

UNIVERSITY OF KWAZULU-NATAL

**THE IMPACT OF AIR QUALITY ACT ON BUSINESSES IN THE
GREATER DURBAN AREA**

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of
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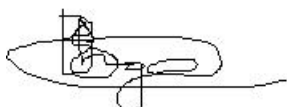
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DECLARATION

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ABSTRACT

The introduction and implementation of the Air Quality Act in South Africa has a significant impact in the communities, in the three spheres of government, namely national, provincial and local, and businesses in the country. This study provides an overview of how the businesses in the Greater Durban Area have been impacted by the introduction and implementation of the AQA.

The main objective of the study is to ascertain the impact that the AQA has on businesses in the Greater Durban Area. The main focus is on the following areas of impact: operational, structural, strategic, financial and social impact. The main tool used to collect the primary data was a structured questionnaire. However, because of challenges faced in the collection of data the structured interviews were cancelled. Analyses of results are based on the data collected utilizing the questionnaire as well as the reviewed literature in order to establish the extent to which the data is supported by the existing theory.

The overall impression created by the results of the sample indicates that the AQA has been well received by all stakeholders; these stakeholders include businesses, government as well as the society. Although the Act as well as other environmental legislation present some challenges to businesses, these legislation are generally fairly well accepted by private enterprise.

The study recommends that for further studies, the data collection instruments must include structured and/or unstructured interviews, in order to ascertain where businesses strategically stand on air quality. This will also help in obtaining indications on funds that businesses spend on social development and/or responsibility and on environment as a whole.

GLOSSARY OF TERMS

Air Quality Act	AQA
South Durban Industrial Basin	SDIB
Sulphur Dioxide	SO ₂
Integrated Development Plan's	IDP
South African	SA
International Union for the Conservation of Nature	IUCN
World Commission on Environment and Development	WCED
United Nations	UN
Volatile organic compounds	VOCs
Ultraviolet	UV
Nitrogen Oxides	NO _x
Gross Domestic Product	GDP
United States of America	USA
Human Immunodeficiency Virus	HIV
Acquired Immunodeficiency Syndrome	AIDS
United Kingdom	UK
United Nations and World Health Organization	WHO
United Nations	UN
United Nations Environmental Programme	UNEP
European Union	EU
European Environment Agency	EEA
Emissions Trading Scheme	ETS
Integrated Pollution Prevention and Control	IPPC
Integrated pollution control	IPC
Sustainable Consumption and Production	SCP
Clean Air Act	CAA
Carbon monoxide	CO
Nitrogen dioxide	NO ₂
United Nations Conference on Environment and Development	UNCED
National Health Act	NHA

Atmosphere Pollution Prevention Act 45 of 1965	APPA
Environmental Conservation Act	ECA
National Environmental Management Act 107 Of 1998	NEMA
Occupational Health and Safety Act 85 of 1993	OHSA
Environmental Impact Assessments	EIA
Atmospheric Emission License	AEL
Air quality Officer	AQO
Air Quality Management Plan	AQMP
Generally Accepted Accounting Principles	GAAP
Multi-Point Plan	MPP

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CHAPTER 1

INTRODUCTION

1.1 Introduction to the topic

Environmental agreements and policies have been signed by international communities, with co-operation from most countries in the world. The interests of the biggest corporations in the world have been taken into account by the United States of America in its refusal to sign the Kyoto agreement (Brennan, 2006; Lidskog & Elander, 2007). The introduction of environmental legislation and air quality legislation and strategies, such as the Air Quality Strategy for England, Scotland, Wales and Northern Ireland, the Clean Air Act in the United States and the Air Quality Act, Act No. 39 of 2004 (AQA) in South Africa, has had an impact on socio-economic development.

The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996) in Section 24, states that “everyone has the right to an environment that is not harmful to their health or well-being”. In order to meet the requirements of the Constitution, the AQA was promulgated in 2004. The objectives of AQA are to “protect the environment by providing reasonable measures for the protection and enhancement of the quality of air in South Africa, the prevention of air pollution and ecological degradation and, to protect ecologically sustainable development while promoting justifiable economic and social development” Air Quality Act, 2004 (Act No. 39 of 2004). This study examines the impact of AQA on businesses in the Greater Durban Area, the main focus areas being the South Durban Industrial Basin (SDIB), Durban Central and outer west industries (e.g. New Germany).

1.2 General background for the study

Environmental contamination by a variety of toxic chemicals has become a major environmental issue in a number of locations around the world. Industrial activities and related waste management facilities apparently are responsible for most environmental contamination problems (Pickering & Owen, 1997).

The contributing waste management activities may relate to industrial wastewater impoundments, land disposal sites for solid wastes, land spreading of sludges, accidental chemical spills, leaks from chemical storage tanks and piping systems, septic tanks and cesspools, disposal of mine wastes or indeed a variety of waste treatment, storage and disposal facilities and other forms.

Pollution is the presence in the environment of matter or energy whose nature, location or quantity, produces environmental effects undesirable for humans. As a process, pollution contaminates or alters the quality of some portion of the environment through the addition of harmful impurities. According to Henning and Mangun (1989: 200), "a pollutant is any extraneous material or form of energy whose rate of transfer between two components of the environment is changed so that the well-being of individual organisms or ecosystems is negatively affected".

A pollutant may be any introduced gas, liquid or solid adversely affecting human, plant, and/or animal life while causing a resource to become unfit for a specific human purpose. Thus pollution may be considered the unfavorable alteration of the environment, wholly or largely as the result of human actions (Pickering & Owen, 1997).

The earth's life-support systems are threatened by numerous undesirable by-products of economic and industrial growth. These by-products could affect virtually every earth-ecosystem and resources base and are often characterized as hazardous or toxic substances that may be considered resources out of place. The definition of pollution depends upon the public's decisions concerning proper use of the environment and determination of tolerable levels of pollution.

Although scientists may define requirements for uses or describe the harmful effect of particular substance their thinking transcends the bounds of science when they try to prescribe levels of use of given substances in the environment. Davies (1995, 142) concludes, "...only by thinking scientific knowledge with a concept of the public interest can one arrive at a working definition of pollution".

The primary sources of pollutants entering the environment may be divided into two general categories (Fetchner, 2005 and Petts, 1997).

- Point sources, which refer to discrete, localized, and often readily measurable discharges of pollutants into the environment. Examples of this category include industrial outfall pipes, sewage outfalls, and stack emissions from industrial chimneys, accidental spillages of chemicals at a manufacturing or storage site, and land disposal of wastes.
- Non-point sources, which refer to pollutants covering large areas or that are a composite of numerous and diffused point sources, and often are more difficult to measure. Examples of this category include pesticide and fertilizer runoff from agricultural fields, emissions from automobile traffic, and deposition of sulphur dioxide and other acidic chemicals emitted into the atmosphere in industrial areas.

Since the “atmosphere is a shared resource” (Annegarn *et al*; 2007: ii), the quality of air is dependent on the quantities of natural and anthropogenic emissions to atmosphere and the atmospheric dispersion and pollutant removal potential.

The challenge in air quality management internationally is not simply to deliver cleaner air but to do so whilst not impacting negatively on society and the economy. AQA commits the country to pollution prevention and air quality improvement and maintenance coincident with socio-economic development and not at the expense of such development. This study focuses on the impact that the aims and objectives of AQA have on businesses in the Greater Durban area.

1.3 Background of the study area

Durban is located on the eastern seaboard of South Africa, in KwaZulu-Natal, with an estimated population of 3 million people. What makes Durban a diversified city is the makeup of its population, which is different from all other cities in the country. The African community makes up the largest sector (68%) of the population followed by the Indian community (20%), White community (9%) and Coloured community (3%). Durban is home to rural and tribal communities as well as the urbanised and technologically-dependent. The effects of the racial mixture are evident in the cultural diversity seen in the city, with African, Indian and European influences creating a vibrant society. As any other city in the country it houses the rich and the poor (*IDP Review*, 2005/2006).

As the main city in KwaZulu-Natal it accounts for 60% of the province’s economic activities, as it is South Africa’s major port city and the second largest industrial hub after Gauteng. Because of Durban’s position, it has been labeled as the key trade gateway for imports and exports. These economic activities ensure and support the foundation for economic growth in Durban and the country, and

finally grow the resources that provide the social well-being (*eThekweni Municipality IDP*, 2006/2011).

In 1994 Durban was the first city in South Africa to accept the Local Agenda Mandate as a corporate responsibility, and to use it as the framework for the development of an over-arching Environmental Management System for the city. Similarly it became the first city in South Africa to accept the Local Action 21 Mandate emanating from the World Summit on Sustainable Development. This mandate identified the need to focus on implementation, this being the key requirement for local governments wanting to achieve sustainable development.

Sustainable development is a critical challenge for Durban, and the local government is constantly looking for new opportunities and solutions that will help achieve this ideal. The local government's Integrated Development Plan's (IDP) desired outcomes, in terms of sustainable development, are to establish, prosperous and vibrant economic areas that are the foundation for economic growth, viable and quality built environments that support the social and economic needs of citizens, and quality natural environments and resources that provide the basis for both economic prosperity and social well-being (*eThekweni Municipality IDP*, 2006: 29).

1.4 The problem addressed in the study

The introduction and implementation of the AQA in South Africa has a significant impact in the communities, in the three spheres of government, namely national, provincial and local, and businesses in the country. This study provides an overview on how the businesses in the Greater Durban area have been impacted by the introduction and implementation of the AQA

1.5 The objectives of the study

The main objective of the study is to ascertain the impact that the AQA has on businesses in the greater Durban area. The main focus is on the following areas of impact:-

- Operational impact
- Structural impact
- Strategic impact
- Financial impact
- Social impact

The structure of the study is as follows:-

- Evaluation of the relationship between environmental issues and socio-economic development in the developing and developed countries, and then focusing on air pollution in South Africa.
- Evaluation and interpretation of environmental legislation including international and national legislation, followed by focusing on the AQA.
- Evaluation and analysis of the businesses' responses from the questionnaires and interviews, using the questions that are set for this study.
- Development of proposals relating to how businesses may minimize the possible negative impact of AQA and on how to maximize business growth and profitability from the positive impact of AQA.

1.6 Research methodology

This study evaluates the impact of AQA on businesses in the Greater Durban area. Businesses' environmental and operation personnel including, but not limited to, middle and senior management, in Greater Durban area were invited to participate in the study by completing a questionnaire in order to determine the impact of the AQA.

In order to achieve the aims and objectives of this study, a number of articles and books were reviewed. The businesses' responses from the questionnaire are also evaluated. In order to obtain the critical information on the methods used to achieve their goals while adhering to the requirements of environmental legislation. Relevant literature is reviewed in order to develop a theoretical framework. The initial assumptions are that:

- Participants understand the requirements of AQA and the need for it.
- Participants possess the necessary knowledge of their field and the industry within which their organization operates to provide the data required by the study.

1.7 Significance of the study

The significance of the study lies in the application of information from the literature relating to countries where similar laws were promulgated to the South African context. From a consideration of the literature and of the specifics of the South African situation it should be possible to make recommendations which could impact on the way that South African organizations approach their activities and planning and make suggestions on the way that businesses should operate in order to align themselves with the requirements of the Act.

1.8 Limitations of the study

The main limitation of this study was on the data collection process, the major shortcoming that must be highlighted is the lack of structured interview data. The structured interviews were cancelled due to the non-availability of managers that were identified as the interviewees. As a results the study is only limited to the questionnaire data, and it may not truly represent the challenges and advances that the Act brings, which the interviews would have captured.

The results of the study only represent about half of the identified sample. This excludes the structured interviews as was initially planned. The low response rate has negatively impacted on the study, especially on the analysis of results.

The results were difficult to analyze and interpret; this was due to the way that the questions were designed and phrased, as some questions were ambiguous. Likert or summative scaling was also not the best scale for the questions of the study due to its limitations such as that of allowing the participants to remain neutral about the question. If we examine question 11 of the study it is noted that 27% of the participants remained neutral by choosing the neutral answer to the question, if simple category scale was used for this question an accurate answer was possible to be obtained.

The limited time available to conduct the research also poses a limitation, since the study had to be fast tracked due to available time. The processes that must be followed also had a negative impact on the study since the ethical issues had to be cleared before distributing the questionnaire.

Although the study focuses on the Greater Durban companies only, costs associated with travelling to these companies to secure their participation were enormously high.

1.9 Structure of the study

Chapter 2 examines the literature pertaining to air pollution and sustainable development. The chapter further examines the concept of socio-economic and environmental development. It also presents the legislative framework, by examining international and national environmental legislation and then focuses on AQA. Finally it examines the literature on business processes and management.

Chapter 3 presents the methodology of the study and the strategy on data collection and verification. Chapter 4 discusses the outcomes of the study by analyzing the response from questionnaires. Chapter 5 covers the conclusion reached and recommendations are made for future research. The study also aims to educate the interested parties on environmental issues that the international community is facing especially with regard to air pollution and global warming. References and appendices are at the end of the dissertation.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

“Prudent environmental management, namely environmental management that takes into consideration ecological and social realities, has become a prerequisite for sustaining economic development” (Blignaut & de Wit, 2004: 5).

The challenge is to simultaneously harmonize economic development and prudent environmental management through creation of economic welfare. This chapter examines the concept of sustainable development, issues relating to the environment-economic interface and those relating to the environment-social interface. It also provides an overview of the socio-economic and environmental issues and challenges to provide a basic understanding of these issues. Relevant legislation that governs the environment, both internationally and locally, is examined and unpacked in terms of its application in Durban.

Five themes in the literature are explored: sustainable development, socio-economic development, environmental economics, environmental legislation and, the existence of business and its stake holders. These themes are evaluated with this following question in mind: could economic development and the principle of prudent environmental management be honoured simultaneously?

2.2 Air quality and sustainable development

The idea of sustainable development was first presented by the International Union for the Conservation of Nature (IUCN 1980) in an international forum of the World Conservation Strategy (Pickering & Owen, 1997). In essence, the concept of sustainable development invokes present development of available resources without compromising the ability of future generations to meet their needs. Many

people would argue that this is an abstract idea that will never be achieved. The idea of understanding the needs of future generations, even before they have been born, let alone future needs before they have been formulated by this generation is always questioned.

The practical application of the concept of sustainable development should involve a greater environmental awareness, by both governments and individuals. The IUCN (Pickering & Owen, 1997) argued that three priorities should be incorporated into all development programs:

- i. The maintenance of ecological process;
- ii. The sustainable use of resources; and
- iii. The maintenance of genetic diversity.

Sustainable development emphasis is placed on conserving the present natural environment but in view of this it has been heavily criticized by some as being anti-development. Critics also argued that the International Union for the Conservation of Nature 1980 report concentrated too much on attacking the symptoms of environmental degradation rather than analyzing the causes; it was also criticized as having an anti-poor bias. These criticisms led to the formation of the IUCN in 1984 and the creation of the World Commission on Environment and Development (WCED). The aims of the WCED, as stated at its inception in 1983 as an independent commission by the United Nations (UN), were to formulate recommendations for sustainable global development.

Sustainable development is often misinterpreted as focusing solely on environmental issues. Perhaps the most common distortion of the concept of sustainable development is to ignore the development aspects altogether. Much of the discussions on sustainable development concentrate on ecological sustainability. Many authors, such as Spash (1999) and Fletcher (2005), discuss what they term sustainable development but do not include a discussion of development goals at all. Their concerns are with sustainability, not sustainable

development. In such literature, it is common to find the terms sustainable development and sustainability used with no recognition that the two mean or imply different things.

In reality, sustainability or sustainable development is a much broader concept as sustainable development policies encompass three general policy areas: economic, environmental and social. Economic development, social development and environmental protection are known as the 'interdependent and mutually reinforcing pillars' of sustainable development (United Nations World Summit Outcome Document, 2005). In committing to sustainable development nations need to engage in balancing and integrating the social, economic and environmental components of their societies. This requires a distinctive approach in the way that services are planned and delivered, with a nation's social, economic and environmental goals being addressed harmoniously and concurrently.

In managing air quality within a sustainable development context emphasis is currently placed on the interface between the environment and the economy on the one hand, and between the economy and society on the other (OECD, 2005). The challenge in air quality management internationally is not simply to deliver cleaner air but to do so whilst not impacting negatively on society and the economy (Annegarn *et al*; 2007). The issue of global warming can be seen as a test case in that this is likely to be the first global environmental problem whose resolution depends on significant changes in consumption patterns in the richest and most powerful nations.

South Africa has taken up this challenge as is clearly evident in the objectives of the National Environmental Management: Air Quality Act (AQA). The objectives of AQA being;

“(a) To protect the environment by providing reasonable measures for-

- the protection and enhancement of the quality of air in the Republic;
- the prevention of air pollution and ecological degradation; and
- securing ecologically sustainable development while promoting justifiable economic and social development.

(b) Generally to give effect to section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of people (AQA chapter 2, paragraph 35)”.

The AQA clearly commits the country to pollution prevention, air quality improvement and maintenance coincident with socio-economic development but not at the expense of such development. The realization of this vision requires careful tailoring of the various regulations being developed and implemented under this framework Act. The government at all spheres and business in South Africa will have a huge responsibility in making sure that the implementation of the AQA is successful. This will test the principles of sound corporate governance and the relationship between government and business.

2.2.1 Environmental-economic interface

Environmental economics is the study of economic choice, including the functioning of the environment, with the ultimate aim of satisfying human wants (Blignaut & de Wit, 2004). It is an applied field of neo-classical economic theory that is focused on determining the optimal levels of pollution and waste.

Environmental economics owes its very existence and relevance to real-world environmental problems that concerned and still concern the broad public, the media and political decision-makers. Since it is not likely that the pressure of economic activities on the ecological system will diminish the challenge for necessary and useful research will probably even increase in the future. Deacon, *et al.* (1998: 383) are certainly right in observing that "research on environmental economics will be driven by policy questions, as has generally been true in the past." In such a broad sense the subject matter of environmental economics did not and will not lack empirical relevance.

2.2.1.1 The environmental framework

Before discussing the environmental framework the issue of escalating population must be brought up. Pickering and Owen (1997) noted that the main challenge that the world faces is the alarming increase of population that will lead to limited resources through environmental degradation. They noted that the population of the world doubled from around 2.5 billion people in the middle of last century to about 5 billion during 1987. By the late 1990s the world population was about 5 292 200 000, an increase of 75% since 1960, and it is projected by the United Nations Population Division to increase by 60% from 1990 figure to 8 488 600 000 by 2025, and to reach 11.3 billion by 2100 (United Nations Population Fund, 1991). This increase exerts social, environmental and economic pressure on available global resources. Environmental pollution

therefore needs to be controlled so that the available earth resources are available for our children.

Environmental pollution has existed for many years in one form or another. It is an old phenomenon, and yet in its contemporary forms it seems to have crept up on governments and even on pertinent professional disciplines, such as biology, chemistry, most of engineering and economics.

The hole in the ozone layer and the earth's rising temperature are top of the list of environmental concerns (Schiller, 2000: 577). A hole in the ozone layer is allowing increased ultraviolet radiation to reach the earth's surface. The hole is the result of excessive release of chlorine gas from air conditioners, plastic-foam manufacture, industrial solvents, and aerosol spray cans such as deodorants and insecticides (Schiller, 2000). The resulting damage to the stratosphere is causing skin cancer, cataracts, and immune system disorders.

Air pollution, water pollution and solid-waste pollution are the main environmental threats. Air pollution produces acid rain and greenhouse effects: acid rain is formed by sulphur dioxide, nitrogen oxides and other substances. Sulphur dioxide (SO_2) is a corrosive and poisonous gas created by burning high-fuels such as coal. As a contributor to acid rain, it destroys vegetation and forest. Nitrogen oxides (NO_x), another ingredient in the formation of acid rain, are also a principal ingredient in the formation of smog. Smog not only irritates the eyes and spoils the view; it also damages plants, trees and human lungs (Pickering & Owen, 1997).

The prime villain in the greenhouse effect is the otherwise harmless carbon dioxide that we exhale (Schiller, 2000). Unfortunately, we and nature now release so much carbon dioxide that the earth's ocean and vegetation can no longer absorb it all. Excess carbon dioxide is creating a gaseous blanket around the earth. Ground-level ozone is formed in the air when NO_x and volatile organic

compounds (VOCs) mix under the intense ultraviolet (UV) radiation of summer days. It makes breathing difficult and leads to the air being stale. It is not an emission but is formed when the precursor emissions are already present in the air. They are few forms of environmental pollution as indicated above, the main environmental threat include water, waste and noise pollution, The most common form of water pollution occurs in disposal of organic wastes from toilets and garbage disposals. Solid waste is yet another environmental threat. Solid-waste pollution is apparent every-where: from the garbage bin to litter on the street and beaches, debris in the water, and open dumps (Pickering & Owen, 1997).

2.2.1.2 The economic framework

Schiller (2000: 3) defines economics as the study of how best to allocate scarce resources among competing uses. The study of economics is divided into two parts, macroeconomics and microeconomics (Schiller, 2003: 19). Macroeconomics focuses on the behavior of an entire economy, the big picture. In general, macroeconomic policy is aimed at achieving five distinct objectives: economic growth, balance of payments stability, price stability, equity and employment. Seen from the perspective of economic policy, achieving these objectives is the joint responsibility of the governor of the reserve bank and the respective ministers of finance, and trade and industry (Schiller, 2003).

Microeconomics is concerned with the details of this big picture. In general, microeconomics focuses on individuals, business and government agencies that actually make up the larger economy. The interest here is the behavior of individual economic actors, their goals, the way that these goals are achieved with their limited resources, and finally their response to various incentives and opportunities (Schiller, 2003).

Schiller (2003: 19) noted that “the distinction between macro- and microeconomics is a matter of convenience”. In reality, macroeconomic outcomes depend on micro behavior, and micro behavior is affected by macro outcomes. Hence one cannot fully understand how economic works until one understands how all the participants behave and why they behave as they do.

The economic view of the human condition is that our desires always outstrip our ability to fulfill them. (Charles & Webb, 1986: 5) put this more formally by saying that “resources are scarce relative to the uses to which they can be put”. Therefore choices have to be made. With only limited resources at their command, human beings must choose which desires to fulfill and which to leave unfulfilled. Although we can change economic outcomes we cannot have everything we want. The output of the entire economy is also limited. The limits in this case are set not by money but by the resources available for producing goods and services.

The statement by Charles and Webb (1986) is the foundation upon which neoclassical economic analysis is built. Two methodological approaches (Charles & Webb, 1986) are used to pursue two lines of inquiry: the way society allocates its scarce resources, and how should it do so if it wants to get the most out of them. If resources are indeed scarce then it is important that they are not wasted. Thus the normative economic goal is the efficient use of resources for the social interest. The approach neoclassical economics adopts is that of individualism, given the concept of the abstract individual, the social interest is, logically enough, seen as being served only by serving individual interests. This stress on individual interests means that a normative economic analysis of the welfare services will judge success purely in terms of the ability to meet the individual needs.

South Africa's unemployment rate rose to 23.5% in the first quarter of 2009 from 21.9% in the previous three months. A total of 208 000 people living in South Africa lost their jobs between the last quarter of 2008 and the first quarter of 2009 (Statistics South Africa, 2009). The survey shows that 88000 and 96000 losses occurred in the formal and informal sectors respectively. Agriculture and private households accounted for the other losses. Compared to the previous quarter, the population of unemployed people seeking employment increased from 3,873-million to 4,184-million (Web: Population of South Africa, 2009).

The phenomenon of jobless growth is not sustainable, and is contributing to the expansion of the informal sector (approximately 1.8 million people), or 12% of the labor force, contributing R32 billion annually, or 7% to Gross Domestic Product (GDP) (Statistics South Africa, 2009). By comparison, agriculture employs 1.2 million people, and contributes 4.5% to GDP (Statistics South Africa, 2009). Jobless growth also encourages uneven distribution of wealth, i.e. the rich get richer and the poor become poorer, if benefits of employment are not distributed through the social welfare systems. The alarming price increase of basic food makes the situation even worse and this has initiated a debate on government taking care of the poor. Trevor Manuel when he was the South African minister of finance insisted on the food ticket/ voucher for the poor, in order to curb poverty in the country (Newspaper: Food Voucher for the Poor, 2008). Whether these food vouchers will have a positive impact or not in curbing of poverty is up for debate.

This research focuses on Durban. It must be noted that Durban area has a large diversified and growing economy although the growth is having negative environmental impacts in some areas such as the South Durban Industrial Basin. The strongest economic sectors are manufacturing, tourism, transportation, finance, and government, although these formal sectors have provided little growth in job opportunities. Manufacturing accounts for almost 33% of the gross geographic product for Durban area, and 29% of employment, and it includes

sub-sectors such as food, beverages, textiles, clothing, paper, printing, chemicals, fabricated metals and motor vehicles and components. The close proximity of the port enables easy access to markets in the Pacific Rim and Indian Ocean countries, and the new airport to be built north of Durban will also increase the flow of goods and decrease the pollution impact in South Durban (*eThekweni Municipality IDP*, 2006).

2.2.1.3 Linking the economy and the environment

The centrality of harmonious linkage of economics and the environment for sustainable development is underscored for desired economic growth and development. In the quest for faster income growth, environment must be taken into consideration. Blignaut and de Wit (2004) noted that the subject area of economics and the environment is characterized by many different approaches that are important to understand when assigning values to environment and the value of flows in economy-environment interactions.

Authors, such as Pickering and Owen (1997), express worries about the earth's ability to bear up under the pressure of such development. People normally associate or believe that economic growth inevitably leads to more pollution. Thus many economists (Blignaut & de Wit, 2004) would give a two-handed perspective.

- On the one hand, growth involves increased output, resource use, pollution and garbage. This is the 'substitution' effect: a society gives up some environmental assets to obtain more consumption goods.
- On the other hand, growth means consumers have more money and more leisure time, which translates into demand for a cleaner environment and the resources to achieve it. This is the 'income' effect: since environmental quality is a normal good, as national income rises, people demand more of it and put resources into its production, or conservation as the case may be.

There is good evidence that, at low income levels, the substitution effect dominates the income effect, and growth leads to worsening environmental quality. But as income continues to rise, a turn-around point is reached, after which the income effect dominates, and growth begins to support improved environmental conditions. This effect is called the Environmental Kuznets Curve, after the Kuznets curve in the study of income distribution, where inequality is sometimes observed to behave the same way during the growth process (McKittrick, 2007).

Figure 2.1 below shows the relationship between GDP and economic growth.

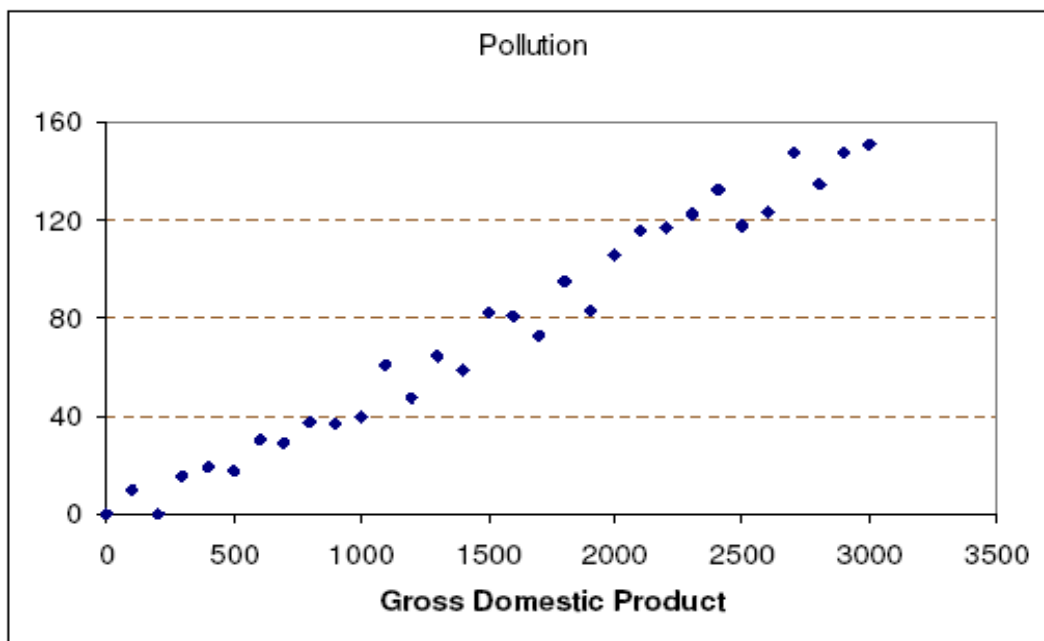


Figure: 2.1 Hypothetical relationship between GDP and pollution
Source: (McKittrick, 2007: 13).

There is a common perception that economic growth causes increased pollution, but actual data show that the situation is more complicated. In a scatter plot of postwar United States of America (US) per capita income and particulate emissions shows the relationship is actually downward-sloping, see Figure 2.2 below.

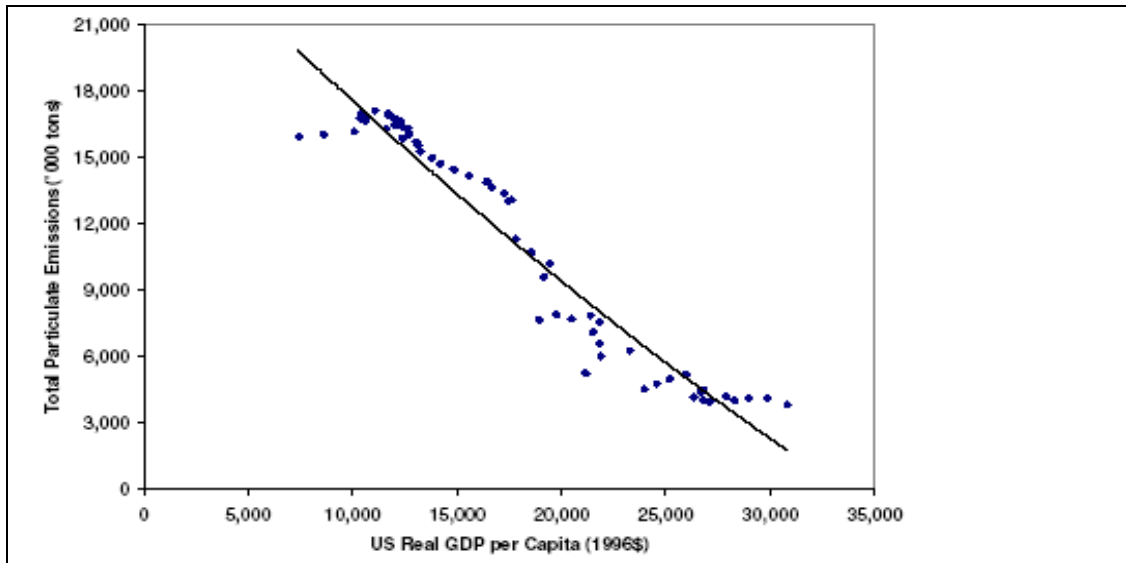


Figure: 2.2 US Real GDP and total particulate emission
Source: EPEQ database, <http://www.uoguelph.ca/~rmckitri/epeq/epeq.html>.

Looking internationally it turns out that high-income countries are also ones with relatively low levels of urban air pollution (McKittrick, 2007).

Charles and Webb (1986) noted that in developing countries, the underlying causes of degradation that contribute to each environmental issue often include the following:-

- Market failure: inappropriate resource pricing and lack of clear property rights;
- Policy failure: poorly designed economic, social and environmental policies;
- Institutional failure: inadequate laws and regulations governing the environment; and
- Implementation failure: ineffective monitoring and enforcement of laws and regulations.

Macro-economic policies greatly influence the use of a country's resources and ecological services. Fiscal, monetary, trade, investment, pricing and institutional policy shifts all affect the scale and rate of environmental degradation (Charles & Webb, 1986). Understanding the linkages between macroeconomic policy and the environment is difficult.

2.2.2 Environmental-social interface

The things that people do in their lives to meet their everyday needs inevitably have effects on the environment. These effects can be damaging to the natural world, but they also carry social costs which are borne to differing extents by different sectors of society affecting their further activity. According to Huby (1998: 1) this situation is described in terms of a 'pressure-state-response' relationship.

Man made activities like industries and vehicles affect the environment, through waste and pollution. The environment is polluted and result in a change form its state both its quality and its stock of natural resource. As a result society and government must implement policies that will ensure that the environment is protected from these man-made activities.

Annegarn, *et al.* (2007) in the initial State of Air report noted some very important points in the environmental-social interface, namely

- addressing air pollution through poverty alleviation,
- addressing environmental injustice, and
- considering the social-acceptability of interventions.

Thus for effectively management of environment, social issues and economy, interventions must not only be technically viable and economically feasible but also socially acceptable.

2.2.2.1 The social framework

Social policy springs from observations and ideas about the nature of the good society, or, at least, the nature of a better society. Charles and Webb (1986: 9) noted that the “social policy view of the human condition is that it is everywhere more beset by problems and hardships than need be the case and, contrariwise, that human beings are nowhere as fulfilled as they could be”. The main question is what is the cause of this? Is it because of the problems that the society is facing today? Such as the issues related to poverty, HIV/AIDS related problems, and lack of jobs or unemployment? It must be noted (Huby, 1998) that social policy is concerned with

- Values, beliefs, ideologies and ideas about the right ordering of societies and of social relations;
- Fostering change in the structure of society and in social relations wherever they diverge from what is considered desirable.

It is in this sense that social policy is essentially normative in nature because it seeks to improve the human condition.

South Africa has made progress in a number of key social areas, including the provision of water and access to schooling. South Africa is a society undergoing dynamic change, both materially and spiritually hence there is an improving sense of an over-arching identity and increasing levels of social cohesion. However, much still needs to be done to achieve the Millennium Development Goals.

Serious challenges over the next decade include making a significant impact on poverty and on HIV/AIDS, malaria and tuberculosis, and the need to do more to reduce hunger and high levels of child mortality. We also need to improve access to sanitation in a concerted fashion, and address the effects of increased urbanisation and shrinking household sizes. Tackling youth unemployment is a pressing priority. It is encouraging to hear the South African President Mr Zuma promising 500 000 jobs in his first year in office, and also opening a new ministry which deals with youth, woman and children issues (Newspaper: 500 000 Jobs to be Created, 2009). These actions need to filter to the government representative from all sphere of government, although they are other issues that are from the old government (prior to 1994), that need attention.

It must be noted that historically, Durban, the study area, has been a racially and culturally divided city reinforced by spatial segregation. The 1994 democratic elections introduced major changes. In 1996 local government was restructured. Durban is now a diverse city with a rich mix of racial and cultural groups. According to the census data approximately 55% of the economically active population is informally employed by the Durban Local Council (eThekweni Municipality), of these nearly three quarters earn less than R30 000 a year (Statistics South Africa, 1998). Functional literacy is fairly high. There is a wide disparity between the wealth and poor populations of the area, and provision of services to rectify the inequalities is considered a priority.

2.2.2.2 Linking environment and social policy

The theme linking social policy and environment is sustainability. In 1987, the Report of the Brundtland Commission stressed that the idea of sustainable development must include consideration of economic and social factors, being “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987: 43).

The World Health Organization (WHO, 1992: 61) states that,

“the human society remains dependent on the natural productivity of both land and water ecosystems for most basic needs, including most staple foods and many other products such as biomass fuels, timber, resins, spices and medicinal products. The ways in which soil and water resources are used in farming, forestry, and fishing within any country or region have important implications for its economy, the distribution of income, and the extent of poverty and malnutrition. They also have important implications for the environment and for the possibility of sustaining production in the future”.

Therefore it can be noted from this that there are good reasons for preventing environmental damage. The United Nations Development Programme (UNDP), (1993: 42) states that,

“Health ultimately depends on the ability to manage successfully the interaction between the physical, spiritual, biological and economic/social environment. Sound development is not possible without a healthy population; yet most developmental activities affect the environment to some degree, which in turn causes or exacerbates many health problems. Conversely it is the very lack of development that adversely affects the health of many people, which can be alleviated only through development”.

Therefore, a balance between the social and environmental requirements and needs must be obtained, by implementing sustainable projects.

2.2.3 Linking socio-economic development and environmental protection

Contemporary understanding of the relationship between environmental protection and socio-economic development has been upgraded to the concept of sustainable development as a new developmental paradigm for humankind. Sustainable development forms a theoretical and methodological basis of our research. In this regard, sustainability is defined not as a fixed state but rather as being "...an ongoing dynamic system that can continue to evolve without self-destructing" (Hardi, *et al.*, 1997: 3). Therefore, for the system to be sustainable, different forces that act on this particular system must be in balance. At its core, the concept of sustainable development requires adapting human activities to the carrying capacities of the environment.

The continuing process of worsening social and economic disparities, and increasing environmental problems, has impacted negatively on the development both national and international. In order to address this problem an integrated framework, such as the sustainability development, is a must for all players (Mally, 2007).

In the introduction of this chapter a question was asked, namely could economic development and the principle of prudent environmental management be honored simultaneously? This chapter has noted a few things that must be achieved before this becomes a reality. It is clear that sustainability is the center pole for achieving this, therefore the answer is yes. Economic development and the principle of prudent environmental management can be honored simultaneously.

2.3 Legislation and policy framework

Throughout the 1980s and 1990s, industrialized countries have responded to a broad call for decentralization and devolution (Philip, 2003). The consequences of this trend on governmental action have yet to be understood, especially when it comes to policies that call for national action. How will these trends affect the government's (all spheres of government) capacity to respond to environmental challenges? More generally, what impact can we expect multilevel governance structures to have on environmental performance? (Aiken & West, 1991). Are they likely to hinder environmental action – for example, by fragmenting the policy process? Or do they, on the contrary, further environmental outcomes by providing incentives for adaptation and innovation at the sub-national level?

What makes environmental policy an interesting field of investigation is the fact that it is subject to particular challenges in fragmented systems. First of all, environmental policy typically addresses problems of spillovers, which are thought to be more burdensome in federal systems. Second, environmental policy regularly calls for national regulatory programs and international agreements. Finally, environmental policy is subject to significant tensions between levels of government because it calls for central action precisely in an area that has strong territorial implications (Pickering & Owen, 1997). It affects policy domains such as waste management, zoning, transport, and urban and regional economic development commonly administered at the regional and local level. As a result of these particularities, environmental policy is likely to create tensions between levels of government as well as across jurisdictions. However, it is far from predictable how these tensions will play out and what effects they may have on environmental policy and performance.

2.3.1 Environmental legislation: international context

Since the early 1970s there has been a growing recognition that many environmental problems, in particular those of a transboundary nature, cannot be successfully tackled solely at the national level. A nation cannot act alone to solve many of the environmental problems that it faces. Nations have responded by creating international regimes in an attempt to tackle problems ranging from ozone depletion and climate change to biodiversity loss and toxic-waste export. According to Krasner (1983: 2) a regime is a set of “implicit or explicit principles, norms, rules and decision-making producers around which actors expectations converge in a given area of international relations”

The international politics of the environment is marked by a series of related conflicts and tensions between northern and southern nations around issues such as the nature of global economy, population and resource consumption and the significance of sovereignty. One of the fundamental disputes surrounds the nature of the economic system. Typically, northern nations such as USA, Canada and UK tend to conceive of environmental problems as separate from the nature of economic relations. Environmental problems are viewed as technical issues which can be tackled without altering the structures of the global economic system (movie: *An inconvenient truth*, 2000). For most southern nations, such as Asia and Africa economic reform is taken as essential, but typically the language of capital accumulation is not challenged.

A related area of contention is the relative impact on the global environment or resources consumption and increasing population levels. Northern hemisphere countries tend to emphasize the increase in sheer numbers in the south, pointing to the impact that current levels have on resources and asking what the global effect of an increased population might be. Concerns are frequently aired as to the pressures that such numbers will have on resources such as agricultural land, water supplies and the like (Pickering & Owen, 1997).

Another area of conflict is over the issue of sovereignty. According to Brown (1997: 31) sovereignty is at the heart of what can be termed the settled norms of the contemporary international order: “national self-determination, non-aggression and respect for international law combined with support for the principles of sovereignty”

The year 1972 is a highly significant date for environmental politics and policies. The United Nation Conference on the Human Environment, held in Stockholm, provided the first major international opportunity for the south to highlight the links between the prevailing international economic system, environment degradation and poverty. As a result, a number of piece of legislation and policies were introduced internationally.

2.3.1.1 United Nations and World Health Organization (WHO)

The United Nations (UN) was founded as a successor to the League of Nations, which was widely considered to have been ineffective in its role as an international governing body insofar as it had been unable to prevent World War II. The term United Nations was decided by Franklin D. Roosevelt and Winston Churchill during World War II, to refer to the Allies. Its first formal use was in the 1 January 1942 Declaration by the United Nation (United Nations, 2000). The WHO acts as a coordinating authority on international public health. Established on 7 April 1948, and headquartered in Geneva, Switzerland, the agency inherited the mandate and resources of its predecessor, the Health Organization, which had been an agency of the League of Nations.

The United Nation Conference on the Human Environment was an international conference convened under United Nation auspices held in Stockholm Sweden, in 1972. It was the first major conference on international environmental issues, and marked a turning point in the development of international environmental politics (Baylis & Smith, 2005).

Apart from increasing awareness of environmental issues among public and governments the Stockholm Conference, laid a framework for future environmental cooperation, led to the creation of global and regional environmental monitoring networks, and the creation of the United Nations Environmental Programme (UNEP). UNEP is the designated authority of the United Nations system in environmental issues at global and regional levels. Its mandate is to coordinate the development of environmental policy consensus by keeping the global environment under review and bringing emerging issues to the attention of governments and the international community for action.

The mandate and objectives of UNEP emanated from United Nations General Assembly resolution 2997 of 15 December 1972 and subsequent amendments adopted at UNCED in 1992, the Nairobi Declaration on the Role and Mandate of UNEP, adopted at the Nineteenth Session of the UNEP Governing Council, and the Malmo Ministerial Declaration of 31 May 2000 (UNEP, 2000)

According to Naicker (2007: 69) “the UN has acted as a catalyst for global and regional change, effectively mediating environmental conflict and presenting solutions that address the demands of growth of development and developing countries”. This can be supported by the Agenda 21 which is the outcome of UNCED.

2.3.1.2 European Union (EU)

The EU has been the most significant organizations that have been establish to manage environmental policy and areas of transnational activities. Since it is able to impose and make laws as it is the most powerful organization (Baker, 1996).

The EU comprises a number of bodies, such as, the European Commission, the Council of Ministers, and the European Parliament, which have varying powers and capabilities and which interact with one another in an often complicated and opaque manner. The most important legislative instruments are decisions, recommendations and opinions (European Environment Agency, 2004).

Environmental policy is one of the most important and far-reaching areas of EU legislation. The EU is the leading authority in this area, with up to 80% of United Kingdom legislation on environmental affairs estimated to come from the EU (Farmer, 2007). However, critics such as Sweden and Norway question the efficiency of some measures and the EU environmental policy, arguing that the cost of complying with these regulations leaves European business uncompetitive, especially in the face of increased competition from countries such as China and India, which do not have such strict environmental rules.

The EU has passed legislation aimed at improving the quality of water, tackling air and noise pollution, assuring the safety of chemicals, setting standards for waste disposal and protecting the EU's native wildlife and plants. The current European Environment Agent, which runs from 2002-2012, identifies four environmental areas for priority action: climate change; nature and biodiversity; environment, health and quality of life, and natural resources and waste (Wettestad & Farmer, 2003).

The EU has also taken a leading role in global environmental negotiations, especially the signing of the Kyoto Protocol. At the 1997 UN Conference on Climate Change in Kyoto, Japan, the EU committed its members to reducing greenhouse gas emissions eight percent by 2012, compared to levels in 1990. In a subsequent agreement at an EU summit meeting in March 2007, these cuts were raised to 20% by 2020. In order to meet such commitments, the EU created the *Emissions Trading Scheme (ETS)* in December 2002. This includes limits on the amount of carbon dioxide firms can produce in six key industries: energy, steel, cement, glass, brick-making, and paper/cardboard production.

According to Naicker (2007: 70) the first significant legislative document on air quality by the EU was drafted in 1980, and prescribed limit and values for SO₂ and TSP aimed at addressing urban smog.

In September 1996 the EU agreed on a directive on Integrated Pollution Prevention and Control (IPPC). This aims to regulate pollution from the following categories of process:

- Energy industries;
- Production and processing of metals;
- Mineral industry;
- Chemical industry;
- Other activities including intensive animal housing.

Each member state was required to introduce legislation and regulations by 20 October 1999 to implement the directive. All existing processes had to be authorized under the IPPC conditions by 30 October 2004, and new processes would require prior authorization as soon as domestic legislation is in place (Farmer, 2007).

The most important legislative instruments employed by the EU are regulations and directives. Other available instruments are decisions, recommendations and opinions. The bulk of environmental law is made in the form of directives. Farmer noted that “in complying with EU legislation, member states have both positive and negative duty. Positively they are required to implement a directive fully and within the specified time limit; negatively there are required to repeal any previous law incompatible with the directive” (Farmer, 2007: 265).

2.3.1.3 United Kingdom (UK)

It is commonly asserted that membership of the European Union (EU) has Europeanised many areas of British political life. Nowadays in the environmental sphere, almost all national legislation is driven by, or developed in close association with, EU or international legislation. An extensive range of literature summarizes the impact of Europe on the traditional features of British environmental policy (Lowe & Ward, 1998).

The term Europeanisation is widely used but its precise meaning remains contested (Cole & Drake, 2000). In essence it refers to the process through which member states are progressively adapting themselves to handle the growth in the EU’s decision making powers. In relation to the process of European integration, it is a truism that British-EU environmental relations have been marked by conflict and dispute. Throughout the 1970s and the 80s the UK fought doggedly to preserve its pre-existing approach to regulating environmental problems (Golub, 1996).

UK environmental policy in the 1970s and 1980s tended to be informal, reactive, and often voluntary, based on negotiation between industry and government (Jordan, 2003). Releases of industrial wastes to air, water, and land were controlled separately. The 1990 Environmental Protection Act introduced the concept of integrated pollution control (IPC), intended to ensure that substances were managed in a way that minimised their detrimental effects on the whole environment. IPC has since evolved, as part of European environmental policy, into integrated pollution prevention and control (IPPC) (Farmer, 2007).

Environmental policy has embraced the approach of 'sustainable development' where economic and social factors are considered alongside the environment. Several government strategies aimed at making progress towards sustainable development have been produced, the latest of which sets the framework for 'Sustainable Consumption and Production' (SCP) (*UK Government Framework, 2003*). The aims of SCP are to extract the most productive use out of finite and renewable natural resources, to reduce waste and to change consumption patterns. The result of this evolution is that current environmental policy is an assortment of older and newer approaches to regulation.

Air pollution regulation has a very long history in the UK. Combustion processes emitting air pollutants have been used for thousands of years. For example, coal was used by Iron Age man for smelting iron ore. Coal burning in medieval York resulted in a number of classic diseases that are retained in skeletal remains (Arrow, 1995). The first modern legislation was the series of Alkali Acts of 1863, 1874 and 1906. These Acts introduced a range of principles still present in current legislation. Controls were placed on offensive emission. They were also not limited to chimneys, but also to fugitive emissions. Emissions causing air pollution have changed considerably since the 1950s. With smoke and SO₂ now regulated and a six-fold increase in road traffic between 1955 and 2001, coal combustion is no longer the main cause. Instead, motor vehicle emissions have had an increasing impact on urban air quality (Beattie, *et al.*, 2001; Colls, 1997).

The National Air Quality Strategy, published in March 1997 and revised in January 2000, set up a strong framework for tackling air pollution over the coming years. It established objectives for eight key air pollutants, based on the best available medical and scientific understanding of their effects on health. Although its main focus is on protecting the health of the population at large, the UK's Air Quality Strategy has also established corresponding targets for the protection of vegetation, ecosystems and the natural environment (*UK Government Framework, 2003*).

2.3.1.4 United States of America (US)

Since 1970, following the establishment of the Environmental Protection Agency, the federal government's role in maintaining and enhancing the quality of the environment has expanded enormously. Major statutes such as the Clean Air Act and its 1977 Amendments, the Clean Water Act, the Resource Conservation and Recovery Act and the Toxic Substances Control Act, have been implemented to varying degrees (Regens, 2000). Environmental policy in the US as a result, has developed into a large body of relatively stringent and complicated regulations.

The National Environmental Protection Act, which created the Council on Environmental Quality and required the preparation of environmental impact statements for major federal projects, was signed into law on New Year's Day 1970. In the decade that followed, American environmentalism achieved sudden and remarkable political and legal successes (McKittrick, 2005). The Clean Air Act (CAA), a comprehensive federal law that regulates air pollution from stationary and mobile sources was first passed in 1963. The act has provided the primary framework for protecting human health and the environment. The CAA divides air pollutants into criteria pollutants, which include carbon monoxide (CO), nitrogen dioxide (NO₂), sulphur dioxide (SO₂), lead, particulate matter and ozone, and hazardous air pollutants.

During the past three decades, the CAA has resulted in the reduction of several major air pollutants at the same time as the US. GDP and energy consumption have increased briskly by 187% and 47%, respectively. During the same time period, the total criteria pollutants decreased 54%. For example, since 1970 emissions of lead, neurotoxins, that are particularly harmful to children have been reduced by 98% because of the national unleaded gasoline program. Despite the progress that has been made toward cleaner air, serious air pollution problems remain, and more needs to be done to improve the nation's ability to confront future air pollution challenges (Sahle-Demessie, 2006).

While air quality in the US has steadily improved over the past few decades, more than 100 million Americans still live in communities where pollution causes the air to be unhealthy at times, according to the US Environmental Protection Agency (USEPA). In April 2004, the USEPA reported that 159 million people lived in areas of the US where air pollution levels exceeded the federal air quality standards for ground-level ozone. Despite major achievements in improving air quality, the number of smog days has been increasing in many areas during the past years (Brunekreef & Holgate, 2002).

2.3.1.5 Africa and Asia

Caring about the environment in Sub-Saharan Africa is not a luxury but a prime necessity because African economies depend heavily on their capital of natural resources. This is even true in the context of alleviating poverty because environmental degradation primarily affects the poor in both rural and urban areas. Thus the holding of United Nations Conference on Environment and Development (UNCED) in 1992, known as the RIO Earth Summit. It was pointed out that "without improving environmental management, development will be undermined, and without accelerated development in poor countries-the case in most of Sub-Saharan Africa-the environment will continue to degrade" (Pickering & Owen, 1997).

Sub-Saharan Africa, according to the World Bank, relies on its environmental resources base, from both an economic and social perspective more than any part of the world (World Bank, 1996). Thus its environment is at risk for a number of interdependent reasons. Heavy reliance on natural capital, extreme poverty along with very fast population growth, of thirty poorest countries of the world, twenty-one are in Africa (World Bank, 1995).

Asia, especially South Asia, is home to almost half of the world's poor and is a focal area for World Bank support to reduce poverty. Poverty in South Asia is inextricably linked to the management of environmental and social development issues. Sustainable natural resources management, including water resources management, and pollution management, especially related to outcomes of improved livelihoods, reduced environmental health risks, and reducing vulnerability (World Bank, 1996).

To improve the livelihoods of the rural and urban poor, the World Bank is assisting in reforming sub-regions and sectors in the region with watershed and forest management, land and water management, fundamental reforms required for long-term environmentally and socially sustainable irrigation and drainage, tariff reforms, institutional reform, and a recent focus on river basin planning and management in an integrated water resources management framework.

2.3.2 The South African Legislation Context

South Africa has a number of Acts that deal with environmental issues and management. The awareness and protection of environment has been taken very seriously in South Africa and this is noted in the Constitution of the country. The legislation that deal with environmental management especially with air quality management include the National Health Act 61 of 2003 (NHA) as amended, Atmosphere Pollution Prevention Act 45 of 1965 (APPA), Environmental Conservation Act 73 of 1989 (ECA), Occupational Health and

Safety Act 85 of 1993 (OHSA), National Environmental Management Act 107 of 1998 (NEMA) and The Air Quality Act 39 of 2004 (AQA). An overview of these acts follows.

2.3.2.1 South African Constitution (Act 108 of 1996)

Environmental issues and management in South Africa are considered in the highest law of the land namely the South African Constitution (Act No. 108 of 1996)). In the first instance, the environmental right contained in Section 24 of the Bill of Rights contained in the Constitution guarantees that,

“Everyone has a right:

- (a) To an environment that is not harmful to their health or well being
- (b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that
 - (i) Prevent pollution and ecological degradation
 - (ii) Promote conservation and
 - (iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development”.

2.3.2.2 National Health Act 61 of 2003 (NHA)

The objectives of this Act are

“to regulate national health and to provide uniformity in respects of health services across the nation by:-

- (a) Establishing a national health system which
 - (i) Encompasses public and private providers of health services; and

- (ii) Provides in an equitable manner the population of the Republic with the
- (b) Setting out the rights and duties of health care providers, health workers, health establishments and users; and
- (c) Protecting, respecting, promoting and fulfilling the rights of
 - (i) the people of South Africa to the progressive realization of the constitutional right of access to health care services, including reproductive health care;
 - (ii) the people of South Africa to an environment that is not harmful to their health
 - (iii) children to basic nutrition and basic health care services contemplated in section 28(1)(c) of the Constitution; and
 - (iv) Vulnerable groups such as women, children, older persons and persons with disabilities”.

This Act seeks to ensure that health of the people of South Africa is protected, and that they are provided with quality health care as well as an environment that is suitable for them to live in. It supports and seeks to ensure that the objectives of the Constitution are met through enforcement of the Act.

2.3.2.3 Environmental Conservation Act 73 of 1989 (ECA)

The main objective of the Environmental Conservation Act is to “provide for the effective protection and controlled utilization of the environment”. The Constitution is the backbone of this Act, as it seeks to protect the health and well being of the people. Section 16, which is part 3 of the ECA, focuses on the protection of the natural environment and section 19, which is part 4, details the control of environmental pollution. This Act requires environmental impact assessments (EIAs) for specified developments which will have impact on the environment.

Environmental impact assessments include specialist studies, such as social impact assessment, water and ground water studies and air quality studies where appropriate, to prevent environmental degradation resulting from the development.

2.3.2.4 Occupational Health and Safety Act (Act No.181 of 1993)

The main objective of this Act is to, “provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.”

2.3.2.5 Integrated Pollution and Waste Management Policy (IP & WMP)

The publication of the IP & WMP marked a turning point for pollution and waste governance in SA (Annegarn, *et al*; 2007). This White Paper sets out a policy that aims to achieve sustainable coastal development in SA through integrated coastal management. Sustainable coastal development can be defined as enhancing the capacity of current and future generations to realize their human potential, within the context of maintaining diverse, healthy and productive coastal ecosystems.

“A wide variety of point and non-point source pollutants and wastes enter coastal ecosystems, largely through the medium of water. This has adverse effects on coastal ecosystems and human health. Fragmented control and authority frustrate effective management. Coastal activities should be planned and managed to ensure that pollution and waste do not compromise opportunities for sustainable coastal development.

The goals and objectives outlined in this theme seek to address the following key coastal issues identified during the course of this policy formulation process:

- Reduce pollution affecting tourism potential,
- Improve pollution monitoring,
- Improve catchment practices and water quality,
- Address informal settlements and water quality,
- Prohibit direct discharge of untreated waste,
- Address the contamination of aquifers by septic tanks,
- Improve sewage treatment,
- Restrict marine disposal of effluent,
- Prohibit effluent disposal in harbours,
- Restrict ballast discharge,
- Prevent oil spillage from ships,
- Discourage litter and waste on beaches and dunes,
- Reduce air and noise pollution” (Annegarn, *et al*; 2007).

2.3.2.6 Atmosphere Pollution Preventing Act 45 of 1965 (APPA)

The main objective of this Act is to, “provide for the prevention of the pollution of the atmosphere, for the establishment of a National Air Pollution Advisory Committee, and for matters incidental thereto”. The Act is divided into sections that deal with control of noxious or offensive gases, atmospheric pollution by smoke, dust control and the air pollution by fumes emitted by vehicles. This Act sets the South African legal scene with regard to air pollution control.

The Act has received significant criticism regarding several aspects of the approach and control measures. Most notably, it is regarded as out-dated, as it was promulgated in 1965, and does not reflect current practices or innovation in air pollution control (Barnard, 1999). This has led the government to promulgate the AQA in order to address air pollution challenges.

2.3.2.7 National Environment Management Act 107 of 1998 (NEMA)

This Act seeks to,

“provide for co-operative environmental governance by establishing principles for decision-making on matter affecting the environment, institution that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state; to provide for prohibition, restriction or control of activities which are likely to have a detrimental effect on the environment (NEMA, 1998: 1)”.

Section 2 of NEMA highlights that the “environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental cultural and social interests equitably”. Thus this Act seeks to ensure that environmental management or/and people’s interests must be taken into consideration by any party that seeks to operate activities that might have social and environmental impact.

2.3.3 The Air Quality Act (Act No. 39 of 2004)

The main objective of the Act is to,

“reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of

government; for specific air quality measures; and for matters incidental thereto". (Act No. 39 of 2004: 21)

The Air Quality Act (AQA) requires a shift from source-based air pollution control to receiving environment, air quality management approach. Key features of AQA include:

- "Setting of ambient air quality targets as goals driving emission reductions,
- Decentralization of air quality management responsibilities,
- Requirement that all significant sources be identified, quantified and addressed,
- Recognition of source-based measure in addition to alternative measures, including market incentives and disincentives, voluntary programmes, and education and awareness,
- Promotion of cost-optimised mitigation and management planning by authorities and emission reduction and management planning by sources,
- Promoting to access to air quality information and public consultation during air quality management processes". (Act No. 39 of 2004: 17)

The local authorities are the custodians of AQA with regard to conducting monitoring of ambient air quality and emissions monitoring of point, area and mobile sources of air pollution. According to Scott (2005), local governments are listed as the designation of a municipal air quality officer (AQO), the drafting of an AQMP, and the implementation of an atmospheric emission license (AEL) system.

2.4 Business objectives and requirements

The role of business is to create wealth for shareholders, employees, customers and society at large. According to (Bond, 2006: 4) "businesses need to be accountable to society, as well as its financial performance, its social and

environmental performance”. No other human activity matches private enterprise in its ability to assemble people, capital and innovation under controlled risk-taking. In order to create meaningful jobs and produce goods and services profitably; profit being essential to long-term business survival and job creation.

Businesses are required to comply with the laws, rules and regulations of the countries in which they conduct business. They must also maintain open and transparent communication with the customers, employees, shareholders and society, while giving due respect to confidentiality. Finally businesses must voice constructive opinions on social, environmental, regulatory or other matters that may affect the shareholders, customers, employees and the world (Hurt, 2007).

While all businesses have an implicit set of inherent values, the number of businesses having formally written values and principles is rapidly increasing (ICC, 2007). These have become more and more explicit and provide the framework for corporate behaviour beyond companies’ legal obligations. At the same time growing numbers of companies have been adding environmental and social indicators to their economic and financial results in reports that are often entitled social reports or sustainability reports (GAAP, 2006). Indeed, sustained profits and principles are mutually supportive and an increasing number of companies view corporate responsibility as integral to their systems of governance.

2.4.1 Business commitment to its shareholders and stakeholders

The stakeholder perspective was first introduced in the 1980s to explain why businesses have responsibilities beyond the maximization of shareholder value to include the interests of non-stockholding agents (Hurt, 2007). Stakeholder issues include corporate activities and effects thereof that are of concern to one or more stakeholder groups. Examples include the fairness of product information, gender discrimination, employee compensation, transparency of

company reports and audits, and the environmental impact of products. Thus in the world of business, businesses have to manage the interests of clients, shareholders and colleagues, and take account of the wider interests of society.

Figure 2.3 below shows the interaction of different stakeholders in a business. The business can only be successful and profitable when such interaction exists.

Importance Placed on Stakeholders Globally

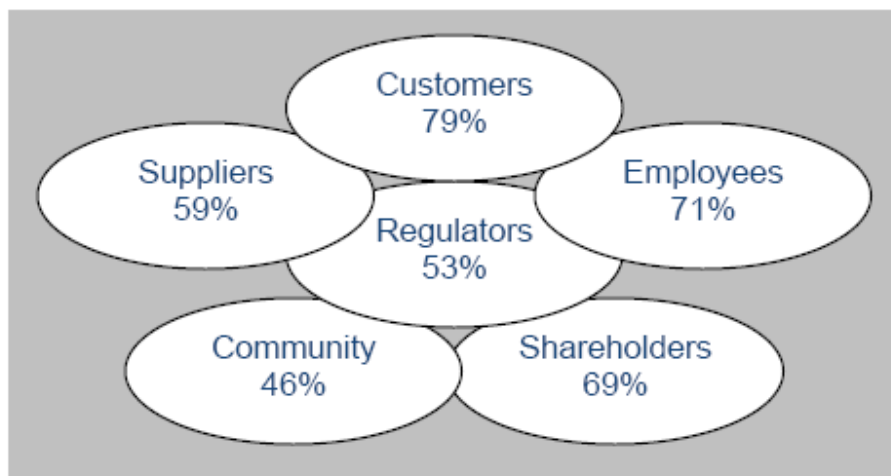


Figure: 2.3 Importance placed on stakeholders
Source: Tomas Hult, 2007: 1

2.4.2 The purpose of business existence

The world is characterized by various types of activities, some of which are considered primary and others supportive. These activities are largely controllable by the individual organization. Outside the organization, however lies an environment that is largely uncontrolled by the individual business (Nieman & Bennett, 2006). This suggests that an organization must continuously monitor events in its environment to remain competitive, and that the business and its environment are not closed, independent or mutually exclusive entities, but rather influence and depend on each other for their existence. This mutual dependence arises from the fact that society largely depends on business to satisfy its need

for product, services and employment. Conversely, a business depends on its environment for such resources as labour, capital and raw material.

The environment within which the business finds itself changes very rapidly and this necessitates a thorough environmental awareness on the part of management, as well as adaptability with regard to its approach to management. Thus management must be well informed of events and activities, especially with regard to economic, social and political developments. According to Nieman and Bennett (2006: 27) “business environment includes all the internal and external variables that exert an influence on the operation of the business”. De Bruyn and Sunder (2007) also noted that business environment and the relationship between the organization, the market, the macro-economics, and the global environment must be noted by management.

Business environment is complex and needs to be analysed at all times. It is characterised by the interrelatedness of environmental factors, increasing instability, environmental uncertainty, and of course, the complexity of the environment. Change in one of the external factors may cause a change in the micro-environment or internal factors, and similarly, a change in one external factor may cause change in other external environmental variables. This indicates the number of external variables to which a business organization has to react, as well as variations in the variables themselves. According to Baron (2003: 14) “the role of management is to formulate and implement appropriate strategies to identify market opportunities and performance and also address the underlying issues”.

For the purpose of this study the physical environment includes the availability, conservation, improvement and utilization of limited natural resources a country possesses (Nieman & Bennett, 2007). The raw materials that businesses use to produce their product obtain them from the physical environment; as a result the natural environment is disturbed. This could be as a result of waste produce during production or emission from the company stacks.

2.5 Summary

This chapter examines the literature and evaluates the main topic of environmental issues starting from the world population and its growth. The uses of the limited resources with regards to environment are highlighted. Global, national and Durban environmental legislation and policies, are discussed. The review of the literature also touches on socio-economic issues and the linkages between the environmental policy and social framework. Finally the existence of businesses and the role that they played in society is evaluated, touching on the main issues like the stakeholders and their importance.

In discussing the above mention topics a picture of how these relevant topics which influence and/or affect the environment is created, in doing so the main causes of environmental exploitation and society needs are identified.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction to the chapter

According to Bryman and Bell (2007: 4),

“business research does not exist in vacuum. Not only is it shaped by what is going on in the real world of business and management, it is also shaped by many of the intellectual traditions that shape the social sciences at large”.

This chapter explores some of these intellectual traditions, by discussing different research methods. By doing so the approach of this research is evaluated in terms of the reasons for choosing the method and/or approach for this study.

Leedy and Ormrod (2005: 9) define research as “a systematic process of collecting, analyzing and interpreting information (data) in order to increase our understanding of the phenomenon about which we are interested or concerned”. On the other hand Saunders *et al.* (2003: 3) defines research as “something that people undertake in order to find out things in a systematic way, thereby increasing their knowledge”.

According to Webster (1985: 7),

“to research is to search or investigate exhaustively. It is a careful or diligent search, studious inquiry or examination especially investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new

facts or practical application of such new or revised theories or laws, it can also be the collection of information about a particular subject”.

Based on the above definitions the available types of research are evaluated to determine the most useful research tools and method for this study.

3.2 Aim and objective of the study

The aim of this study is to evaluate the impact of introduction and implementation of AQA on businesses in the greater Durban area. The main objective of the study is to ascertain the impact that AQA has on businesses in this area. The main focus is on the following areas of impact:-

- Operational impact
- Structural impact
- Strategic impact
- Financial impact
- Social impact

3.3 Research ethics and ethical clearance

Before undertaking research, it must be noted that all parties must exhibit ethical behavior. Ethics is the study of the right behavior and addresses the question of how to conduct research in a moral and responsible way (Blumberg *et al.*, 2005). In this study the ethical issues were discussed, before data collection, with all businesses participating in the study. All the participants were required to complete and sign a consent form which is attached as Appendix B. The ethical clearance was approved by the faculty of management studies at the UKZN research ethics committee.

3.4 Different types of research

There are two types of research that can be distinguished, namely applied research and pure research. The basic definition for applied research is any fact gathering project that is conducted with an eye to acquiring and applying knowledge that will address a specific problem or meet a specific need within the scope of the entity. Pure research aims at expanding the frontiers of knowledge and does not directly involve pragmatic problems (Bryman & Bell, 2007).

There is a relationship between these two types of research: pure research generates new ideas and applied research takes these ideas to create new inventions. Then, through development, the new inventions are transformed into commercial products. This is a simple model to understand the different types of research and the eventual development of new products.

In this study applied research was used as it addresses determining the impact of AQA on businesses in the greater Durban area. The approach for this research follows the scientific method. The scientific method analyses data before moving from an inductive to a deductive approach. An inductive approach is defined as starting with the collection of data, without any clear hypothesis or principles, followed by analysis and ends with certain conclusions (Saunders, 2003).

In contrast, a deductive approach begins with a certain hypothesis based on a well known and proven principle, and then data are collected to test or verify the hypothesis. Both approaches may contain either qualitative or quantitative analysis of data. A brief explanation of qualitative and quantitative analysis is provided below in order to bring a clear understanding of meanings (Saunders, 2003).

3.4.1 Quantitative

In broad terms, quantitative research can be described as entailing the collection of numerical data and as exhibiting a view of the relationship between theory and research as deductive, a predilection for a natural science approach, and as having an objectivist conception of social reality. A quantitative study usually ends with confirmation or disconfirmation of the hypotheses that were tested. Quantitative research normally follows the following steps:- theory, hypothesis, research design, devise to measure concepts, selection of research sites, selecting research subject/ respondents, administer research instruments/ collect data, process data, analyse data, findings and conclusion (Bryman & Bell, 2007).

3.4.2 Qualitative

In contrast to quantitative research, qualitative research is typically used to answer questions about the complex nature of phenomena, often with the purpose of describing and understanding the phenomena from the participants point of view (Leedy & Ormrod, 2005). A qualitative study is more likely to end with tentative answers or hypotheses about what was observed. Qualitative research follows the following steps: - general research questions, selecting relevant sites and subjects, collection of relevant data, interpretation of data, conceptual and theoretical work, findings and conclusion.

3.5 The research population and sample size

Population can be defined as the total collection of elements to make some inferences (Blumberg *et al.*, 2005). This study is confined to businesses in the Greater Durban area. The total of businesses in the study area with notable air quality issues and those that deal with air quality were calculated to be ninety, this was identified as the population not the sample.

3.5.1 Population identification

In identifying the population of the study, a register of businesses in the eThekweni municipality was evaluated. From that register businesses with notable air quality issues and those that deal with air quality in the Greater Durban area or eThekweni Municipality were identified. In doing so, no statistical tools were used to identify these businesses since these businesses were few, namely ninety businesses.

3.5.2 Sample identification

In identifying the sample size the businesses were grouped into three categories: big businesses, medium businesses, small businesses which also included air quality consulting businesses. These sub-groups consisted of between 10 – 30 businesses in each; as a result these businesses were reduced to 10 for big businesses, 10 medium businesses, and 10 for both the consultant businesses and small businesses. Since it was not possible to interact with all businesses (research population) the sample size was then identified as 30 businesses as per above discussion.

3.5.3 Businesses categorizing

The businesses that were identified as a population of this study were identified based on their potential impact on the environment as well as their participation on environmental projects undertaken within the Greater Durban Area. These businesses were identified from the eThekweni Municipality Business register. The businesses were then categorized into small, medium and big. Base on the number of tones of sulphur dioxide emitted per day, for a business to be categorized as big, it meant that the business will have to emit sulphur dioxide that is greater than 4 tons per day.

The businesses that were emitting sulphur dioxide that is less than 4 tons but greater than 1 tons were categorized as medium businesses. The businesses that were emitting sulphur dioxide that is less than 1 tons per day and those that their emission of sulphur were not known were categorized as small businesses. The small businesses category also included the consultant companies that undertake environmental work within the greater Durban Area.

3.6 Approach used for this research

A qualitative approach was used in this research and was selected as the most suitable method for this research study. "Qualitative research is typically used to answer questions about the complex nature of phenomena, often with the purpose of describing and understanding the phenomena from the participants' point of view" (Leedy & Ormrod, 2005: 133). In achieving the goals and objectives of this study, a number of businesses were interviewed, by relevant personnel through structured questionnaires

3.6.1 Data collection tools

Data collection enables the objectives of the study, as well as the critical questions, to be answered. This study mainly focused on primary data, these are the most valid, the most illuminating, and the most truth-manifesting data. Basically primary data are original data collected for the research on hand. Although secondary data was used to further understand the impact of AQA, this research focused on primary data. Secondary data was sourced from a range of books, reports and journals.

The main tool used to collect the primary data was a structured questionnaire. However because of challenges faced in the collection of data the structured interviews were cancelled. The main advantage of using paper-pencil questionnaires is that they can be sent to a large number of people, including

those who live thousands of kilometers away (Leedy & Ormrod: 2005). Questionnaires could save the researcher travel expenses. From the perspective of participants, this distance becomes an additional advantage: participant can respond to questions with assurance that their responses will be anonymous, and so they may be more truthful than they would be in a personal interview, particularly when they are talking about sensitive or controversial issues.

Questionnaires have their drawbacks as well. Typically, the majority of people who receive questionnaires do not return them. In other words, there may be a low return rate and the people who do return them are not necessarily representative of the originally selected sample. Even when people are willing to participate in a questionnaire study, their responses reflect their reading and writing skills and perhaps, their misinterpretations of one or more questions. Furthermore, by specifying in advance all of the questions that will be asked and therefore eliminating other questions that could be asked about the issue in question, the researcher is apt to gain only limited, and possibly distorted, information (Dowson & McInerney, 2001).

The businesses that participated in the study were requested to complete two questionnaires: one by the environmental personnel, and the second one by the operations personnel. This was undertaken in order to link the awareness of the operational staff to the environmental issues, with the assumption that environmental personnel are part of the management of the business.

3.6.2 Instruments used for data collection

As noted above a structured questionnaire was the main data collection instrument used. A pilot study was conducted with a few businesses, five businesses to be specific. After the pilot study some of the questions were discarded while others were rephrased, to make them clear. These

questionnaires were distributed to the same businesses and positive responses were obtained with regard to questions being clearer.

For the study, questionnaires were either emailed or hand delivered to each participant depending on participants requirements, these requirements were discussed during interaction with the participants, when discussing the ethical issues. The questionnaire was structured and required a one word answer as per the likert scale (refer to the Appendix A). The estimated time to fill this questionnaire was 30 – 45 minutes. These questionnaires were approved by the ethics committee.

3.6.3 Data analysis

Data analysis was undertaken through analyzing response and opinions evaluation. The data was analysed using graphs and pie charts. The data was also interpreted in conjunction with the literature and the respondents' views on the research topic since they have a good understanding of the topic.

3.6.4 Method of achieving validity

The quality of data is very important in order to maintain the integrity of the research hence a number of ways in achieving this may be employed. For example a similar questionnaire could be sent to an individual for answering at a different interval, in order to establish the consistency of the answers. Another way that might be used is to review the same author's articles which talk about the same subject, in order to verify the conclusions reach by that author. For this study validation of the data was done by using a same questionnaire which was sent to a participant at different intervals in order to establish the consistency of the answers.

3.7 Difficulties encountered in the research

The prescribed methodology of the research was changed during the data collection process; the main reason for the change was due to lack of availability of the participants. The managers (85%) that were supposed to participate in the interview process were not available for the interviews. As a result the interviews were cancelled and only completed questionnaires were analyzed in this study. This presented a limitation on the available and reviewed data.

3.8 Summary

This chapter discusses the methodology used in this study; it also looks at the available research methodologies. The data collection strategy, ethical issues and difficulties experience during the study are also discussed.

CHAPTER 4

TABULATION OF RESULTS

4.1 Introduction

This chapter presents the data collected during the study. The data are represented in different formats which include tables and figures. In this chapter the result of the study is only presented in tables as well as in graphs, detail discussion of these results follows in Chapter 5.

4.2 Research population and sample

Figure 4.1 shows the study population, which indicates the identified businesses that had air quality issues as well as the samples taken from those businesses. There were ninety businesses that were identified for this research: the population of the study. The sample size was then identified from the population; the businesses that were identified as the sample were thirty (30). Therefore sample size was 30 businesses.

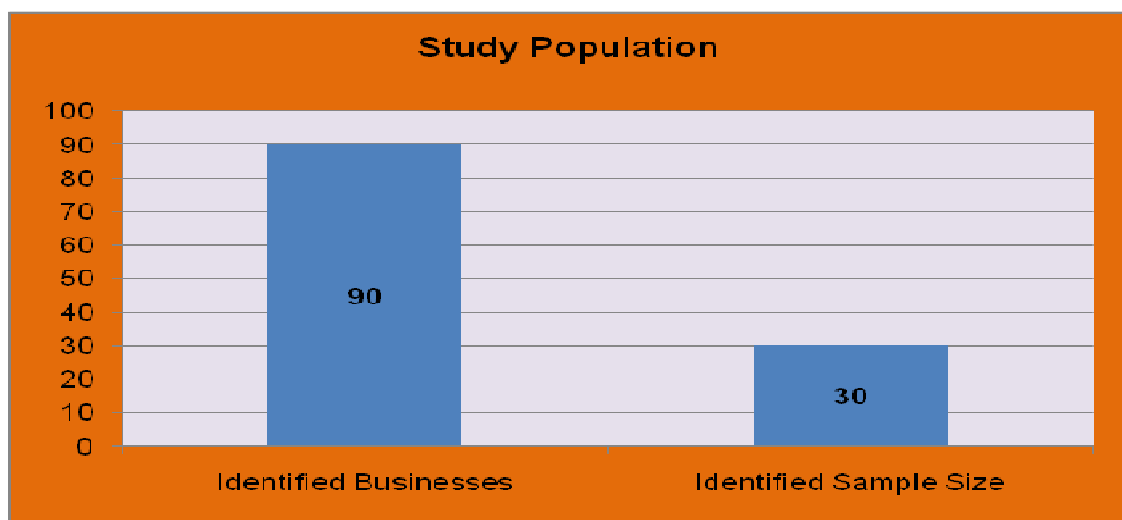


Figure: 4.1 Graph for study population and sample size

4.2.1 Participating companies

Figure 4.2 is a graphical presentation of the study sample size and the number of businesses that filled and returned the questionnaire. As indicated on chapter three, each business was issued with two questionnaires. One for personnel that are involve in management and the other for either environmental or operational personnel. Therefore a total of sixty questionnaires were issued. The businesses that filled and returned the questionnaire were fifteen out of thirty, meaning that the rate of returned of the questionnaire was 50% as indicated on the graph below.

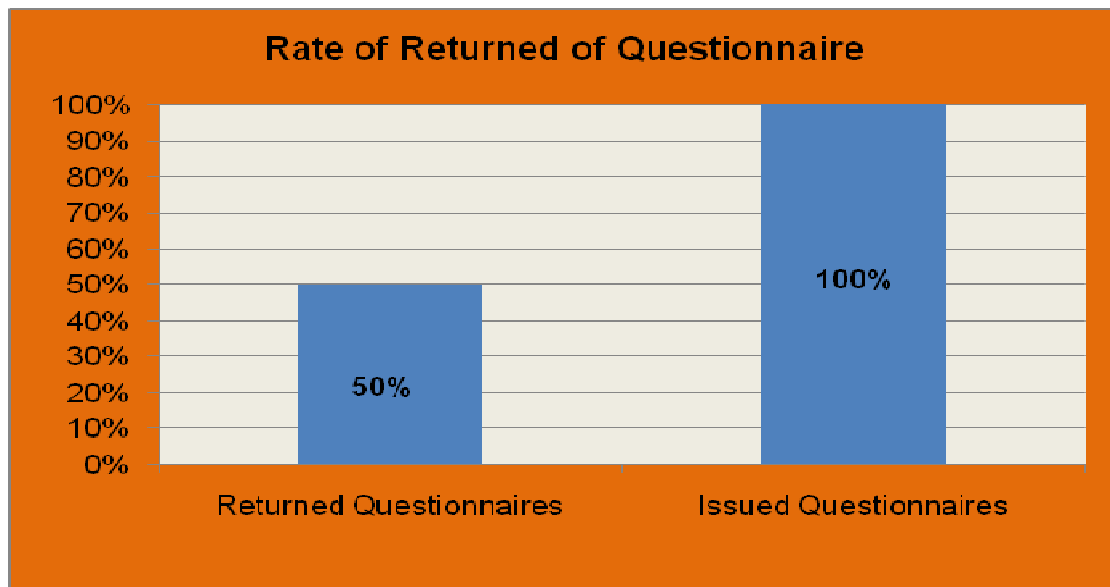


Figure 4.2: Graph indicating the rate of return of the questionnaires

The questionnaire that were distributed to different businesses were 60, each business required to fill two questionnaires (the same questionnaire discribed to two personnels, one dealing with operational work and the other with environmental work). Meaning 30 businesses multiply by 2 questionnaires. From the distributed 60 questionnaire only 30 were returned, this represents 50% responded as indicated on Figure 4.2 above.

4.3 Presentation of results

The results are purely based on the questionnaire and are classified into three categories, namely

- the research overall results,
- the management involvement,
- the impact of AQA in businesses.

4.3.1 Overall research results

Table 4.1 and Figure 4.3 below show the overall response frequency. It can be seen from the data in Table 4.1 that all respondents answered all the questions.

The same data is presented graphically in Figure 4.3

Table 4.1: Presentation in the table showing results frequencies

Questions	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Totals
Question 1	0	0	6	24	30
Question 2	0	0	3	27	30
Question 3	1	1	7	21	30
Question 4	0	1	7	22	30
Question 5	0	1	20	9	30
Question 6	0	1	11	18	30
Question 7	0	1	14	15	30
Question 8	0	2	11	17	30
Question 9	18	9	2	1	30
Question 10	2	4	19	5	30
Question 11	22	5	3	0	30
Question 12	0	1	9	20	30
Question 13	0	1	13	16	30
Question 14	14	13	3	0	30
Question 15	1	6	14	9	30
Question 16	1	0	18	11	30
Question 17	0	0	11	19	30
Question 18	0	3	3	24	30
Question 19	1	6	17	6	30
Question 20	0	0	12	18	30
Total	60	55	203	282	600
Percentage	11%	9%	34%	46%	10%

4.3.2 Analysis of management involvement

Figures 4.3 to 4.10 present the results that addressed management involvement in the organizations that participated in the study.

4.3.2.1 Question 1 - The organization has a clear understanding of the environmental legislation and policies that exist internationally

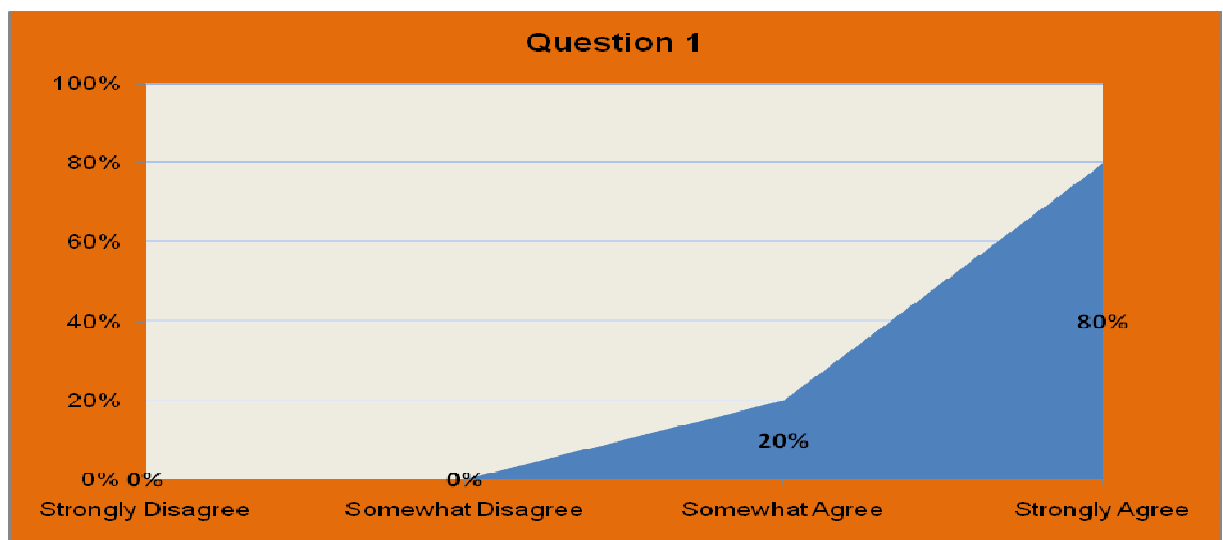


Figure 4.3: Graph showing response from the first question

The data presented in Figure 4.3 indicate that 80% of the respondents have a clear understanding of the international environmental legislation and policies. A further 20% have a good understanding with none of the respondents indicating that there had no understanding of the legislation and policies.

4.3.2.2 Question 2 - The organization has a clear understanding of the environmental legislations and policies that exist nationally

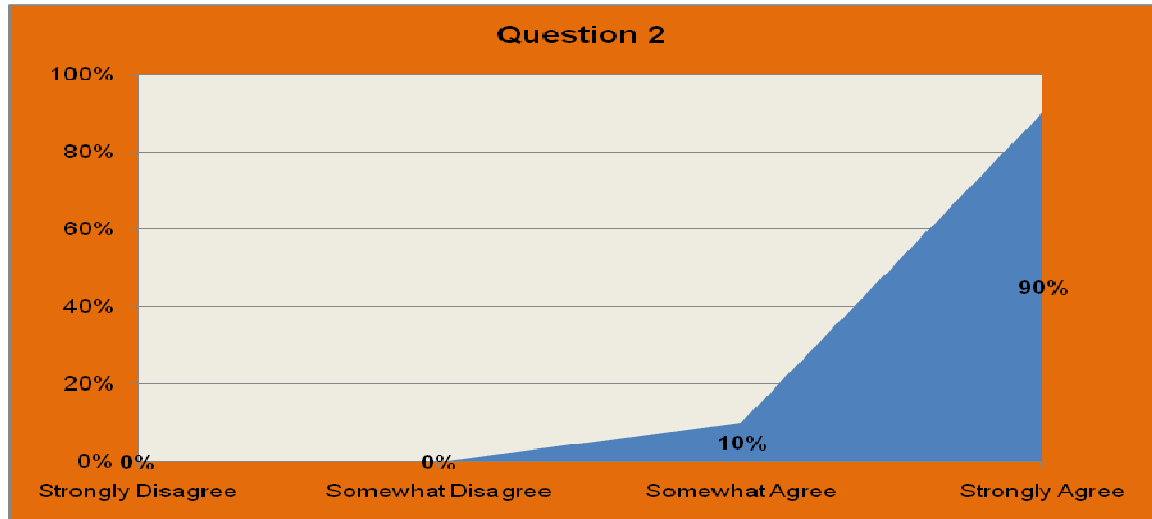


Figure 4.4: Graph showing response from question 2

The data presented in Figure 4.4 indicate that 90 % of the organizations have a clear understanding of the environmental legislation and policies that exist nationally. A further 10% have a good understanding with none of the respondents indicating that they had no understanding of the legislation and policies.

4.3.2.3 Question 3 - The organization has a clear understanding of Air Quality Act (AQA). The leadership of the organization is aware of the demand and requirements of the Air Quality Act

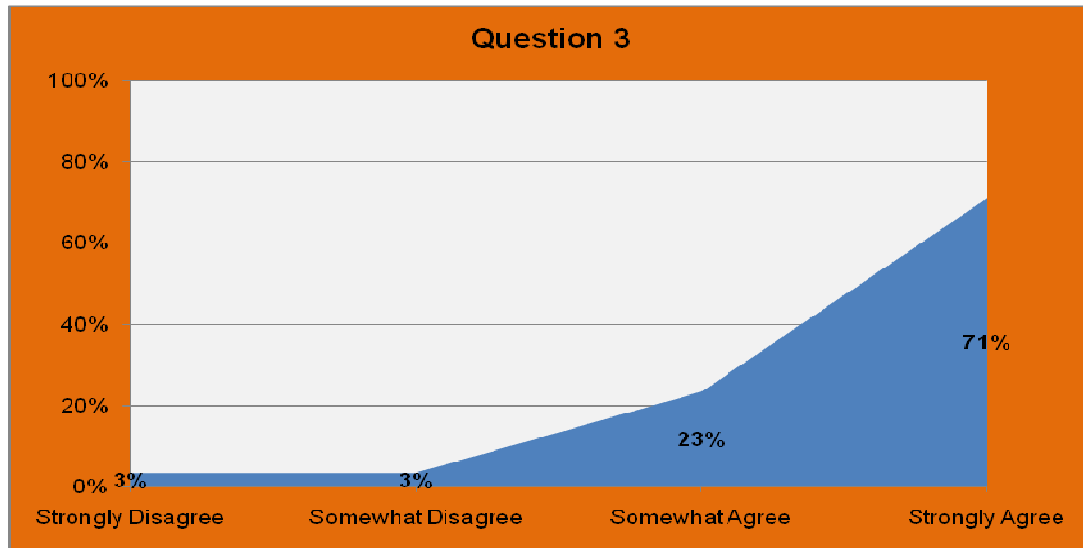


Figure 4.5: Graph showing response from the question 3

The data presented in Figure 4.5 indicate that 71% of the organizations have a clear understanding of the AQA and the leadership of the organization is aware of the demand and requirements of the Air Quality Act. A further 23% have a good understanding with 3% of the organizations indicating that there have a limited understanding and 3% had no understanding of the AQA.

4.3.2.4 Question 4 - Is the leadership of the organization aware of Air Quality Act

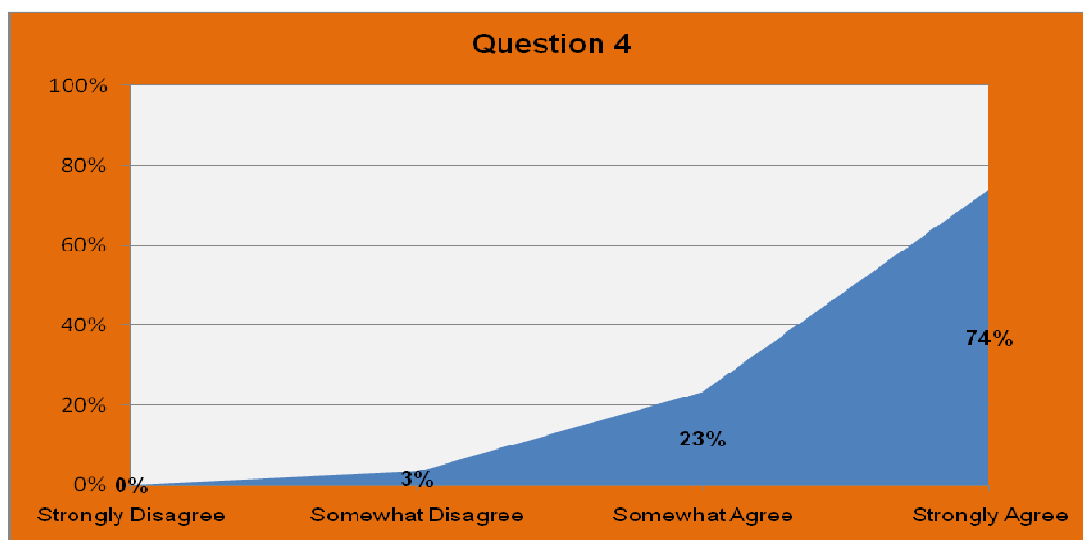


Figure 4.6: Graph showing response from the question 4

The data presented in Figure 4.6 indicate that 74% of the organizations indicate that the leadership has a very clear understanding of the AQA. A further 23% indicate that the leadership has a good understanding while 3% of organizations indicate that the leadership has no understanding of the AQA.

The responses to questions 1 and 2 indicate that the respondents of the organizations have a clear understanding of environmental legislation policies, both nationally and internationally while the responses to questions 3 and 4 indicate a small minority that do not have a good understanding of the AQA specifically.

4.3.2.5 Question 5 - The mission and goals of the organization are communicated to all employees and the environmental compliance is part of the mission of the organization

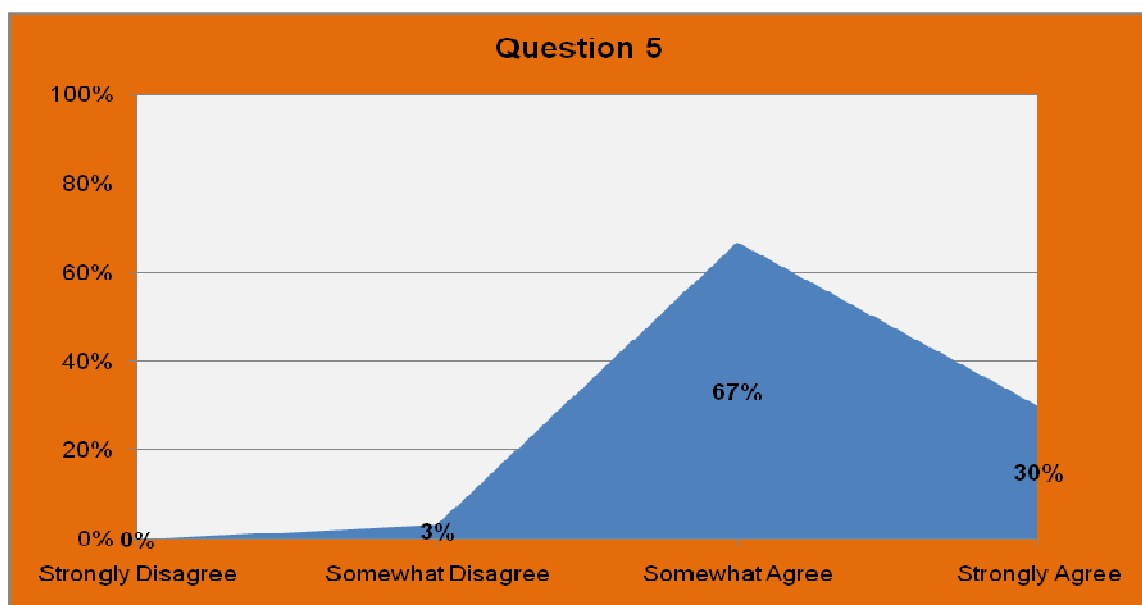


Figure 4.7: Graph showing response from the question 5

The data presented in figure 4.7 indicate that 30% of the respondents concur that the mission and goals of the organization are communicated to all employees and the environmental compliance is part of the mission of the organization. A further 67% indicate that the mission and goals of the organization are communicated to all employees and the environmental compliance is part of the mission of the organization while 3% of respondents indicate that the mission and goals of the organization are well communicated to all employees and the environmental compliance is not part of the mission of the organization.

4.3.2.6 Question 6 - There is a link between corporate, business and operation strategy

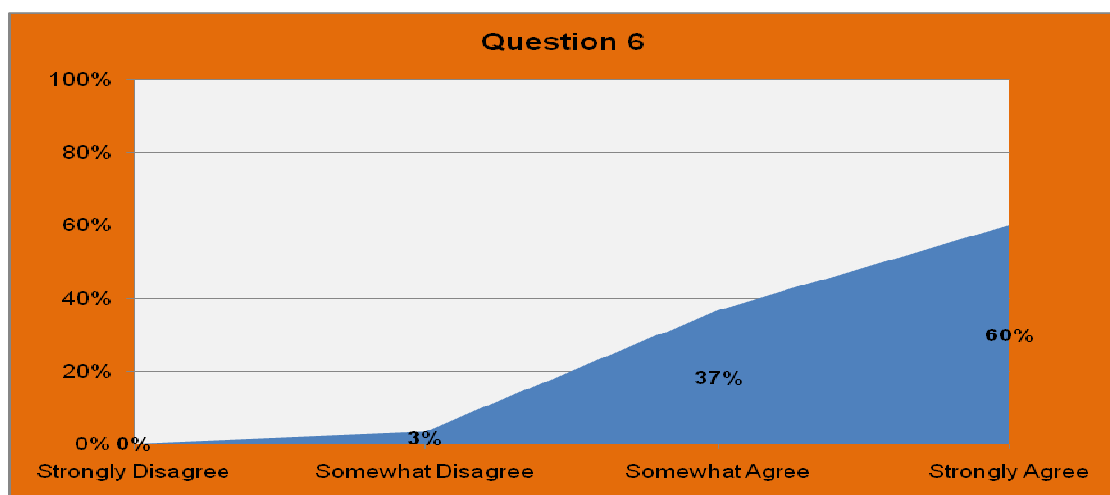


Figure 4.8: Graph showing response from question 6

The data presented in Figure 4.9 indicate that 60% of the respondents indicate that there is a good link between corporate, business and operation strategy. A further 37% indicate that there is a link between corporate, business and operation strategy while 3% of respondents indicate that disagree that there is a link between corporate, business and operation strategy.

4.3.2.7 Question 7 - There is a good understanding of strategy focus and objectives by executive, top, middle and operation management, and the employees are also well aware of the objectives and the goals of these strategies

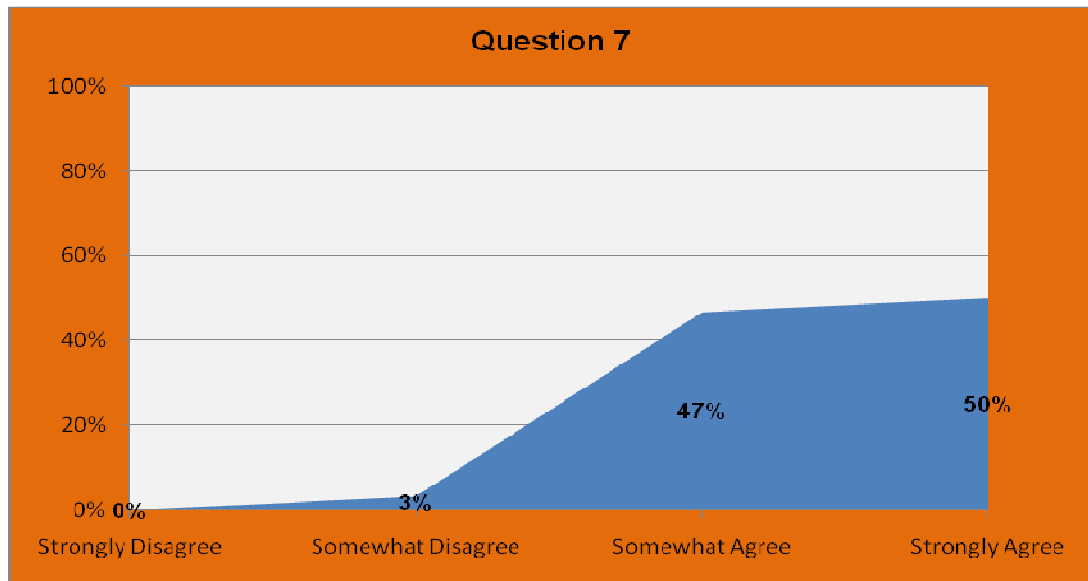


Figure 4.9: Graph showing response from question 7

The data presented in figure 4.9 indicate that 50% of the respondents indicate that there is a good understanding of strategy focus and objectives by executive, top, middle and operation management, and the employees are also well aware of the objectives and the goals of these strategies. A further 47% indicate that there is a good understanding of strategy focus and objectives while 3% of respondents indicate that there is somewhat no good understanding of strategy focus and objectives.

4.3.2.8 Question 8 – The performance of the organization in regard to environmental issues is evaluated and improvements strategies are implemented in order to achieve the goals of the organization.

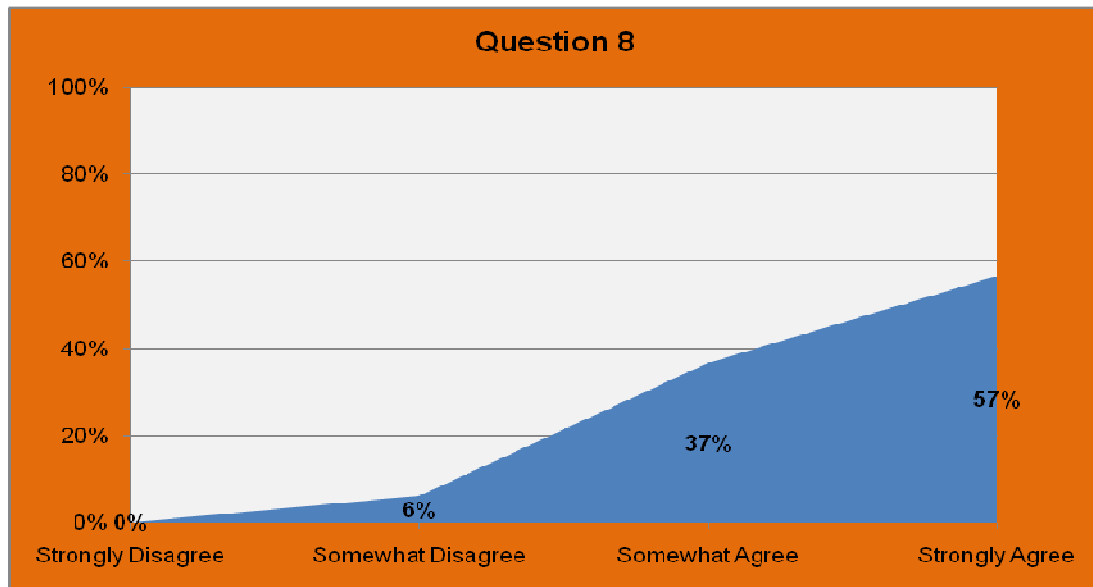


Figure 4.10: Graph showing response from question 8

The data presented in figure 4.10 indicate that 57% of the respondents indicate that the performance of the organization in regard to environmental issues is evaluated and improvements strategies are implemented in order to achieve the goals of the organization. A further 37% indicate that the performance of the organization in regard to environmental issues is acceptable while 6% of respondents indicate that the performance of the organization in regard to environmental issues is unacceptable.

4.3.3 Impact of AQA in businesses

Figures 4.11 – 4.24 present the results that addressed the impact of AQA on businesses in the greater Durban area.

4.3.3.1 Question 9 - The introduction of the Air Quality Act has caused uncertainty in the existence of the organization

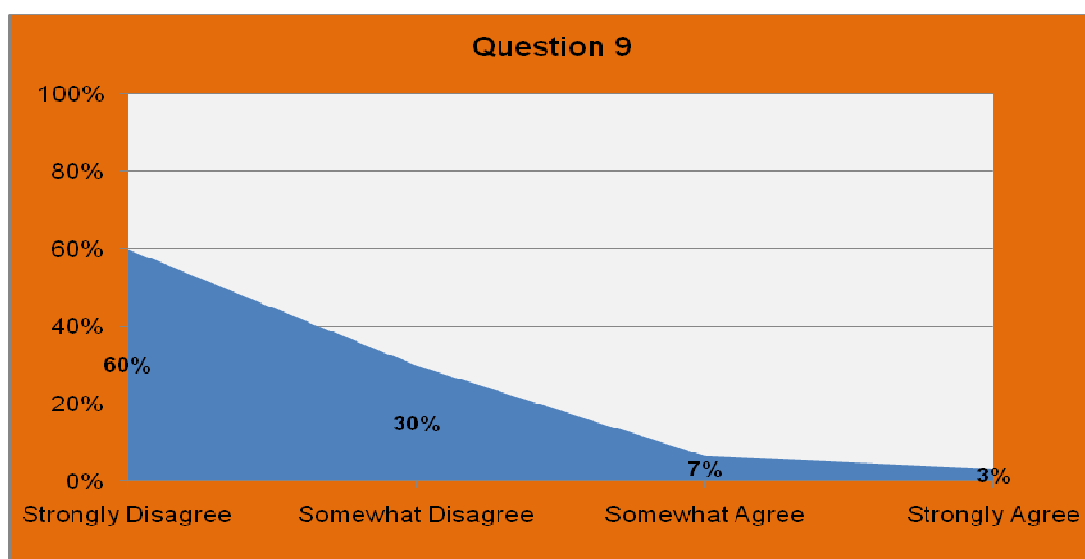


Figure 4.11: Graph showing response from the question 9

The data presented in Figure 4.11 show that 60 % of the respondents indicated that they strongly disagree that the introduction of the Air Quality Act has caused uncertainty in the existence of the organization while 3% fully agreed with the statement. Thirty percent of the respondents indicated that they partially disagreed with the statement while 7% indicated partial agreement. It is noted from the responses that the 'somewhat percentage' is higher (30%), which indicate the respondents are not really sure whether the AQA causes uncertainty or not. One of the reasons that created such a response is the structure (poor phrased) of the question, this question was designed to address both the current and future uncertainty that AQA has and can cause. Unfortunately some of the respondents were not able to capture the question.

4.3.3.2 Question 10 - Air Quality Act has improved the profitability of the organization

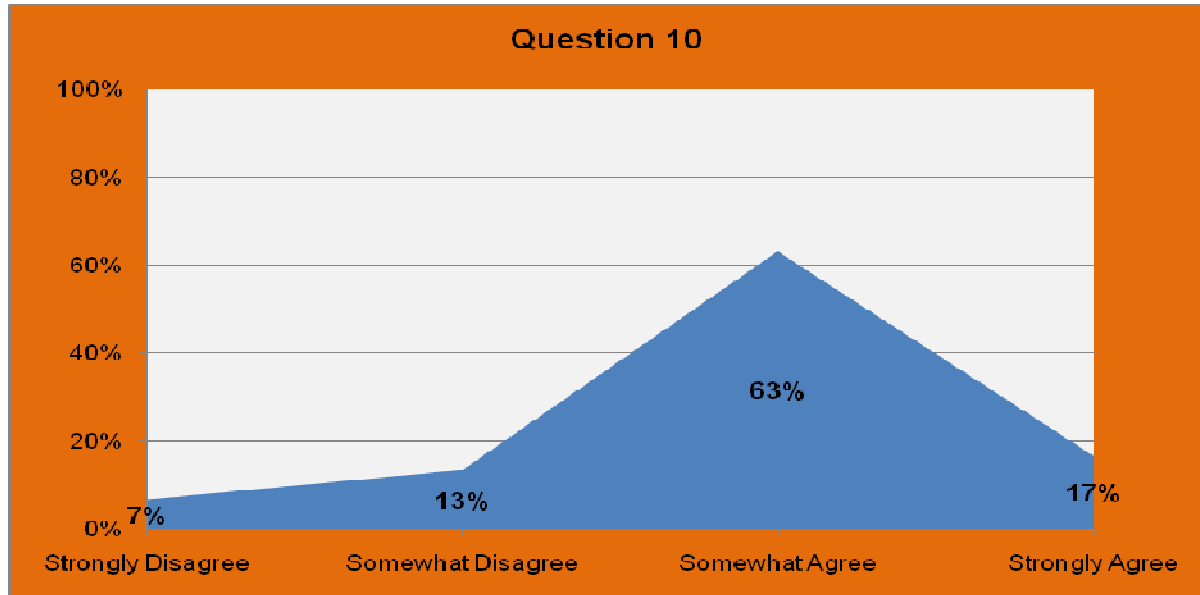


Figure 4.12: Graph showing response from the question 10

The data presented in Figure 4.12 show that 17% of the respondents indicated that they strongly agree that the Air Quality Act has improved the profitability of the organization while 7% fully disagreed with the statement. Sixty-three percent (63%) of the respondents indicated that they partially agreed with the statement while 13% indicated partial disagreement. The responses to this question support those in question 9 in that they also display a somewhat equivocal attitude to the effects of the AQA on the business. It is noted from the data that all consultant businesses strongly agree with the statement that the act has contributed to their companies being profitable. As the previous question (question 9), this question seemed ambiguous to some respondents, and this may have contributed to the response.

4.3.3.3 Question 11 - Implementation of Air Quality Act has resulted in loss of profit and reduction of employees

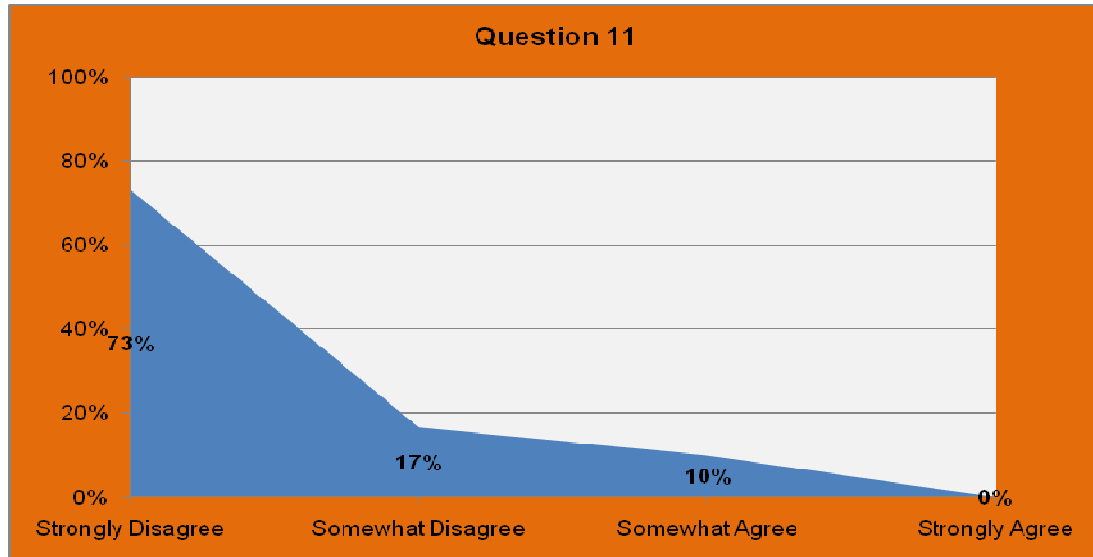


Figure 4.13: Graph showing response from question 11

The data presented in Figure 4.13 show that 73% of the respondents indicated that they strongly disagree that the implementation of Air Quality Act has resulted in loss of profit and reduction of employees. Seventeen percent (17%) of the respondents indicated that they partially disagreed with the statement, meaning that 90% of the respondents disagree that the implementation of Air Quality Act has resulted in loss of profit and reduction of employees. While 10% indicated partial agreement. The responses to this question appear to be in agreement with those given for questions 9 and 10, in that they also display a somewhat equivocal attitude to the effects of the AQA on the business. One possible explanation is that the respondents have not yet experienced any loss of profit or reduction in headcount. However, they are unsure of what the future holds.

4.3.3.4 Question 12 - The activities that the organization undertakes are sustainable and profitable and also comply with environmental legislations and policies

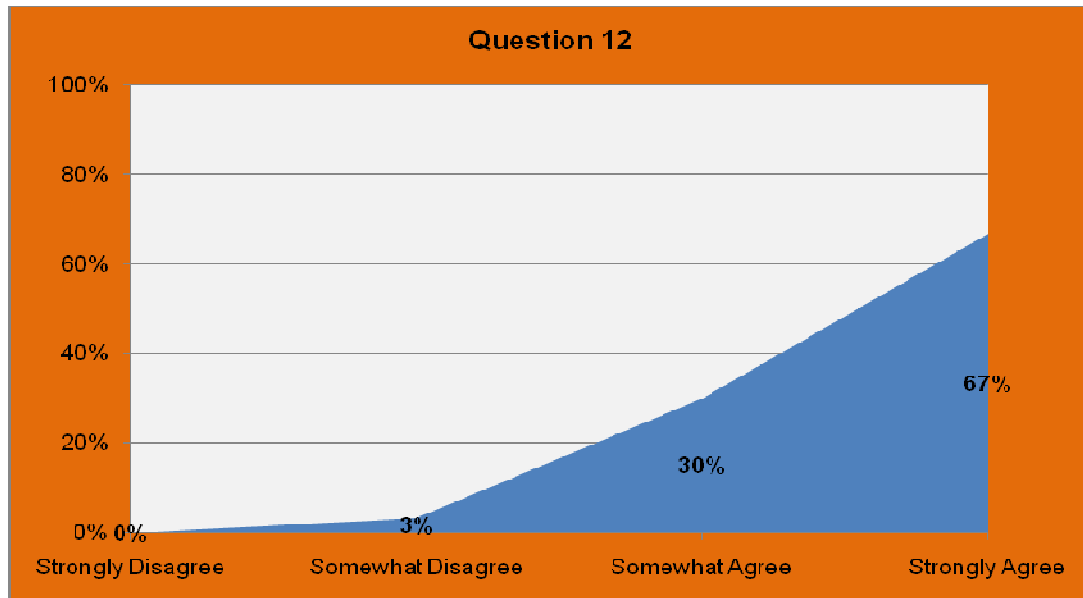


Figure 4.14: Graph showing response from the question 12

The data presented in Figure 4.14 show that 67% of the respondents indicated that they strongly agree that the activities that the organization undertakes are sustainable and profitable and also comply with environmental legislations and policies. Thirty percent (30%) of the respondents indicated that they partially agreed with the statement while 3% indicated partial disagreement.

4.3.3.5 Question 13 - The organization is always assessing the internal and external environment in order to identify current and future opportunities for environmental compliance

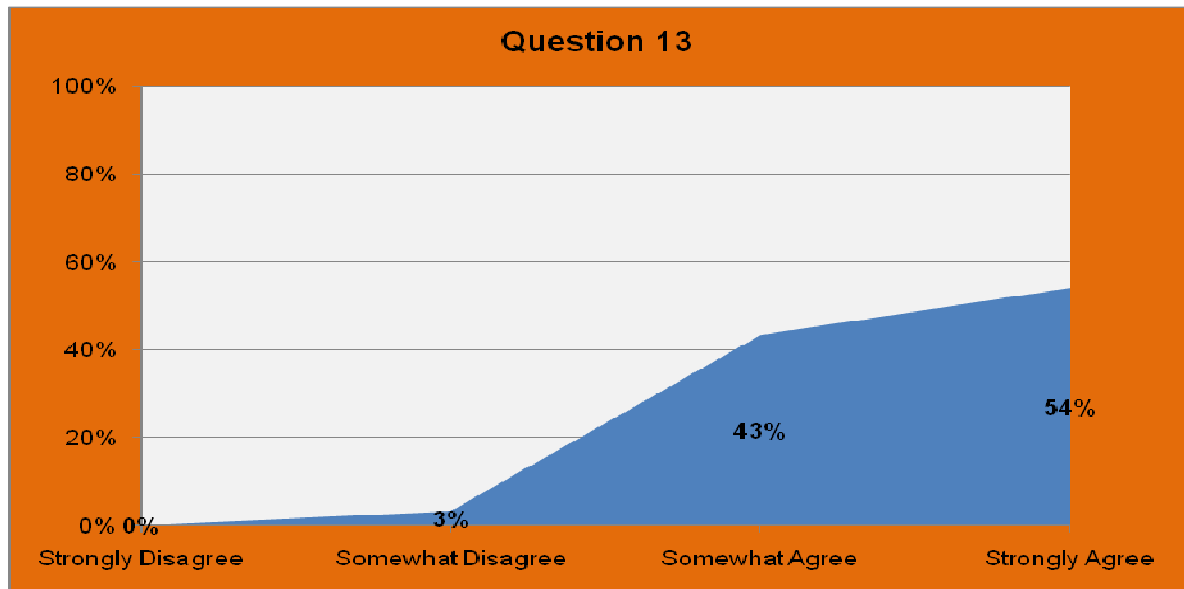


Figure 4.15: Graph showing response from question 13

The data presented in Figure 4.15 show that 54% of the respondents indicated that they strongly agree that the organization is always assessing the internal and external environment in order to identify current and future opportunities for environmental compliance. Forty-three percent (43%) of the respondents indicated that they partially agreed with the statement while 3% indicated partial disagreement.

4.3.3.6 Question 14 - Implementation of AQA has had a negative influence in operation of the organization as it introduces more competition in the industry

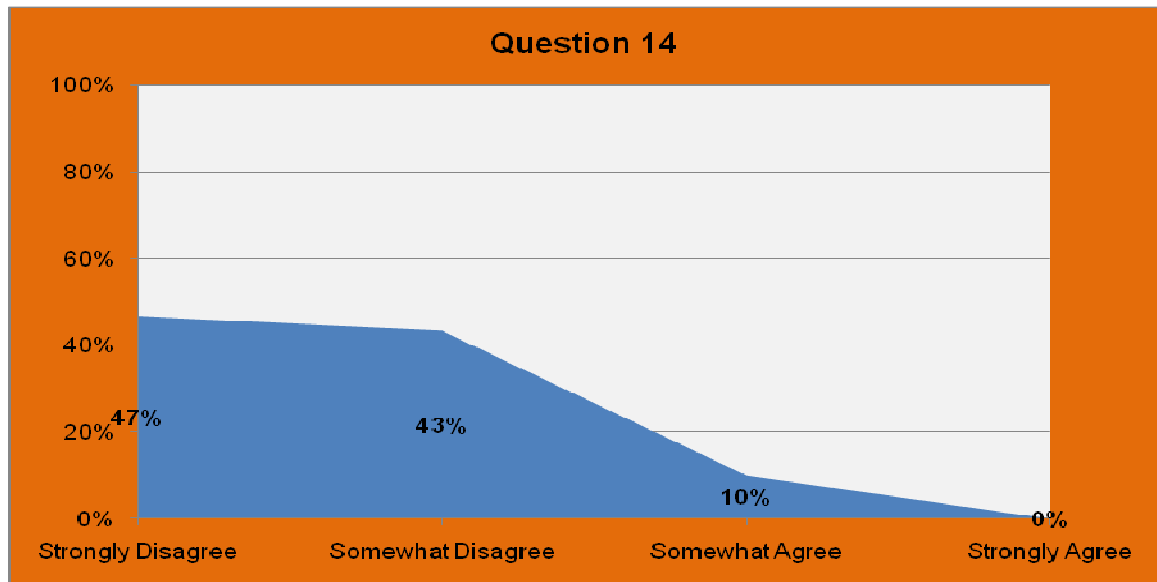


Figure 4.16: Graph showing response from the question 14

The data presented in Figure 4.16 show that 47% of the respondents indicated that they strongly disagree that the implementation of AQA has had a negative influence in operation of the organization as it introduces more competition in the industry. Forty-three percent (43%) of the respondents indicated that they partially disagreed with the statement while 13% indicated partial agreement. The responses to question 14 exhibits the same uncertainty as already noted in the responses to earlier questions.

4.3.3.7 Question 15 - Implementation of AQA has had a positive influence in operation of the organization as it introduces more competition in the industry

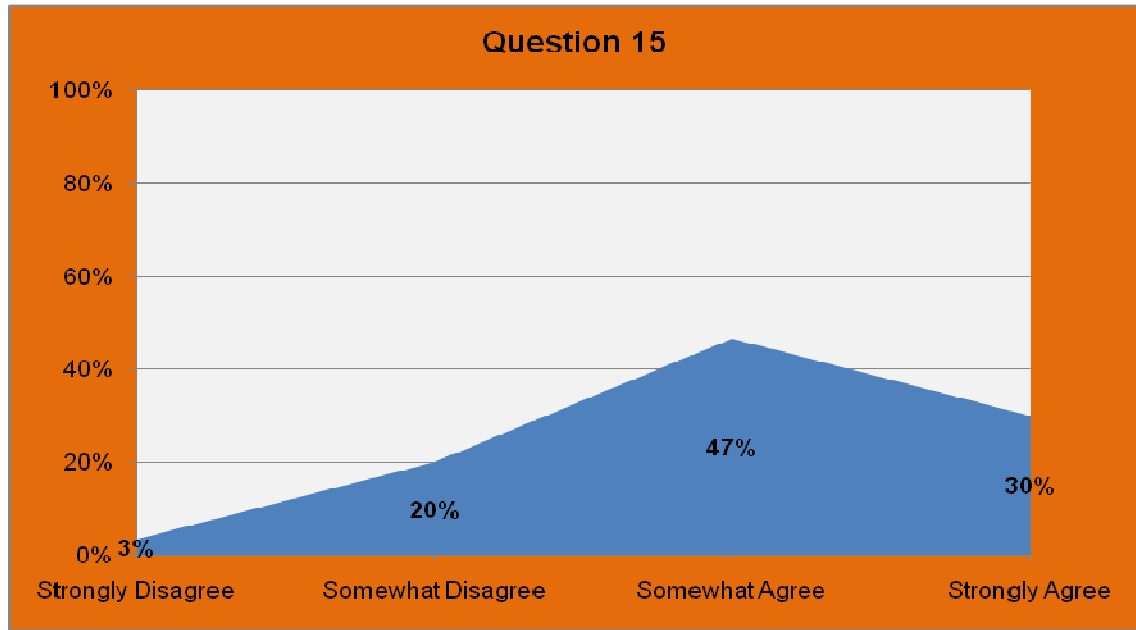


Figure 4.17: Graph showing response from the question 15

The data presented in Figure 4.17 show that 30% of the respondents indicated that they strongly agree that the implementation of AQA has had a positive influence in operation of the organization as it introduces more competition in the industry while 3% indicate full disagreement. Forty-seven percent (47%) of the respondents indicated that they partially agreed with the statement while 20% indicated partial disagreement.

4.3.3.8 Question 16 - The market is booming due to implementation of AQA

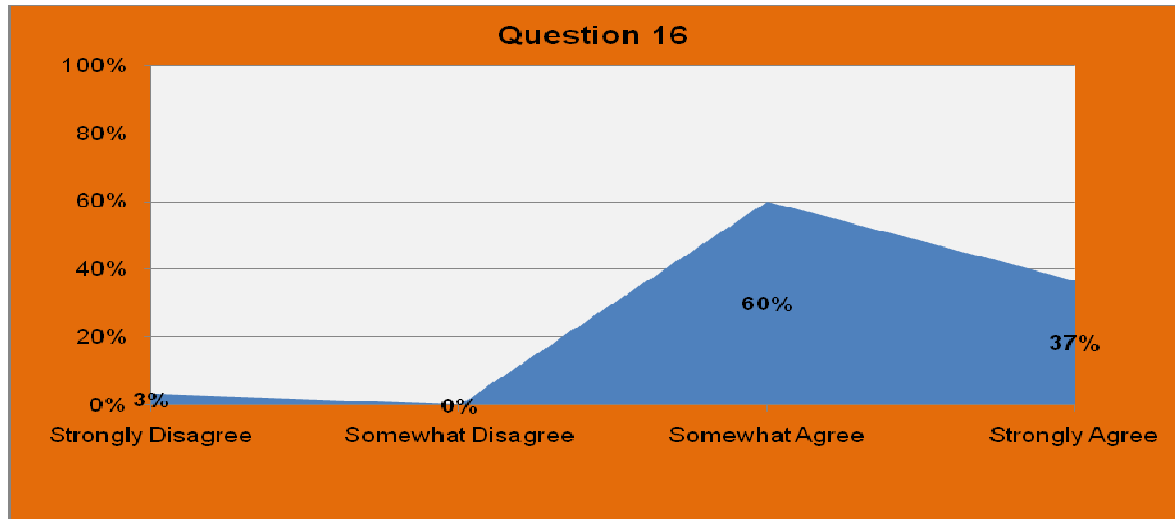


Figure 4.18: Graph showing response from question 16

The data presented in Figure 4.18 show that 37% of the respondents indicated that they strongly agree that the market is booming due to implementation of AQA while 3% indicated full disagreement. Sixty percent (60%) of the respondents indicated that they partially agreed with the statement.

4.3.3.9 Question 17 - The organization is operating within the requirements of the legislations

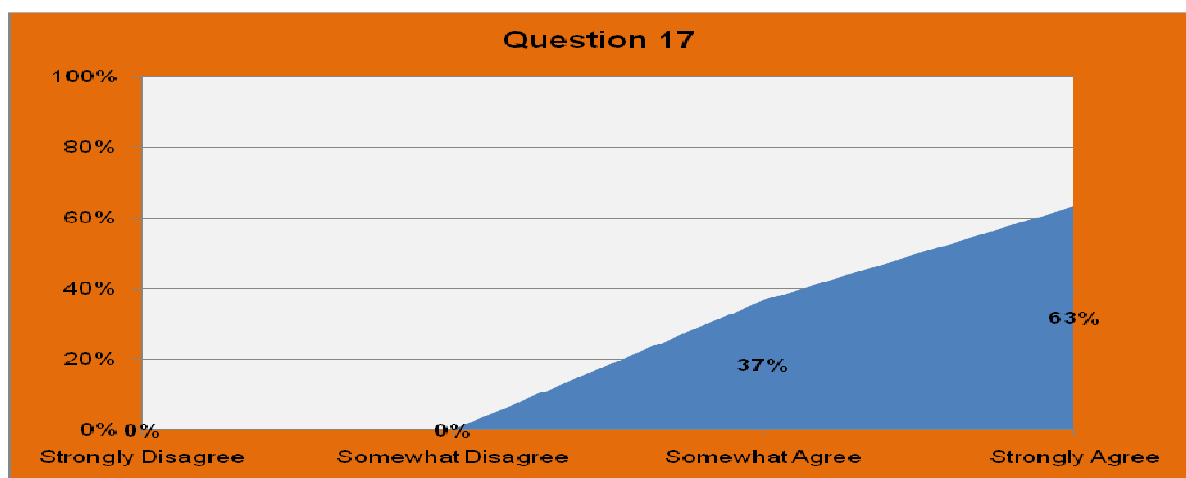


Figure 4.19: Graph showing response from question 17

The data presented in Figure 4.19 show that 63% of the respondents indicated that they strongly agree that the organization is operating within the requirements of the legislations. Thirty-seven percent (37%) of the respondents indicated that they partially agreed with the statement.

4.3.3.10 Question 18 - The organization operates in a competitive market

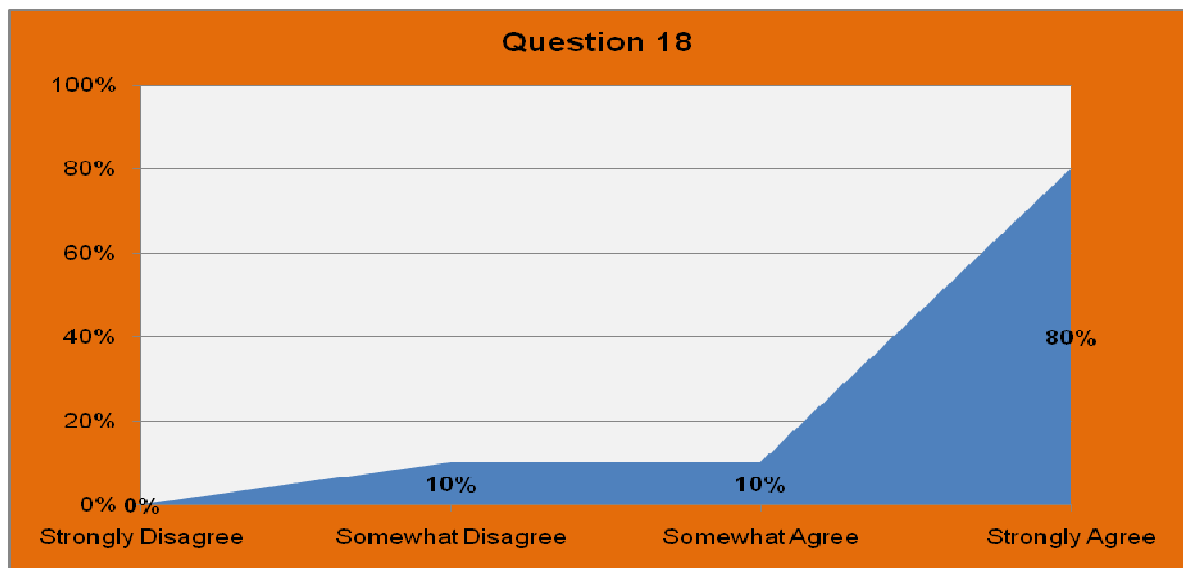


Figure 4.20: Graph showing response from the question 18

The data presented in Figure 4.20 show that 80% of the respondents indicated that they strongly agree that the organization operates in a competitive market. Ten percent (10%) of the respondents indicated that they partially agreed with the statement while the other 10% show partial disagreement with the statement.

4.3.3.11 Question 19 - Implementation of AQA allows industries to compete, giving all organization a similar play ground

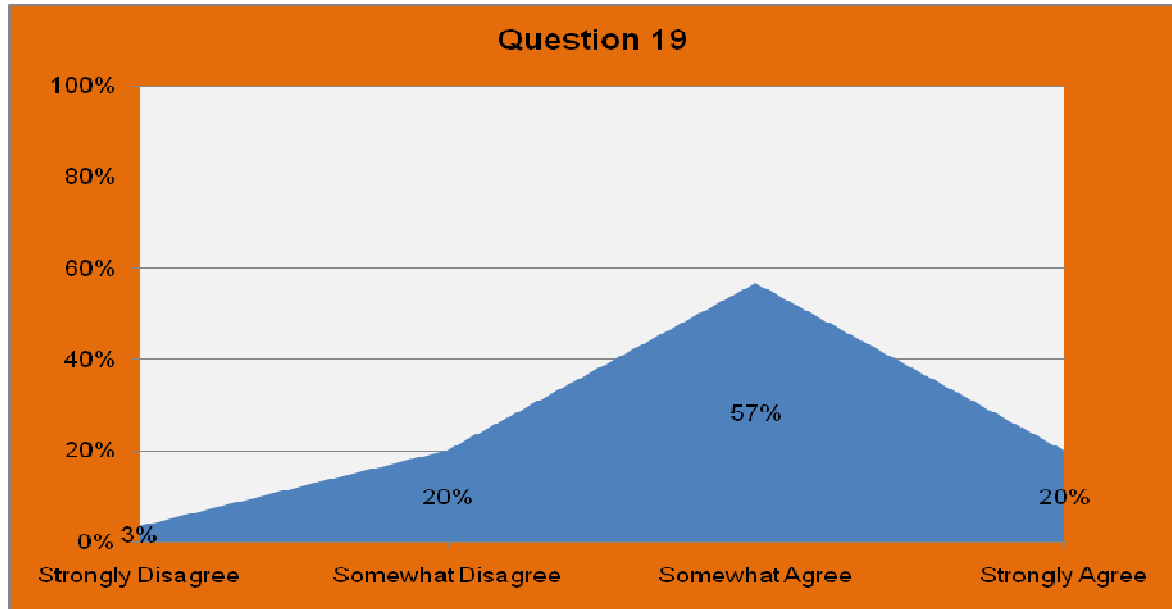


Figure 4.21: Graph showing response from the question 19

The data presented in Figure 4.21 show that 20% of the respondents indicated that they strongly agree that the Implementation of AQA allows industries to compete, giving all organization same play ground while 3% full disagree with the statement. Fifty-seven percent (57%) of the respondents indicated that they partially agreed with the statement while the 20% show partial disagreement with the statement.

4.3.3.12 Question 20 - The organization supports the community projects, community development and also subscribes to ethic operations in their field

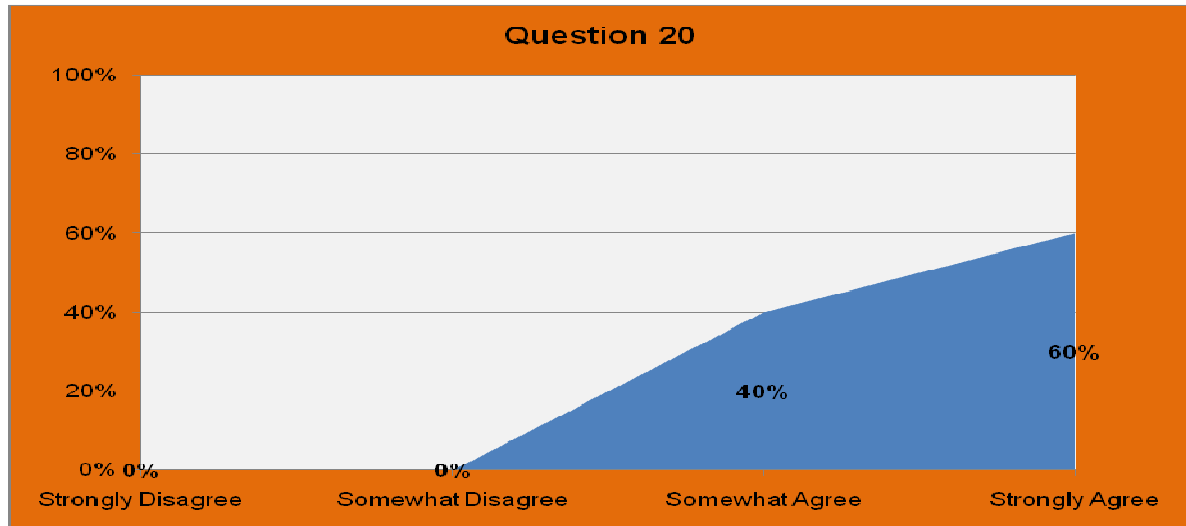


Figure 4.22: Graph showing response from the question 20

The data presented in Figure 4.22 show that 60% of the respondents indicated that they strongly agree that the organization supports the community projects, community development and also subscribe to ethic operations in their field. Forty percent (40%) of the respondents indicated that they partially agreed with the statement.

4.3.4 Negative and Positive Impact of AQA

Both the negative and postive impact posed by AQA on businesses were evaluated in the above questions. Figure 4.23 and Figure 4.24 below shows the both the negative and positive impact, which is drawn from the responses from question 9 - 20.

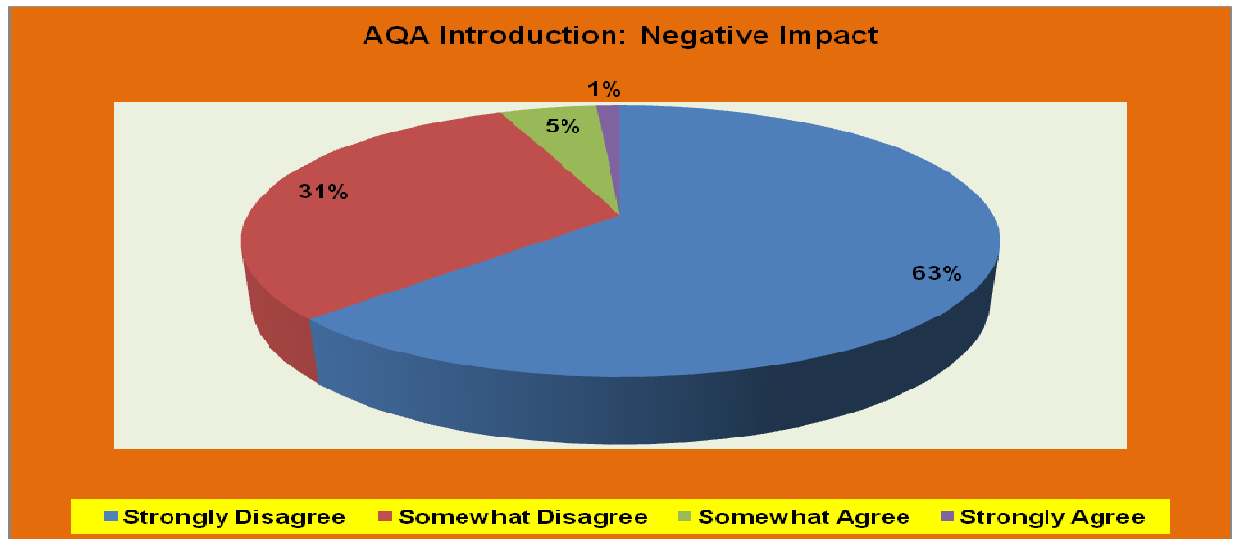


Figure 4.23: Graph presenting the negative impact of AQA

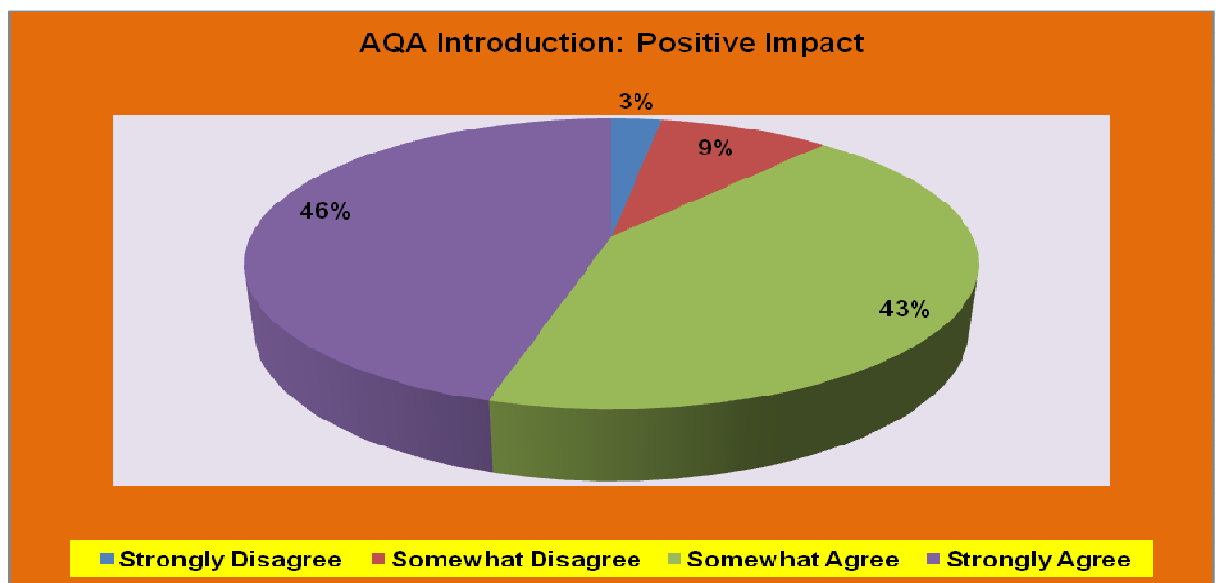


Figure 4.24: Graph presenting the positive impact of AQA

These graphs were drawn from the overall data obtained for the study, it is clear that the respondents are positive about the introduction of AQA. It is also noted that the impact of AQA are notably positive, if evaluated the data as indicated on the above graphs.

4.4 Conclusion

In conclusion, the data collected during this study are presented using tables, graphs and charts. The presented results include the population of the study, the sample representing the population, the overall results of the study, management involvement on businesses identified, and the impact of AQA in businesses in the greater Durban area. The impact evaluated includes both positive and negative impacts.

The data presented in this chapter show similar responses from different businesses; this is an indication that businesses are impacted in the similar way by AQA. The overall impression created by the results of the survey indicates that the AQA has been well received by all stakeholders; these stakeholders include businesses, government, and the society.

Although there are shortcomings in the data due to the poor structure of some of the questions in the questionnaire, the major shortcoming that must be highlighted is the lack of structured interviews data. As a results the study is only limited to the questionnaire data, and it may not truly represent the challenges and advances that the Act brings, which the interviews would have captured. The next chapter discusses these results by linking them with the literature.

CHAPTER 5

DISCUSSION OF RESULTS

5.1 Introduction

Chapter 2 presented the literature review and the data from the empirical research was presented in Chapter 4. This chapter evaluates the data collected and relates them to the literature. From the responses obtained, relationships and observations were made. These are presented below.

5.2 Analysis of results

Analyses of results are based on the data collected utilizing the questionnaire as well as the reviewed literature in order to establish the extent to which the data are supported by the existing theory. The results are classified into three categories, namely

- the research's overall results,
- management involvement,
- the impact of AQA on businesses

The overall research results cover evaluation of statistics, discussion of the response frequency and finally an overall presentation of results. When the data collection instruments were designed, management involvement was one of the main subjects to be evaluated. Since business success depends on management excellence, evaluation of management involvement, with regard to operations as well as the environmental issues is discussed. The impact of AQA discusses both the negative and positive impact that the Act present.

5.2.1 Overall research results

The overall impression created by the results of the survey indicates that the Air Quality Act has been well received by all stakeholders; these stakeholders include businesses, government as well as the society. Although the Act as well as other environmental legislation present some challenges to businesses, these legislations are generally fairly well accepted by private enterprise.

5.2.2 Analysis of management involvement

It must be noted that for any business to be successful and profitable, management must lead that business. This will be through implementing systems, this is called strategic management. According to Ehlers and Lazenby (2007:300) “strategic management is essential and relevant to all type of organizations”. George and Jones (2006: 195) share the same sentiment, and they also note that “...in this process the future must be the main focus...” Forecast what may happen in order to take actions in the present and mobilise business resources to deal with future opportunity and threats”.

Therefore the first eight questions were designed to investigate the extent of management involvement, the businesses’ understanding of the environmental legislation as well as the strategic direction required. The first four questions were designed to assess the businesses’ understanding of the environmental legislation, international as well as national. These questions were also intended to investigate the level of understanding of the AQA and its requirements, by the businesses surveyed.

The findings from the empirical research conducted for this study indicate the followings;

- The majority of businesses and its management are aware of international and national environmental legislation and policies and understand their implications (Figures 4.3, 4.5, 4.6 and 4.6).
- The majority of mission statements and goals developed by businesses are communicated to all employees and the environmental compliance is part of the mission of the businesses. They have designed and implemented appropriate systems to conform to the legislation and policies, these systems are implemented in all level (Figures 4.7, 4.8 and 4.9).
- The performance of the businesses in regard to environmental issues is evaluated and improve strategies are implemented in order to achieve the goals of the organization (Figure 4.10).
- The introduction and implementation of the AQA has not caused uncertainty in the existence of the businesses and also has not resulted in loss of profit and reduction in the number of employees, in the greater Durban area, even though businesses have been required to invest large sums of money in their technology, and also to change their operational structure in order to meet the requirement of the Act. They see this as a good investment since it has positive returns on investment through positive publicity that businesses receive from media, and also by creating a perception that they take care of the environment (Figure 4.11).
- The implementation of the Air Quality Act has not forced businesses to reduce their work force (Figures 4.12 and 4.13).
- The activities that the organization undertakes are sustainable and profitable and also comply with environmental legislations and policies. It is noted that businesses are always assessing the internal and external environment in order to identify current and future opportunities for environmental compliance. This has lead to businesses competing on

similar grounds and resulting on a booming market in the region (Figures 4.14, 4.15, 4.16, 4.17, 4.18, 4.19, 4.20 and 4.21).

- The organization supports the community projects, community development and also subscribes to ethical operations in their field (Figure 4.22).

The definition of pollution prevention provided by the U.S. Environmental Protection Agency (EPA) encompasses source reduction, increased efficiency, and conservation activities that lead to the reduction in the amount of any hazardous substance and pollutant entering any waste stream prior to recycling. In a case where businesses are required to develop a pollution prevention plan, it becomes easy if management are involved, as they will be able to allocate the required resources, both financial and personnel.

The overall results show that 96% of the participants concurred that the management is actively involved in the businesses activities while 4% disagree with that. If the results are scrutinized further by analyzing each question with regard to the understanding of AQA and other environmental legislation, it is clear that there is a perception that the leadership has an understanding of the legislation, with appointed personnel greatly understanding and implementing these legislative requirements.

Only three percent (3%) of the participants somewhat disagreed with management involvement and one percent (1%) strongly disagreed. These organizations with non-management involvement will face challenging times ahead, since they will fail to implement the requirements of the legislation and the AQA requirements. Since only four percent (4%) indicated a problem or non-management involvement, it can be generalised that management is actively involved in structuring the respective organization's future.

The realisation of AQA's vision requires all stakeholders to be actively involved. Thus businesses, as a stakeholder, must be actively involved, by starting from understanding the AQA's vision for its implementation. It must be noted that the custodian of AQA must make sure that businesses, especially management, are encouraged to actively participate. The appropriate custodian of the AQA in the region covered by the survey is the eThweni Municipality, as indicated in the Act. This municipality has ensured that all stakeholders are actively involved by setting up quarterly stakeholder feedback meetings to targeting businesses, communities, and interested parties.

The businesses have shown their commitment to the municipality by funding the project, the Multi-Point Plan, that deals with air quality. Table 4.2 shows the contributions that these businesses have made towards the project.

Table 4.2: Funding for multi-point plan (MPP) (Chetty, 2004)

Fund Sources		Amount in Rands
Project Budget		R29 785 000
Total funding committed		R26 291 000
Government	R16 291 000	
Businesses	R10 000 000	
Additional funding to be sought		R3 594 000

This commitment by the businesses in the Southern Durban industrial basin indicates that they are concerned and want to contribute towards a clean environment. It is pointed out in Chapter 2, Figure 2.4.1 that the existence of business/government interaction leads to success and profitably.

5.3 Environment created by AQA

The role of business, in an open market economy system, is to create wealth for shareholders, employees, customers and society at large. No other human activities matches private enterprise in its ability to assemble people, capital and innovation under controlled risk-taking, in order to create meaningful jobs and produce goods and services profitably; profit being essential to long-term business survival and job creation (Bond, 2006). Thus it is noted from the requirements of AQA that businesses are not being limited to continue making profit. The evidence provided in Chapter 4 suggests that the implementation of the AQA does not threaten either the survival or the profitability of the businesses surveyed.

5.3.1 Analysis of impact of AQA

The introduction and implementation of AQA has led to local government been given primary authority for a number of air pollution functions; the expansion of its mandate includes the eradication of poverty, local economic development and sustainable management of the environment (Parnell & Pieterse, 2002).

In addition, the impacts of environmental degradation are experienced most acutely by a local population, and as such, local government and authorities are most appropriate to address the issues promptly and efficiently (Barnard, 1999). Naicker (2007), indicated that local action empowers communities to address negative environmental impacts, and aids in them participating in decision-making. This is also true of air pollution control, as the most pressing pollution problems arise from locally experienced conditions, such as localised sources and the impacts of industrial, traffic and domestic emission, as opposed to regional phenomena.

In assessing the impact of AQA on businesses a number of questions were required to be answered by the respondents these questions evaluate a number of issues which relate to the following:-

1. Whether the introduction of the AQA has caused any uncertainty on business existence.
2. Whether the implementation of AQA has resulted in loss or gain on profit.
3. Whether employees are negatively affected through job losses.
4. Whether the implementation of AQA has had a negative or positive influence in the operation.
5. And finally whether the AQA has created competitive environment for businesses.

When assessing the impact of AQA on businesses, positive and negative impacts were evaluated and are discussed below.

5.3.2 Negative impact

Negative impacts are those that affect business negatively, this can be either operationally or financially. The results presented from Figures 4.18 to 4.26 indicate that the introduction and implementation of AQA has had a positive impact on businesses in the greater Durban area.

When evaluating the negative impact of AQA, it must be noted that in this study 94% of the respondents disagree that the introduction and implementation of AQA has a negative impact (Figure 4.25).

5.3.3 Positive impact

Positive impact entails supporting the existence of the businesses, such as by promoting businesses' products and services and in doing so enhancing the profitability of businesses. When evaluating the results, it is noted that 89% of the respondents indicated that the introduction and implementation of AQA positively affected the businesses in the greater Durban area. AQA has forced businesses to act responsibly and carefully when it comes to environmental pollution, especially air pollution. The limelight that AQA has come with, has raised awareness on air pollution, especially to communities.

The AQA requires businesses to apply for a permit to operate; this has fuelled competition between companies. The enforcement of AQA also requires that industries improve their environmental performance. This is good news for communities as this will improve the quality of air in communities within the vicinity of polluting businesses. This is of importance for communities in the South of Durban as well as those in Cato Ridge, which is to the west of the city.

Those businesses that have already invested in their technology will benefit and those that have not are forced to participate in such projects. Most of all the introduction and implementation of AQA has created a number of jobs, since the custodian of AQA has had to create departments that deal with its introduction and implementation. On top of that a number of new businesses have been formed in order to explore the opportunities presented by the introduction of AQA.

5.4 Conclusion

In concluding this chapter, the following should be noted:

- There was a 50% response to the questionnaire (30 questionnaires were returned from the distributed 60) and although this was not a desired percentage for the research, it was acceptable.
- The introduction of AQA has led to a more integrated way of managing air quality. Business is therefore required to comply with the requirements of the Act; which means that businesses compete on level grounds.
- The AQA supports effective air quality governance which may be depicted in terms of the simplified environmental governance. As such, clear responsibilities can be identified for business and industries, government and civil society.
- The introduction and implementation of the AQA has not caused uncertainty in the existence of the organization and also has not resulted in loss of profit and reduction in the number of employees, in the greater Durban area.
- The introduction and implementation of AQA has created a number of jobs, since the custodian of AQA has had to create departments that will deal with its introduction and implementation.

In other words AQA has positively impacted on businesses in the greater Durban area.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter deals with the conclusions drawn from the research findings. Recommendations are made based on the findings. Conclusions are made with reference to the research objectives. The implications of the study, and the contributions it has made on the body of knowledge, are highlighted.

6.2 Objectives of the study

The main objective of the study is to ascertain the impact that the AQA has on businesses in the greater Durban area. The main focus is on the following areas of impact:-

- Operational impact
- Structural impact
- Strategic impact
- Financial impact
- Social impact

6.3 Discussion

The introduction and implementation of the AQA in South Africa has significant impact in the communities, in the three spheres of government, namely national, provincial and local, and businesses in the country. This study provides an overview on how the businesses in the greater Durban area have been impacted by the introduction and implementation of this AQA.

This study notes that AQA has a significant impact: AQA clearly commits the country to pollution prevention, air quality improvement and maintenance coincident with socio-economic development but not at the expense of such development. The government at all spheres, and business in South Africa, will have a huge responsibility in making sure that the implementation of the AQA is successful.

The findings of the study suggest that AQA's impact on businesses is mostly positive. When evaluating the results, it is noted that 89% of the respondents indicated that the introduction and implementation of AQA positively affected the businesses in the greater Durban area. AQA has forced businesses to act responsible and carefully when it come to environmental pollution; especially air pollution. The limelight that AQA has come into has raised awareness of air pollution especially to communities.

Businesses are also impacted through licensing, licensing of listed activities, as they are responsible for applying for an atmospheric emission license (AEL) and complying with its provisions: this has an influence on both the structure and financial planning of businesses.

The introduction and implementation of AQA recognize the value and potential of a well-informed and committed citizenry for effecting positive change, meaningful public involvement in AQM decision-making, ranging from the issuing of licenses to listed activities. The preparation of Air Quality Management Plan (AQMP) is encouraged. This has not been the case with the previous legislation such as APA.

6.4 Limitations of the study

The main limitation of this study was on the data collection process, the major shortcoming that must be highlighted is the lack of structured interviews data. As a results the study is only limited to the questionnaire data, and it may not truly represent the challenges and advances that the Act brings, which the interviews would have captured.

The results of the study only represent about half of the identified sample, and also exclude the structured interviews as was initially planned. This has negatively impacted on the study, especially on the analysis of results.

The results were difficult to analyze and interpret; this was due to the way that the questions were designed and phrased, as some questions were ambiguous. Likert or summative scaling was also not the best scale for the questions of the study due to its limitations such as that of allowing the participants to remain neutral about the question. If we examine question 11 of the study it is noted that 27% of the participants remained neutral by choosing the neutral answer to the question, if simple category scale was used for this question an accurate answer was possible to be obtained.

The limited time available to conduct the research also poses a limitation, since the study had to be fast tracked due to available time. The processes that must be followed also had a negative impact on the study since the ethical issues had to be cleared before distributing the questionnaire.

Although the study focuses on the greater Durban companies only, costs associated with travelling to these companies to secure their participation were enormously high.

6.5 Recommendations for future studies

Although the data collected provide a picture on AQA, the following recommendations should be considered for future studies:-

- The data collection instruments must include structured and/or unstructured interviews, in order to ascertain where businesses strategically stand on air quality. This will also help in obtaining indications on funds that businesses spend on social development and/or responsibility and on the environment as a whole.
- Finally, in order to obtain more comprehensive results for such studies communities must also be involved in order to assess their perspective on the air quality issues and the Act.

6.5 Conclusion

In conclusion the introduction and implementation of AQA has created a number of jobs because the custodian of AQA has had to create departments that deal with its introduction and implementation. On top of that a number of new businesses have been formed for the purpose of exploring the opportunities presented by the introduction of AQA. Finally it is noted that 89% of the respondents indicated that the introduction and implementation of AQA has positively affected the businesses in the greater Durban area.

In light of the above, it is clear that the study addresses and achieves its objectives which are to ascertain the impact that the AQA has on businesses in the greater Durban area. It is noted and clear that AQA has had mostly positive impact in the greater Durban area, on businesses, communities as well as government.

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8.0 APPENDIX

UNIVERSITY OF KWAZULU-NATAL GRADUATE SCHOOL OF BUSINESS

Dear Respondent,

MBA Research Project
Researcher: Bhukumuzi Enock Shongwe (031 303 2259)
Supervisor: Dr MacDonald (031 262 7654)

I, Bhukumuzi Enock Shongwe an MBA student, at the Graduate School of Business, of the University of KwaZulu Natal will like to invite you to participate in a research project entitled "The Impact of the Air Quality Act on Business in the Greater Durban Area". The aim of this study is to: The main objective of the study is to ascertain the impact that AQA (Air Quality Act) has on businesses in the great Durban area.

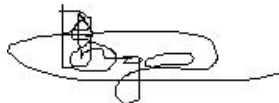
Through your participation I hope to understand the impact of Air Quality Act in your business. The results of the survey are intended to contribute to the understanding of the impact that Air Quality Act has on businesses and this is for academic use.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Graduate School of Business, UKZN.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me or my supervisor at the numbers listed above.

The survey should take you about 20-30 minutes to complete. I hope you will take the time to complete this survey.

Sincerely



Investigator's signature Date 20 August 2008

CONSENT

I _____ the undersigned have read and understand the above information. I hereby consent to participate in the study outlined in this document. I understand that participation is voluntary and that I may withdraw at any stage of the process.

Participant's signature _____ Date _____

**UNIVERSITY OF KWAZULU-NATAL
GRADUATE SCHOOL OF BUSINESS**

QUESTIONNAIRE FORM FOR MASTERS (MBA) STUDENT 2008

MBA Research Project
Researcher: Bhekumuzi Enock Shongwe (031 303 2259)
Supervisor: Dr MacDonald (031 262 7654)

The main objective of the study is to ascertain the impact that AQA (Air Quality Act) has on businesses in the great Durban area. The questionnaire should only take 20-30 minutes to complete. The questionnaire is divided into three parts namely background information, answers to question and finally general information (this is the additional information). Please indicate what apply to you by ticking the information that applies to you.

Background Information

1. Your age-group is ☐ 18-24 ☐ 25-34 ☐ 35-49 ☐ 50-59 ☐ 60 or more years.
2. Are you ☐ male ☐ female?
3. Your marital status ☐ Married ☐ Single ☐ Divorce ☐ Widow ☐ Other Specify.
4. How many years of formal education do you have beyond secondary/high school? ☐ 0 ☐ 1 ☐ 3-4 ☐ 5 ☐ 6+ years.
5. What is your highest academic/professional qualification?
☐ Below Matric ☐ Matric ☐ PostMatric Cert ☐ Degree ☐ PGDegree/Diploma
☐ Other, specify

6. For how many years have you been employed? ☐ 1-2 ☐ 3-5 ☐ 6-10 ☐ 11-15
☐ 16+ years.

7. Your Gross personal income per month (per annum) ☐ Under R5000
☐ R5001-R8000 ☐ R8001-R13000 ☐ R13001-R18000 ☐ R18001-R25000
☐ Greater than R26000

8. Please indicate your main organizational function:

- ☐ Accountancy
- ☐ Administration
- ☐ Finance
- ☐ Human resource management
- ☐ Marketing
- ☐ Operations
- ☐ Production
- ☐ Customer services
- ☐ Other (Please specify): _____

Answers to Question

Please indicate which response most closely reflects the position in your organization in relation to the following statements by putting an X in the appropriate column:

Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	The organization has a clear understanding of the environmental legislation and policies that exist internationally.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	The organization has a clear understanding of the environmental legislation and policies that exist nationally.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	The organization has a clear understanding of the Air Quality Act (AQA).
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Is the leadership of the organization aware of Air Quality Act.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	The mission and goals of the organization are communicated to all employees and the environmental compliance is part of the mission of the organization.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	There is a link between corporate, business and operations strategy.

Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	There is a good understanding of strategy focus and objectives by executive, top, middle and operation management, and the employees are also well aware of the objectives and goals of these strategies.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	The performance of the organization in regard to environmental issues is evaluated and improvements strategies are implemented in order to achieve the goals of the organization.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	The introduction of the Air Quality Act has caused uncertainty in the existence of the organization.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Air Quality Act has improved the profitability of the organization
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Implementation of Air Quality Act has resulted in loss of profit and reduction in the number of employees
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	The activities that the organization undertakes are sustainable and profitable and also comply with environmental legislation and policies.

Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	The organization is always assessing the internal and external environment in order to identify current and future opportunities for environmental compliance.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Implementation of AQA has had a negative influence in operation of the organization as it introduces more competition in the industry.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Implementation of AQA has had a positive influence in operation of the organization as it introduces more competition in the industry.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Does AQA influence the market that the industry operate?
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	The organization is operating within the requirements of the legislation (this could include local, national and international legislation eg environmental legislations).
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	The organization operates in a competitive market.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Implementation of AQA allows industries to compete, giving all organization similar play ground.
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	The organization supports community projects, community development and also subscribes to ethical operations in their field.

General Information

Please indicate your opinions on the Implementation of AQA and comment on the impact it has on your organization.

[illegible]

End of the Questionnaire

Thank you for taking the time to complete the questionnaire.