 99% of opt was imported. The people Kolbenschmidt, who developed the piston, developed the tooling for us. We were importing it from Brazil, but it was designed and developed in Germany. We would make our own machining tolling for the aftermarket. However, casting tooling, we would import because than I could have it in six weeks. If I went to a local manufacture for casting tooling, I would have to wait for nine months. The support of the tooling two manufacturers in South Africa was just not very good because we were not developing apprentices. I had fantastic machines here. However, nobody wanted to go through the whole trade school skilling.

Participant 1:

If the exchange rate is what it is today, which is horrible, because the whole world sees South Africa on strike and not working and unproductive. That is good for you if you are exporting. It is bad for you if you are importing. When we brought that plant in to manufacture the Ford products in around about 2000, I think was at its worst ever level of R13 top dollar. This means that the cost of equipment was very high. We never ever got the benefit of the weak rand in terms of exports because South African OEMs manufacturing were buying from us in Rands and not in dollars. Therefore, we never had the benefit of the exchange rate. I mean today, if you think about it, what imports today are paying in Rands, R10 a dollar, R13/R14 a Euro, there is no

need for an import protection. Just another strike and the rand will get even weaker again.

Interviewer:

However, depending on the industry, there are some companies that will say they need this import protection.

Participant 1:

Of course they need it because they are not globally competitive. It is because they are inefficient.

B4 NAACAM

Date: Wednesday, 15 January 2014

Duration Clip 00:11mins

Attendance:

1. Interviewer: Mr Sipho Tshabalala (MComm UCT Student)
2. Participant: Mr. Rodger Pitot (Former Executive Director – National Association of Automotive Component and Allied Manufacturers (NAACAM)

Interviewer:

What do local components manufacturers benefit from joining associations such as NAACAM?

Participant:

Yes sure, there are a lot of benefits for our members. Our organisation has a direct access to the government especially when it comes to policy formulations as well as providing up-to-date information regarding the developments facing the local and international automotive sector. We organise forums for our members to network and discuss issues relating to the automotive sector. We also provide statistical information to our members on economic trends. This statistical information assists them to make future predictions. We also represent our members especially on the applications for decrease, increase and creation of rebates.

Interviewer:

Are you aware that the pistons manufacturers are no longer in existence in the SACU market?

Participant:

Yes, there are no longer piston manufacturers in SA.

Interviewer:

What support do you provide to your members should they decide to close down their manufacturing?

Participant:

The only support we can provide members who have already decided to close is to assist in finding employment of key personnel by sending a notice to other members.

Interviewer:

What role would the MIDP have played in assisting pistons manufacturers?

Participant:

The MIDP did assist in piston exports, but provided no support for localization of components. I believe the decline was because of one OEMs failure to achieve projected volumes of piston procurement that caused the major piston manufacturer to close.

B4: Volkswagen South Africa

Date: Tuesday, 22 April 2014

Duration: 00:45mins

Attendance

1. Interviewer: Mr. Sipho Tshabalala (MComm UCT Student)
2. Participant: Shaun Schoeman (Manager: Technical Controlling Division, VWSA)

Interviewer: When did VWSA started to assembling engines in the SACU market?

Participant: We have been assembling engines in the South Africa market since June 1982

Interviewer: To which markets are VWSA engines destined to?

Participant: We are currently supplying engines to different markets including China, Malaysia, India, Mexico and Taiwan. Some of the engines assembled by us are for the in local market.

Interviewer: For the manufacture of engines, where were you currently sourcing your engine components such as pistons?

Participant: We source our Pistons from Mahle Group in China.

Interviewer: How was your relationship with your local piston suppliers?

Participant: Federal Mogul Piston's we had no business with them. We investigated them but their facilities did not meet the VW quality requirements. At that stage, they were only supply P&A parts into their group. The thing is, we couldn't get all engine components in South Africa, and hence we had to imports other stuff.

Interviewer: And what about Kolbenco? Did you work with them?

Participant: Yes we were in business with Kolbenco. Kolbenco supplied VWSA with the Golf A1 pistons.

They were supplying us with 140,000 pieces per annum. That's like pistons for 35,000 cars. They were a good supplier during their years of supply to us. When we launched the investigation into the localisation of the EA111 MPI engine for South Africa we looked at them.

Interviewer: Why did you investigate them?

Participant: No its part of our processes to do regular investigations to our suppliers. It's a normal process.

Interviewer: Ok what did you find on your investigation?

Participant: We found out that they were economical; as a result they were nominated to supply us with pistons. During the development, we were informed of their sale to a Financial consortium. A few weeks later we were informed that their assets were going to be sold off piece by piece. And the reasons behind their closure were not communicated to us.

Interviewer: Other than their sudden closure, did you encounter challenges working with Kolbenco?

Participant: The biggest issue in the industry is that there is no more technological / technical know-how left in South Africa. Kolbenco had a technical agreement with Kolbenschmidt in Europe, which gave them the knowledge and know-how to support the South African market (OE industry). Other than that, we can't comment.