
**ADDRESSING THE EXPECTATIONS GAP BETWEEN CORPORATE ENVIRONMENTAL
PERFORMANCE COMMUNICATION AND AN AFFECTED COMMUNITY'S NEEDS –
WITH REFERENCE TO ORGANISATIONS SITUATED IN MARKMAN TOWNSHIP AND
THE RESIDENTS OF BLUEWATER BAY, PORT ELIZABETH**

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SYNOPSIS

ADDRESSING THE EXPECTATIONS GAP BETWEEN CORPORATE ENVIRONMENTAL PERFORMANCE COMMUNICATION AND AN AFFECTED COMMUNITY'S NEEDS – WITH REFERENCE TO ORGANISATIONS SITUATED IN MARKMAN TOWNSHIP AND THE RESIDENTS OF BLUEWATER BAY, PORT ELIZABETH

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The purpose of this study was to identify and address an expectations gap in the environmental-performance information between a community that believes it is being polluted and the organisations from a nearby industrial area. The study has consisted of a literature survey and a field study. The field study comprised a survey among the residents in Bluewater Bay, and a similar survey amongst the organisations in Markman Township. These areas were chosen because there is a history of community complaints on the pollution from the Markman Township organizations.

The field study was designed to test the following:

- The first aim of the study was to identify whether an expectations gap exists between the organisations and the community. This gap relates to environmental-performance information to which the community believes it should rightfully have access, and the information that the organisations are willing to provide.

-
- The second aim of the study was to determine what type of information the community requires when it believes it is being polluted or affected negatively.
 - Thirdly, what methods of communication the community believe would be effective when organisations share environmental-performance information.

In a review of the literature, the theoretical and legal drivers for assessing environmental-performance reporting were identified. The questionnaires were designed to test the notion that communities are legitimate stakeholders of organizations. The field study also attempted to identify whether the Markman Industrial Township organisations had used symbolic or substantive legitimacy strategies to improve their legitimacy among the residents. The prior literature identifies various types of environmental information that organisations should report publicly.

A list of the communication methods for disclosing the information was identified. The support for these methods was measured in the community and among the companies in Markman Industrial Township.

The results indicated that there is an expectations gap between the community and the organisations, as there was a statistically significant difference in the responses between the two respondent groups on the types of information that the community requires.

The five types of information needs that had the most community support were:

- The amount and type of chemical spills emanating from each organization.
 - The amount and type of hazardous and non-hazardous waste generated.
 - The amount and type of air emissions from each organization.
 - The amount and type of liquid effluent discharged to the sewer.
 - Incidents of non-compliance with environmental laws and regulations.
-

The above types of information relate to physical pollution and to regulatory compliance with the stipulated legal requirements.

Furthermore, the companies did not regard the community as legitimate stakeholders; and they did not believe that their operations affected the environment in a significant manner. The five most favoured communication methods preferred by the community respondents, in descending order of preference, are:

- Newsletters,
- Formal environmental reports,
- Newspaper feature articles,
- Letters to residents, and
- News releases.

The community supported all the methods of communication that were presented and indicated a preference for non-verbal communication methods. The organisations likewise indicated a preference for non-verbal methods of communication.

The study is important, as it provides companies with insight into the communications needs of local communities and specifically their preferred methods to receive environmental-performance information. Secondly, South African legislation contains various rights that citizens have in terms of a healthy and safe environment, as well as access to information where their Constitutional rights may be infringed. The results of the study could assist companies to go beyond legal compliance in their environmental performance, by addressing local community concerns in a way that will positively impact their ability to maintain legitimacy.

CHAPTER 1 INTRODUCTION

1.1. Background to the Research

In many cities around the world residential areas are moving closer to industrial areas. These areas were once separated by open tracts of land or other barriers. Traditionally, industrial areas were segregated from residential areas due to the environmental impact these industries could have on the residents. The decrease in proximity between industrial areas and residential areas has been due to urban areas expanding onto the available land over which local authorities have jurisdiction. As a result, industrial activities have started to affect residential areas.

The following examples were reported in the South African media where local communities might have been adversely affected by industrial organizations:

- The storage of mercury waste at Thor Chemicals (now called Guernica Chemicals) at Cato Ridge was not cleaned up; and this caused downstream pollution (The Mercury 2012).
- Richards Bay Minerals plans to bury a stockpile of radioactive tailings that could leak into a nearby lake (The Mercury 2013).
- The leak of cyanide into a river in KwaZulu-Natal that resulted in livestock loss (Simon 2012).
- An ammonia gas leak from an ice-cream factory in Landsdowne, Cape Town. The local residents and a nearby school had to be evacuated (Cape Times 2006).
- The Msunduzi Municipality was considering taking legal action against the local industries because of the elevated local air pollution (The Witness 2006).
- A toxic gas leak in Richards Bay (The Mercury 2002). Evacuation of the residents was required.
- A fuel leak at the OR Tambo International Airport (Business Day 2001a). A local wetland was affected. This occurred in 2001, and again in November 2006, when jet fuel spilled into the Blaauwpan Dam (Business Day 2006).

-
- A fuel refinery leak in the Durban South basin (The Independent, on Saturday 2002). This resulted in soil pollution and underground water pollution.
 - Air and water pollution in Van der Bijl Park and Sasolburg (Sunday Times 2001, Hallowes & Munnik 2006: 28).
 - Air pollution around the petrochemical industries situated in Secunda, Durban and Cape Town (Hallowes 2003: 29-38).
 - Tannery effluent pollution of local areas in Edendale, KwaZulu-Natal (Business Day 2002a).
 - River system pollution from sewerage in Johannesburg (Business Day 2001b). Drinking water supplies might eventually be affected.
 - Residents opposed to a new fibre-optic manufacturing plant in Cape Town because of the chemicals that will be used (Business Day 2002b). Air emissions could possibly affect the local residents.

In the context of this study, a number of different industries are located in the Markman Township Industrial Park, Port Elizabeth. The industrial area was originally located on the fringes of Port Elizabeth, but since the 1970s the residential areas of Amsterdamhoek and Bluewater Bay have steadily expanded to the north – in the direction of Markman Industrial Township. The two residential areas were established during the apartheid era; and they therefore, consist of larger brick housing, as opposed to low-cost and informal housing (such as corrugated iron shacks) in Motherwell, a nearby suburb established during the apartheid era.

The residents of Amsterdamhoek and Bluewater Bay are more affluent than those in Motherwell¹ (Metroplan 2010; Statistics SA 2013).

¹ The 2001 census showed that 76% of the Motherwell residents earned less than R1600 per month (Metroplan 2010). The 2013 census shows that in Motherwell only 97 households out of 38 903 have an annual household income exceeding R614 000. In Ward 60, which incorporates Bluewater Bay and other

The industries in this area impact the environment in a number of ways. The industrial activities in Markman Industrial Township include:

- Meat processing that produces unpleasant odours and liquid effluent.
- The tanning of animal hides produces large quantities of unpleasant odours and liquid effluents.
- Chemical-related manufacturing that produces liquid effluent and hazardous waste.
- Motor vehicle-component manufacturers that produce mainly non-hazardous solid waste.

These industries, to a greater or lesser degree, have an environmental impact on the local residential area of Bluewater Bay that is situated within five kilometres to the south of Markman Industrial Township. Furthermore, there are two river systems that bound the study area, namely the Swartkops River Estuary and the Coega River System. These two rivers provide a critical conservation and ecological corridor role that needs to be protected (Metroplan 2010).

1.2. Theoretical Perspective and Research Objectives

Triple-bottom line (TBL) reporting (financial, social and environmental reporting) could assist organisations in reporting the impact that especially social and environmental issues have on society. TBL reporting has increased substantially since 1990 (Gibson and O'Donovan 2007:945). The challenge of quantifying an environmental impact in financial terms is difficult to assess (Hines 1991: 27-29) – other than by imposing fines and similar penalties – and it is thus easy for businesses to ignore the effect this has on the natural environment,

suburbs, 238 of the 7619 households earn more than R614 000 per annum (Statistics SA 2013; Municipal Demarcation Board 2010).

since this is usually excluded from accounting calculations, being so-called externalities. Furthermore, businesses have traditionally only focused on financial performance.

Friedman states that there is only one social responsibility of business, and that is to maximise the profits (Friedman 1962:133). Friedman made this statement in 1962; but since then society's confidence in business has decreased (Patten 1991). This has resulted in some members of society requiring that businesses accept accountability for, and minimise, the negative impacts of their operations (de Villiers & Summerhays 2012; Deegan, Rankin & Voght 2000).

An alternative perspective on the value of nature is described by Maunders and Burritt (1991: 23) as follows: "... *all nature has intrinsic worth and bio-species have equality*". The *intrinsic worth* should thus be accounted for, but the mechanisms to achieve this are often disputed (Jones 1996).

The reporting of accurate company financial information has been questioned as a result of several scandals involving large corporations. The widely publicised corporate collapses in 2002 (Enron, WorldCom etc.) have, according to Guthrie and Parker (2003), created a crisis in financial reporting and have called for "...*greater levels of transparency, active auditors, responsible officers and more compliance and consistency in reporting practices*" (Guthrie & Parker 2003: 1). The statement made by Guthrie and Parker is probably equally applicable, since the 2007 United States sub-prime financial crisis.

The result is that there is now an expectation that the senior management of a company might be called upon to explain their activities, as stakeholders, including local communities,

becoming more interested in the financial, social or environmental impacts of such organisations (Wilmshurst & Frost 2000).

The shift in societal expectations after the big corporate collapses and sub-prime scandal, could impact on local communities. These communities could now distrust the information (financial and other information) that companies provide. In the context of this study, the expectation for information on the environmental performance by the residents of Bluewater Bay will probably increase, as the environmental impact upon them increases. The disclosure of the information by the polluting companies might not match the information needs of the community, which could lead to the possibility of an “expectations gap” occurring. This is not to say that companies are always ignorant of communities information needs, they may just be unwilling to share the information due to it being sensitive. The community may also have unrealistic expectations of a company’s accountability. It is thus not always possible to determine if an actual expectations exists between parties (as described in the literature review), or if the aforementioned factors could merely be due to a difference of opinions.

The expectations gap could arise if the users, producers and subjects of environmental reports have incompatible expectations. Several authors (Rankin 1996; Deegan & Rankin 1999; White 1999; Anonymous 1997; Singleton-Green 1994a, 1994b; Humphrey, Moizer & Turley 1992; Solomon & Lewis 2002; Hassaldine, Salama & Toms 2005; Green & Li 2012) have identified an “*expectations gap*”, which could exist between entities that *issue* environmental-performance reports and the *users* of this information, with regard to both the quality and the quantity of the information.

The majority of the aforementioned studies investigated the reporting of environmental information in annual reports as one means of conveying information to an interested or affected party. Deegan and Rankin (1999: 4) found that the amount of current environmental information found in annual reports frequently falls short of users' needs, thereby resulting in an expectations gap.

The format of environmental reporting can vary widely from "glossy green" annual reports, to significant disclosure of environmental impacts and performance. Environmental reports can also vary, according to what is fashionable at the time (Adams, Hill & Roberts 1998: 3). From a South African perspective, Gray (1998) provided critical comments on the South African Breweries Limited publication, "Corporate Citizen Review – 1998". Gray's comments substantiate the evidence of the "glossy green" format of these reports in the South African context.

Furthermore, from the 1990s a substantial volume of environmental disclosure reports were issued, *"which was mostly inconsistent in scope and depth, difficult to interpret, and practically impossible to cross-compare"* (Brown, de Jong & Lessidrenska 2009: 189).

The central aim of this research will be to investigate the methods that companies could use to present meaningful and relevant information to communities affected by their activities, in order to mitigate any expectations gap. This is consistent with legitimacy theory that seeks to align organisational practice with the criteria of those societal groups that confer the legitimacy (Savage, Cataldo & Rowlands 2000), in order to ensure the long-term survival of the organization. Furthermore, this research investigates the level of importance that companies attribute to the local community, as described in Stakeholder Theory.

This study will attempt to explain the action that organisations must take in terms of this Stakeholder and Legitimacy Theory.

A number of South African studies have investigated corporate reporting practices. These studies have been conducted by Dewar (1994), Webb (1995), De Villiers (1996a & 1996b, 1997, 1999a, 1999b), de Villiers and van Staden (2006), de Villiers and van Staden (2010b), KPMG (2000; 1998; 1999a; 1999b), Savage (1994), Van Niekerk (1998), and Wingard (2001). These studies have centred on formal environmental reports and did not consider stakeholder views. Exceptions, that do consider stakeholder views, are for example, Agle, Mitchell & Sonnenfeld (1999), Spitzeck and Hansen (2010) and de Villiers and van Staden (2010b). However, none of these studies 1) consider the views of local communities, and 2) compare stakeholder views with the views of companies. This study specifically focusses on local communities as a stakeholder group, and compares company and stakeholder views in order to identify an expectations gap. This study will concentrate on the *content*, the *methods*, and other *forms* of environmental communication. The proposed study will show that the widely used annual report is only *one* of the mechanisms that could be used to address the information needs of a community.

From an international perspective, the following studies have focussed on local community views, namely, Sen, Bhattacharya and Korschun (2006) regarding company philanthropic efforts and Tilt (1994) regarding community lobby groups and their need for information. However, none of these studies specifically compare the local community's views with those of companies.

One study set about to identify an environmental expectations gap, namely Deegan and Rankin (1999), who found that in Australia an environmental reporting expectations gap does exist between the users and preparers of the information. This study differs from the Deegan & Rankin (1999) study in that not only is an expectations gap investigated, but the types of information that users require, and the means to communicate the information, is determined.

It is important to state that the study will *not* investigate the *company's* requirements for the development of communication methods; but it will rather concentrate on the community's requirements. This stakeholder focus is consistent with the recommendations and philosophy of the Global Reporting Initiative (GRI) reporting guidelines.

Social and environmental accounting studies have reported instances where there could be a gap in expectations between the stakeholders' perceptions and a company's environmental performance. The information gathered in the survey of companies in the study will be used to determine whether such an expectations gap exists between the users (the residents of Bluewater Bay) and the producers of environmental-performance information (the companies in Markman Industrial Township. The development of the preferred methods of communication for companies to use should thus be of benefit to the affected communities.

1.3. Research Questions

The research questions of this study are as follows:

Question 1

Is there evidence that an expectations gap exists between the environmental information that the organisations in Markman Township produce, and the information that the residents of Bluewater Bay require?

Question 2

What type of environmental-performance information does the community require?

Question 3

What methods of communication (i.e. communications channels/media) are preferred by the community?

These research questions will be addressed through a literature review and a comparison of the questionnaire survey results obtained from companies operating in Markman Township and the residents of Bluewater Bay.

1.4. Justification of the Research

This research is important for three main reasons. Firstly, as will be presented in Section 2.1, there is evidence of a long-standing conflict between the residents of Bluewater Bay and the companies in Markman Township (Binning & Baird 2001; Rogers 2001a; Rogers 2000a; Rogers 2000b; Adkins 2000; Schoeman 1999; Viljoen 1999; Matavire 1999; Swartkops Trust 2006). This research could help the companies in Markman Township to address this conflict and improve their community relations and thereby their legitimacy.

Secondly, there is a legal duty on companies to provide information to any person whose constitutional rights to a healthy and safe environment might be infringed (South Africa

2000a). This right is described in Section 24 of the Constitution of South Africa (South Africa 1996). This research could assist the companies to comply with this legislative requirement. In order to give effect to this right, a private body, such as a company, must develop and publish a manual that explains how the information that the company possesses would be provided to an affected party. The results of this study could be incorporated in the procedure manual that companies have to publish.

Thirdly, for those companies that already have, or wish to gain, ISO 14001:2004 certification, the information that they provide publicly should ideally be aligned with the environmental-communication principles contained in ISO 14063:2006, an accompanying standard. According to Section 3 of ISO14063:2006, *"It is essential that an organisation apply the principles of transparency, appropriateness, credibility, clarity and responsiveness"* when communicating environmental information (ISO 14063: 2006).

If a company is ISO 14001:2004 certified, the results of this study should assist them in adhering to the ISO 14001:2004 and 14063:2006 requirements, when reporting their environmental performance.

1.5. Research Method

The research method used in this study was to gather survey questionnaire data from a randomly selected group of residents in Bluewater Bay and all the companies in Markman Township. The survey questionnaire was developed following a literature review. The responses received from the two groups surveyed were compared – using the appropriate statistical tests, such as the Mann-Whitney U test and the Kruskal-Wallis One-Way ANOVA test. Differences in opinion would provide evidence of an expectations gap.

In terms of legitimacy theory, an expectations gap can be seen as a potential legitimacy problem or crisis. The responses of the residents group should indicate avenues for companies to explore, should they be interested in addressing the legitimacy issues shown by such an expectations gap.

1.6. Definition of Key Concepts

The key concepts to be used in this study are defined in ISO 14001:2004. The definitions are:

Environment: Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans, and their inter-relationships.

Environmental performance: Measurable results of the environmental-management system, related to an organization's control of its environmental aspects, based on its environmental policy, objectives and targets.

Interested parties: Individuals or groups concerned with or affected by the environmental performance of an organisation (this definition will include the concept of the community).

Organization: A company, corporation, firm, enterprise, authority or institution, or part or combinations thereof, whether incorporated or not, public or private, that has its own functions and administration.

1.7. Delimitation of the Scope

1.7.1. Demarcation of Organisations / Community to be researched

The physical scope of the research was limited to:

- Those companies that are situated in Markman Township in Port Elizabeth.
- A sample population of the residents of Bluewater Bay, Port Elizabeth.

1.7.2. Respondents

The organisational level of the respondents is important, as the communication methods might involve the public disclosure of sensitive information. It is for this reason that, where possible, the policy-makers in the organisations were polled. The respondents in the

community survey were the property residents – and not necessarily the owners of such properties – as some of the properties were rented by the respondents.

1.8. The Importance of this Research

This research is important, because it has the potential to assist companies in maintaining legitimacy and in closing the environmental performance/disclosure expectations gap. This can be achieved by paying particular attention to the following matters identified in this research:

- Communities' preferred communication methods could be followed by companies. This will ensure that environmental performance information will be made available in a format that affected communities would be prepared to accept more readily.
- A focus on the information content that communities identified as being meaningful would be more likely to satisfy and appease communities.
- Organisations that adopt the suggestions presented here could develop the internal communication strategies and systems that deliver information to the community in a format that is acceptable to all the concerned parties. This could further enhance the organization's level of environmental performance and community acceptance.

1.9. Structure of the Thesis

This thesis is divided into seven chapters. In Chapter 2, the background information and literature review will explain the concept of an expectations gap. The available frameworks for reporting environmental performance are discussed, and the identification of the South African legal requirements for providing environmental-performance information are presented. Chapter 3 introduces the theoretical framework that supports and informs the study. Legitimacy Theory and Stakeholder Theory is discussed, as well as the development of the research objectives. In Chapter 4, the research method, including the design of the

field-study questionnaire and the statistical methods used to analyse the collected data are discussed and justified. In Chapter 5 an analysis of the results is presented and discussed. In Chapter 6 the results are analysed to determine any inter- and intra-group differences. The differences are discussed and the development of suggestions to address the identified expectations gap presented. The preferred community information needs are presented, as well as the preferred methods of communication. Chapter 7 includes a final summary, recommendations, limitations of the study, the contribution the study has made, and areas for future research.

1.10. Chapter Summary

This chapter has introduced the research topic. A brief overview was given of the area under investigation; and it was shown that there have been past pollution events in the Bluewater Bay area, and that some companies in Markman Industrial Township are engaged in activities that impact on the environment. The research method was introduced; the definitions used in the study were presented; and the scope of the study was delimited. The importance of the research was discussed; and finally, the structure of the study was explained. Chapter 2 will deal with a review of the literature that is relevant to the study.

CHAPTER 2 BACKGROUND STUDY AND LITERATURE REVIEW

2.1. Introduction

A literature review will be presented in this chapter, as well as background information on Bluewater Bay. The main motivation for this study is to assist the residents of Bluewater Bay in their interaction with Markman Industrial Township companies. In order to contextualise the study, the study area is presented, and the major environmental problems that occur in this area, are discussed.

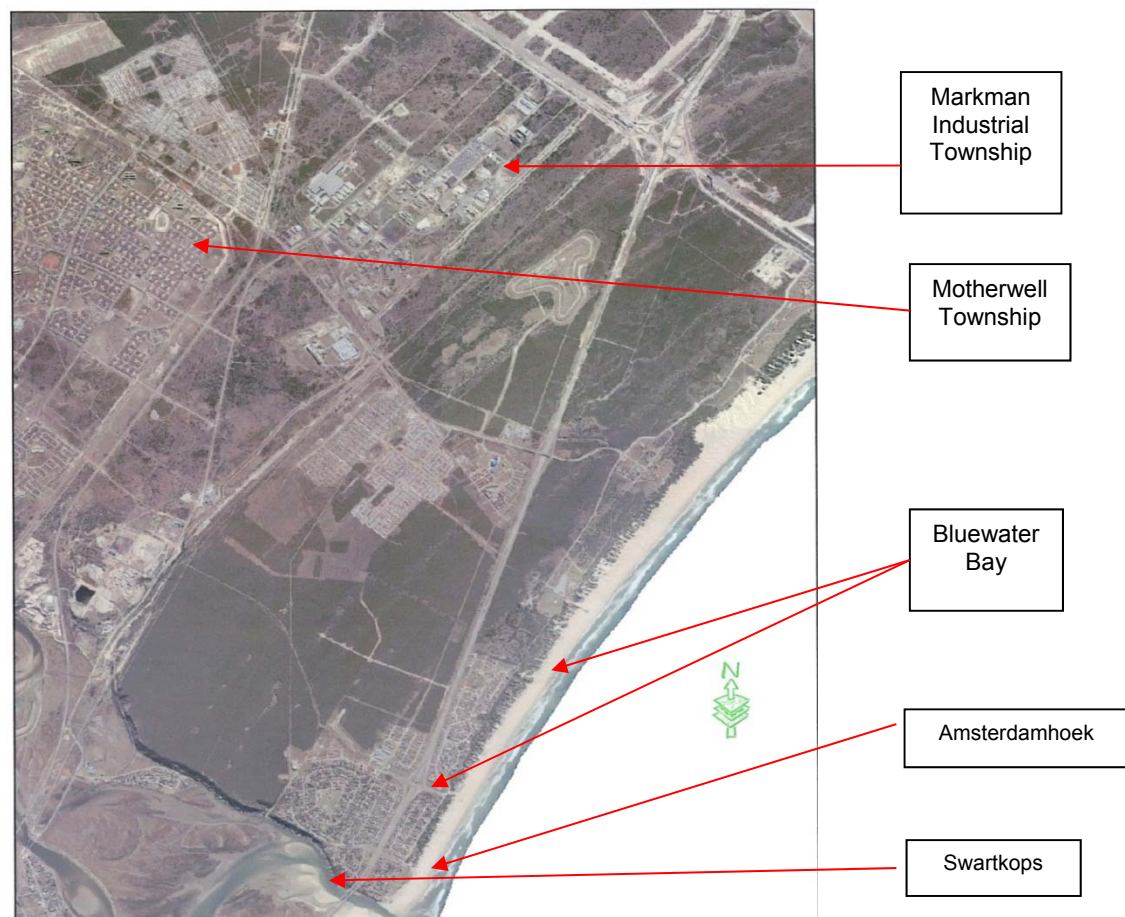
A literature review is presented that includes a discussion on the concepts of social and sustainability accounting. A section is included on the quality and quantity of corporate social responsibility (CSR) disclosure, as well as the expectations gap that can occur between a company and a community. The reasons for disclosing corporate social-responsibility information are discussed; and a separate section is presented on the South African legal requirements to disclose information. Finally, the various frameworks for reporting environmental-performance information are presented.

2.2. Background to Bluewater Bay and Motherwell

There are two residential areas that are in close proximity to Markman Industrial Township, namely: Bluewater Bay and Motherwell Township. Motherwell Township, a mixture of formal

and informal housing² (shanties, shacks etc.) is situated to the west of Markman Industrial Township, while Bluewater Bay is situated to the south (see aerial photograph in Figure 1 below and in Appendix 1).

Figure 2-1 Aerial Photograph of Study Area



(Source: Nelson Mandela Metropolitan Municipality 2007)

² Bluewater Bay is part of Municipal Ward 60 and the 2011 census shows that there are 22 shacks in this ward. Motherwell Township comprises several wards; and it contains 3273 shacks in Wards 23,53,54,55,56,57,58 & 59 (Statistics SA 2013).

Motherwell Township was established during the apartheid era, when the government of the day wanted workers to live in close proximity to factories to reduce transportation requirements. Because of its closer proximity, Motherwell residents would probably be affected, even more than those of Bluewater Bay. Nevertheless, the study will focus on the Bluewater Bay community for several reasons. Firstly, the Bluewater Bay community have been more vociferous with their complaints; and secondly, these complaints have been well documented as described below. Thirdly, the major environmental complaint is air pollution. This affects Bluewater Bay the most under ideal light north easterly winds, hence the long history of complaints.

Therefore, the views of the residents in Motherwell Township have not been investigated in this study – not because these residents are less important than the Bluewater-Bay residents – but rather because the community response from Bluewater Bay residents to the pollution problems has been documented over a longer period of time, which made things easier for the research. This study is thus limited to Bluewater Bay because of the easy availability of the information on the air and water pollution concerns, and the interaction between role players.

The available information includes information generated by the Odour-Nuisance-Action Committee, the Swartkops Trust (now named the Swartkops Conservancy) and the South African Law Reports. The smaller geographical size of the Bluewater Bay area further facilitated the field research.

Air, ground and water pollution are the most ready natural pathway for emissions from a business to impact the environment. Regarding air pollution, the impact is evident from a record of the communication between the residents of Bluewater Bay and the companies situated in Markman Industrial Township (Odour-Nuisance-Action Committee 2001a, 2001b, 2001c, 2001d). According to the press reports that were surveyed, the main concerns of the residents of Bluewater Bay appear to be water pollution, air pollution, toxic waste generation and a hazardous waste disposal located nearby (Binning & Baird 2001; Rogers 2001a; Rogers 2000a; Rogers 2000b; Adkins 2000; Schoeman 1999; Viljoen 1999; Matavire 1999; Swartkops Trust 2006).

In 1968, the residents of Bluewater Bay, Swartkops Village and Redhouse Village formed the Swartkops Conservancy to help protect the Swartkops River estuary (Swartkops Conservancy 2013). The Swartkops Conservancy conducts regular inspections of the storm water canals from Motherwell and Markman Industrial Township that empty into the Swartkops River estuary. The storm-water canal from Markman Industrial Township often contains industrial effluent, which ultimately pollutes the Swartkops River (Swartkops Conservancy 2013).

There is historical evidence of a conflict on the pollution between the Bluewater-Bay community and a number of organisations in Markman Industrial Township (Odour-Nuisance-Action Committee 2001a, 2001b, 2001c, 2001d). The conflicts regarding the activities of the Markman Industrial Township companies have resulted in Supreme Court action to stop certain activities, as well as the involvement of the Human Rights Commission (Gebeda 2000).

There has been one court case to compel the provincial government to take action against the polluting companies (Carlisle 2001; Gebeda 2000). The conflict regarding environmental pollution in this area has also resulted in some companies in Markman Industrial Township taking each other to court over pollution claims (Rogers 2001b). Further evidence of the long history of conflict in this area is the negative media reporting on the Markman Industrial Township companies (Gilham 2000; Rogers 1999a-f; Watkins 1999a-b; Rogers 2000a; Woolard 2000; Mphande 2000).

In order to address the air pollution concerns in this area, an Odour-Nuisance-Action Committee was established by the local authority in April 2001 (Odour-Nuisance-Action Committee 2001a). The members of the committee included the local community, the provincial government, the local authority, and businesses in Markman Industrial Township and Deal Party, an industrial area to the west of the Swartkops River. This committee has, however, ceased to exist. The local authority has, subsequently, formed the Nelson Mandela Bay Municipal Air Quality Forum that is concerned with air quality on a city-wide basis – and not only in the Markman Industrial Township area (Nelson Mandela Bay Municipality 2013).

The existing level of industrial pollution in this area could increase in the future. The Coega Development Corporation (CDC) is establishing an Industrial Development Zone (IDZ) to the east of Markman Industrial Township. The IDZ is hoping to attract industrial tenants to increase the manufacturing sector in the metropolitan area. The IDZ tenants will, in all likelihood, increase the air pollution in the immediate area, as the different industrial zones are established. These would probably include metallurgical industries and chemical

industries. The CDC has allocated Zone 6 of the IDZ to locate the heavy ferrous-metal companies (SRK Consulting 2008).

Furthermore, an oil refinery is planned for the IDZ that could also affect the air and water quality in the area under study (Rogers 2011).

2.3. Major Environmental Problems Identified in Bluewater Bay

The impact that industry has on the environment can lead to resource depletion and environmental degradation (Herva, Franco, Carrasco & Roca 2011). In order to place the study area in context, it is necessary to identify the potential pollution risks that the Bluewater Bay residents (as well as the other surrounding communities) may have to contend with. The United States Environmental Protection Agency (US EPA) tabled a list of environmental risks that are graded in terms of importance (McKinney & Schoch 1998: 25). This list is shown in the first column of Table 2-1. The second column indicates whether these risks could be a concern for the residents of Bluewater Bay.

Table 2-1 Potential Environmental Problems in Bluewater Bay

ENVIRONMENTAL PROBLEMS	COULD BLUEWATER BAY BE AFFECTED?
HIGH-RISK PROBLEMS	
1. Destruction and alteration of habitats	Yes, the Swartkops River estuary could be affected by storm water pollution from Markman Township.
2. Species extinction	Possibly, due to water pollution entering the Swartkops River.
3. Stratospheric ozone depletion	Yes, if the chemicals used by the industries in Markman Township are ozone-depleting.
4. Global Climate Change	Yes, by the burning of fossil fuels and the release of greenhouse gasses.
MEDIUM-RISK PROBLEMS	
1. Herbicides and pesticides	Not likely due to the types of activities undertaken in Markman Township.
2. Toxic chemicals and other pollutants in water	Yes, from the industrial effluent generated in Markman Township.

ENVIRONMENTAL PROBLEMS	COULD BLUEWATER BAY BE AFFECTED?
3. Acid rain	Limited only to the burning of fossil fuels. Industries to the west of the study area could more likely contribute to acid rain.
4. Airborne toxics (mainly from factories, but also from trucks, cars and buses)	Yes, as described above.
LOW-RISK PROBLEMS	
1. Oil Spills	Yes, by oils used in production processes and in boilers used in Markman Township.
2. Groundwater pollution, mainly from landfills and toxic-waste sites	Yes, a hazardous waste site is located nearby. Two of the tanning companies have on-site effluent waste ponds.
3. Airborne radioactive particles	Not likely.
4. Acid run-off from farms and industry	Yes, from chemical spills.
5. "Thermal Pollution" (activities of civilisation that artificially heat the air and water)	Limited possibility of impact.

Source: Adapted from McKinney & Schoch 1998: 25

Table 2-1 illustrates the environmental problems the Bluewater Bay community might face. Furthermore, the environmental problems identified in Table 2-1 could serve as a guide to the community's information needs. If these pollution problems could affect the local residents, they have – in terms of the Promotion of Access to Information Act (South Africa 2000a: Section 50) – a right to know about the impact. The challenge the polluting companies face is what type of information should be reported publicly, and what method should be used to convey this information. Furthermore, companies that require Atmospheric Emissions Licences will have to report their performance to the authorities, who will have to provide this information to the communities. In future there will thus be more of a regulatory oversight on company activities. Regulatory oversight appears to have been lacking in the past, as no evidence was found of regulatory sanction other, than one court case which is dealt with in Section 2.8.5.4.

2.4. The Concepts of Social and Sustainability Accounting

The term *social accounting* is used to describe all forms of “accounts which go beyond the provision of economic” information (Gray 2002: 687). Furthermore, social accounting encompasses the “entire universe of all accounts” (Gray 2002: 687), implying that there are many different methods and reasons to give an “account”. A more recently formalised concept is *sustainability accounting*; which is a subset of social accounting; and this is concerned with the inter-generational equality of resources (Lamberton 2005:12).

It is, however, often the case that most companies’ sustainability reporting has very little to do with sustainability, and more to do with how the company would like to view sustainability (Gray 2010).

A literature review by Thomson (2007: 22-23) identified approximately 28 separate topics in the sustainable accounting literature. Accounting in the context of this study is not merely the reporting of financial information, but rather giving an account of a company’s behaviour in the social system. Social and sustainability accounting both have the underlying premise that organisations have a duty to disclose information on their interaction with society as a whole, as opposed to only reporting to their financial stakeholders (Spence 2009).

In South Africa, the requirements of the King III report address the issue of reporting to a wider audience. These requirements are discussed in more detail in Section 2.9.

The specific area within social accounting that this study is concerned with is *environmental-performance reporting*. The term corporate social disclosure can be viewed as an element of *corporate social responsibility* (CSR), as the company is disclosing information about

their social responsibility. If a company wishes to be more socially responsible, they need to keep society informed (Antonites & de Villiers 2003).

The term CSR comprises the “*obligation a firm has towards society, or more specifically, a firm’s stakeholders*” (Lawrence & Samkin 2005:105). CSR is not a new concept; and it can be found in the accounting literature as far back as 1916 (Savage 1998). However, there has only been a significant increase in social and environmental accounting literature since the late 1960s and 1970s (Gray 2002; Matthews 1997). The corporate social disclosure literature contains various terms to describe similar concepts. These include social accounting, social auditing, social reporting, social-responsibility disclosure, environmental accounting and stakeholder³ dialogue reporting (Gray 2002; Gray, Kouhy & Lavers 1995 & Savage 1998).

There are several main categories of CSR disclosure, namely: mandatory issues, human resources, community relations, customer relations, environmental performance, and other general issues. These would include: advertising, company announcements and suchlike (Gray, Kouhy & Lavers 1995a; Gray, Kouhy & Lavers 1995b)⁴⁵. This study is mainly concerned with one aspect of corporate social disclosure, namely, environmental-performance reporting, with specific reference to a single stakeholder group, the local community.

³ The identification of stakeholders is discussed in more detail in Chapter 3. The term stakeholder is defined as “*an individual or group that has an interest in any decision or activity of an organization*” (ISO 26000:2010 pp2).

⁴ For a complete list of the elements of CSR disclosure that Gray et al (1995a:77) have identified see the appendix in their article.

⁵ Kolk & Pinkse (2010:20) identify 20 different issues of CSR and divide these into internal and external issues.

Environmental disclosure has steadily increased, as a consequence of the new legislation being introduced. For example, the toxic gas released by a plant (in Bhopal, India) operated by Union Carbide (a United States company) and the Exxon Valdez oil spill in Alaska, inspired the creation of the Superfund Amendments and Reauthorisation Act of 1986 in the United States (White 1999; Hosmer 1998). This legislation created the Toxics Release Inventory, which required organisations to annually declare their toxic releases to the Environmental Protection Agency, a US government agency.

In South Africa, the main legislation that requires environmental disclosure is in the legislation promulgated under the National Environmental Management Act of 1998. Some of these laws require environmental-performance disclosure; and these will be dealt with in some detail in Section 2.8.

The discussion that follows in the sections below relates to CSR disclosure in general; and it does not necessarily include environmental performance reporting in particular.

2.5. The Quantity and Quality of CSR Disclosure

During the 1990s, voluntary corporate environmental reports began to appear more frequently in South Africa. The number of companies listed on the Johannesburg Securities Exchange (JSE) that disclosed information about the environment in their annual reports increased from 16% in 1994, to 37% in 1998 (de Villiers 1999a). The reporting of CSR information in South Africa appears to have fluctuated over time (de Villiers & Barnard 2000). After reaching a peak in 1999, the CSR reporting of the JSE Top 100 companies, and mining companies, declined between 1999 and 2002 (de Villiers & van Staden 2006).

This trend appears to have changed, as the CSR reporting practices of the South African Top 100 companies have increased from 45% in 2008, to 97% in 2011 (KPMG 2008; KPMG 2011). There has been a similar increase, internationally, in CSR reporting (Gibson & O'Donovan 2007; KPMG 2011).

A study conducted by de Villiers (1999) showed that although the number of listed companies reporting their environmental performance has increased, the quality of the reports has not improved appreciably; and in some instances, the quality of information presented had deteriorated. The variations in the quality of the information could result in the user making a different decision if the information “...is deficient or misleading...” (Deegan & Rankin 1999:314). Furthermore, it has been reported that in Norway, a country considered to be a leader in environmental reporting, that only ten percent of companies comply with legal requirements regarding environmental reporting (Vormedal & Ruud 2009: 207)

The study by de Villiers (1999a) on the poor quality environmental disclosure confirmed an earlier study conducted by Doppegieter (1995). Doppegieter (1995) found that the environmental information “...is usually descriptive and assertive, rather than financial and specific” (Doppegieter 1995: 18). The users of voluntary disclosures may thus need to exercise caution when interpreting such information, as Lindblom warns: “Corporate social disclosure may be intended to perform and educate – it may also be intended to manipulate perceptions and disguise the truth” (Lindblom 1993: 19).

A similar cautious approach was advocated by Suchman who states that managers could change their publicised organizational goals and mission statements – in order for these to appear to conform to societal ideals and expectations (Suchman 1995).

The increased amount of CSR information that has become available has usually not been reported within a commonly accepted framework; therefore, the information that is presented often has limited value to the user in aiding meaningful decision-making (De Villiers 1995:4; De Villiers 1999a: 7; De Villiers 1999b: 35; Belal 1999: 12; Choi 1998: 6; Savage 1994: 3-4; Vormedal & Ruud 2009:2007). The aforementioned authors all commented on the inadequate quality and/or quantity of environmental disclosure by organizations. The quality of CSR disclosure could be seen as more important than the quantity of disclosure; and ultimately, this affects the company's immediate stakeholders and wider society (Aerts, Cormier & Magnan 2006).

The use of a standardized framework for reporting environmental information could improve the perceived poor quality; and this in turn, could ensure that the information is substantive and applicable to the user. The lack of a standardised reporting framework is not unique to South Africa, as similar findings were reported in other countries (Belal 1999; Carrasco 1994; Choi 1998 & Gonzalez 1999). In the South African context, the issue of a standardized framework is now being partially addressed with the introduction of the JSE Socially Responsible Investment (SRI) Index.

The JSE has published a list of criteria that companies could voluntarily use to report on their level of social responsibility (JSE 2012). In 2012, the JSE reported that 108 companies of the 337 companies listed on the main board of the JSE were assessed; and 76 of these

met the criteria to be included on the SRI Index (JSE 2012; JSE 2013). Internationally, the Global Reporting Initiative (GRI) guidelines appear to be becoming the most widely accepted framework for reporting CSR information; as 80% of the G250⁶ companies are using this framework to report CSR information (KPMG 2011). The GRI guidelines will be discussed fully in Section 2.6 of this Chapter.

In addition to using a standardised framework, a further technique to improve the quality of a company's CSR disclosure, is to ensure that the information is informative, relevant, understandable and comparable (Hooks & van Staden 2011). Furthermore, the King III Report requires in Section 8.5 of the Code that "*Transparent and effective communication with stakeholders is essential for building and maintaining their trust and confidence*" (IOD 2009:48).

2.6. The Expectations Gap

The main objective of this study is to study the "expectations gap" between companies and the communities affected by their activities. The King III Report⁷, published by the South African Institute of Directors (IOD), requires that South African companies measure and manage the gap between stakeholder perceptions and the performance of the company, in order to "*enhance or protect*" the company's reputation (IOD 2009:46). In order to measure this gap, a company would have to engage with their stakeholders. The gap referred to in the King III Report can occur when there is a difference, or gap, in the expectations of "...a group with a certain expertise, and a group which relies on that expertise..." (Deegan & Rankin 1999:316).

⁶ The G250 are the top international 250 companies identified by KPMG.

⁷ The King III Report (IOD 2009) is discussed in more detail in Section 2.6.6

The term “expectations gap” is not confined to accounting; but, it has also been used in several other fields, such as information technology and advertising (Deegan & Rankin 1999).

In the auditing literature, the expectations gap has frequently been used to describe a difference in expectations between the preparers and the users of financial statements⁸. The users of financial statements perceive auditors to have a higher level of duty, and responsibility to detect fraud, than the auditors have in practice (Green & Li 2012), which leads to an expectations gap. The detection of fraud does not usually fall within the scope of the auditing function, yet the users of these reports, such as investors, require the issuers of the financial reports to report any fraudulent activities (Knutson 1994; Singleton-Green 1995; Anonymous 1997; Humphrey, Moizer & Turley 1992).

Initially (in the late 1800s) auditors did seek to discover fraud; however, the emphasis of modern auditing has moved from auditing human behaviour (committing fraud) to the auditing of accounting records (Sweeney 1997). Traditionally, financial audit guidelines prescribe that auditors detect irregularities, misstatements and material (or important) issues in their clients’ accounting records, and then compare these findings against a financial reporting standard (Epstein & Geiger 1994). If, for example, there is not a shared understanding of the extent of what constitutes a *material* issue, then an expectations gap could arise between the preparer and the user of the financial statements (Houghton, Jubb & Kend 2011).

⁸ A selection of articles that was reviewed and refers to the expectations gap is presented in Appendix 2.

Ultimately, if the preparer of financial records does not measure up to the meaning and the nature of the audit, that they themselves usually define, then an expectations gap would ensue (Sikka, Puxty, Willmott & Copper 1998).

A number of studies have reported that different users have differing expectations of the environmental information (Deegan and Rankin 1999; de Villiers 1996a). A gap in expectations amongst the preparers of environmental information has also been reported by Mitchell & Quinn (2005), where the users of such environmental information had higher expectations than the professional environmental consultants who had prepared the information; and these, in turn, had higher expectations than the company's representatives who supplied the environmental information to use in the reports.

There could thus also be an expectations gap between the different preparers of information – and not only between the users and the preparers. There could also be a gap in the expectations of society in believing that the business community is *not* doing enough to protect the environment; while businesses feel they *are*, in fact, addressing these environmental issues (Herremans, Welsh, Kane & Bott 1999: 159).

In addition to the reasons given above, an expectations gap between users and preparers of information can also arise due to several other factors. These factors include the accuracy of the information presented, any differences in expectations of the performance level of the organisation or person preparing the information, a difference in the duty of care that the user is expecting from the company; and lastly, users may have greater expertise than the preparers of the information (such as lobby groups and NGOs) whose members

could be scientists that have more knowledge about environmental matters than the preparers of the information (Sweeney 1997; Deegan & Rankin 1999).

In order to address or eliminate the accounting expectations gap, organisations have one of two options, namely: to educate the public as to what the audit function entails; or secondly, to align practices with the users' expectations (Abbott 1994; Sweeney 1997). These two options could also be applied to the expectations gap in environmental-performance information. In order to address the expectations gap, when disclosing environmental information, a company needs to consider the type of information, the quality of the information, as well as the method of communicating the information.

Furthermore, in order for a company to fully address the expectations gap on CSR issues, they need to disclose their aims and intentions, subsequent actions to achieve their aims, and their performance relating to the stated aims (Bouten, Everaert, van Liedekerke, de Moor & Christiaens 2011).

2.7. The Reasons for Disclosing Environmental Information

Companies in today's business environment can expect to be scrutinised on the manner with which they interact with their stakeholders (Deegan, Rankin & Voght 2000). This could apply to interaction over an extended period of time, or to their interaction during a crisis or a specific event. If a company experiences a significant adverse event, such as an environmental spill or a major accident, it could expect society to urgently require information on the impact of the event. The need for information would be greater if the event has off-site consequences, such as imminent danger to a local community.

Evidence has been found of the need for an increase in the disclosure of CSR information after such an event has occurred (Cho & Patten 2007; Deegan, Rankin & Voght 2000; Warsame, Neu & Simmons 2002). It has also been reported that the worse environmental performing companies often disclose optimistic CSR information (Cho, Roberts & Patten 2010). Furthermore, CSR disclosure can also be used to justify a company's activities (Samkin 2012).

In order to disclose the correct information effectively, the company should ideally have processes in place prior to the event, in order to facilitate the communication process. Propper (1997) stated that *"...companies will inevitably encounter environmental issues with either their products or processes from time to time. The central premise is that by the time you have a problem, it is too late to begin to communicate."* Propper may be suggesting that trust could be built up between the company and the community over time. The disclosure of information over time could indicate that the company takes its stakeholders' interests seriously, and wishes to build a good relationship with them.

This idea is consistent with legitimacy theory where a company seeks to generate or maintain societal legitimacy (Suchman 1995). An open communication system with the community would also help to improve the community's sense of control, and reduce their fear of any negative events occurring (Heath, Bradshaw & Lee 2002:327).

There are additional reasons, other than a sudden catastrophe (such as a major spill), to disclose CSR information to stakeholders. A number of reasons for CSR disclosure have been given by Deegan (2002). These include:

- To comply with laws;
- To be seen doing the right thing for long-term economic benefit;
- Believing in the need for accountability and/or the responsibility to publicly report;
- To comply with tender requirements;
- To comply with the community's expectations;
- To deal with any threats to the company's legitimacy;
- To manage powerful stakeholder groups;
- To attract institutional investors;
- To comply with specific industry practices;
- To pre-empt more stringent reporting requirements; and
- To win reporting awards and to increase the company's prestige.

(Deegan 2002: 290-291)

Furthermore, Solomon and Lewis (2002:156) state that most of the reasons for disclosure can be grouped into four categories, namely markets, social, political and accountability incentives. The reasons for disclosure that Deegan (2002) and Solomon & Lewis (2002) propose are similar to the drivers for CSR disclosure that KPMG tested in an international survey. KPMG conducted a survey among the top 100 companies (N100 companies) in 34 countries, as well as the top 250 companies (G250 companies) in the world (KPMG 2011). In the survey, eleven possible reasons were listed that drive CSR disclosure; and each respondent was asked to indicate whether their company used the reason to drive their CSR disclosure. The reasons are listed below; and the percentage of respondents that indicated that they used the reason as a driver of CSR disclosure is stated in brackets:

- Reputation or brand (67%),
- Ethical considerations (58%),

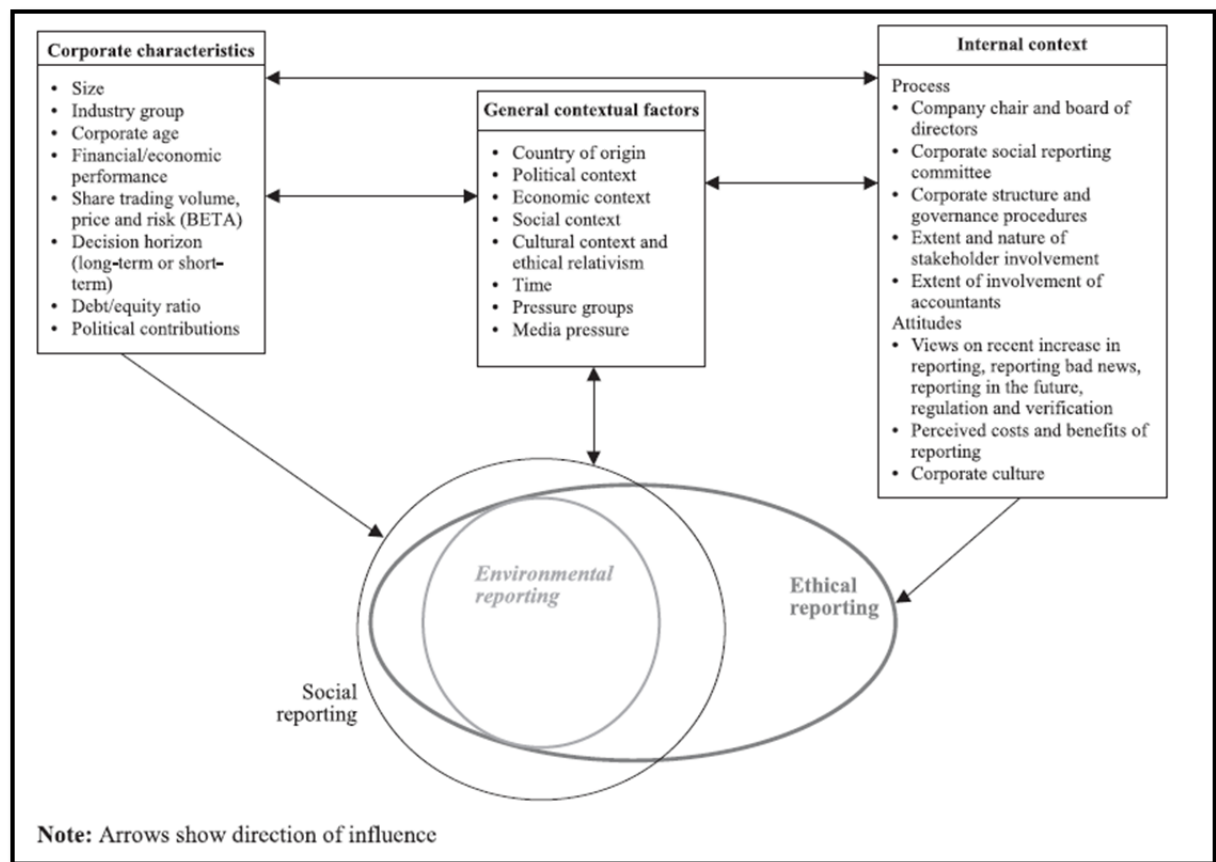
- Employee motivation (44%),
- Innovation and learning (44%),
- Risk-management or risk-reduction (35%),
- Access to capital or increased shareholder value (32%),
- Economic considerations (32%),
- Strengthened supplier relationships (22%),
- Market position (market share) improvement (22%),
- Improved relationships with government authorities (18%), and
- Cost savings (10%).

KPMG (2011:19)

The above list does not indicate the importance of each reason, only the frequency with which it was used as a driver by the respondents. However, it could be argued that the more frequently a driver is used by the respondents, the more important it may be to the group as a whole. The above list shows that the majority of the respondents disclosed CSR information because of company brand (67%), and ethical considerations (58%). These two reasons are interesting, as brand considerations can be directly linked to the economic survival of a company; whereas the ethical considerations could relate to how society expects the company to behave, since its actions may come under scrutiny by society.

In addition to the above reasons given by Deegan (2002) and KPMG (2011), Adams (2002) has identified three main categories of influences on CSR disclosure, namely: corporate characteristics, general contextual factors, and internal contextual factors (Adams 2002). These influences are presented in Figure 2.1 below.

Figure 2-1 – Influences on CSR Reporting (Adams 2002:246)



The factors depicted in Figure 2.1, as well as the reasons for reporting given by Deegan (2002) and KPMG (2011), indicate that there are many factors that could influence public reporting. The relationships among these factors appear to be complex, as one factor may influence many other factors; for example, if the political context changes and new laws are introduced, the internal contextual factors, such as corporate structure, could change, have to change, which in turn might change the long-term decision horizon under the corporate characteristics group. The factors described in the three boxes in Figure 2.1 could, thus, result in more or less social disclosure, depending on the dynamics of the change and its influence on all the other factors.

A practical example of how the factors in Figure 2.1 are related is the need for a business to obtain an Atmospheric Emission Licence in terms of the Air Quality Act (South Africa 2004). The licence requirement could be due to a new law being promulgated (change in the political/legal context). This could necessitate an emissions officer being appointed (internal context changes). The license requirement may also require pollution-abatement equipment, which could have costly financial implications affecting short-term profitability (corporate characteristics).

In order to aid further discussion, the reasons for CSR disclosure given by Deegan (2002), and KPMG (2011) can be grouped into one, or more, fundamental groupings. As an example, Deegan states that one reason for CSR disclosure could be to comply with community expectations; where, more fundamentally, this reason could be attributed to the social contract that society has with the company. A discussion will be presented below on the following categories of reasons for CSR disclosure:

- a) The social contract (Mäkelä & Näsi 2010);
- b) Social justice (Smith 1994; Pojman 2001);
- c) Accountability reasons (Gray 1994);
- d) The business case for sustainability (De Villiers 1996a);
- e) Sustainability reasons (Gray 1993); and
- f) The legal reasons (as required by South African law).

Each of these reasons will now be discussed.

2.7.1. The Social Contract

In order for a company to sustain its long-term presence in society, it should, over time, abide by societal expectations. If members of society are negatively affected by a company, society could influence the long-term sustainability of a company by direct or indirect

actions. Direct actions could be in the form of protests, withdrawing customer support, and suchlike; while indirect actions could occur, such as changing legislation that could affect how a company operates. This implies that members of society have rights that need to be taken into account, as they could make fundamental changes to the way businesses operate.

According to Cheney, May and Roper (2007: 33), society is now looking for a “*third generation*” of human rights. The “first generation” was to secure protection from the power of the State; the “second generation” was to gain labour rights, following the development of capitalism and industrialization; and the third generation of rights (arising from the second) is now for the protection of the rights of a wider society, or “*collective mankind*” (Cheney et al. 2007: 33). These successive generations of human rights show a progression from the right to be fairly treated by the nation-state to the right to be fairly treated by others, including companies.

The rise of industrial capitalism has led to societies moving from agrarian to industrial economies; and they have caused man to view himself as being outside nature (Ester & Schluchter 1996). Furthermore, Schumacher (1973) stated that “Modern man does not experience himself as a part of nature, but as an outside force destined to dominate and to conquer it”. The domination by man of the environment he lives in could ultimately lead to the depletion of resources. In order to avoid the depletion of available resources for collective mankind, the ‘third-generation rights’ described by Cheney *et al.* (2007) imply that there is a social contract amongst members of a society to ensure its continued survival.

This social contract places an onus on its members to behave in a manner that would not harm others. This obligation includes not harming the environment, if that would, in turn, harm others (e.g. polluting a river that people use for water abstraction).

This approach includes all the different members of a society entering into a contract with each other – for the good of the community as a whole.

The social contract approach can be traced back to Greek philosophers, such as Plato and Aristotle (Lubbe and Schutte 1993). Adam Smith's view of the social contract can be summarised as follows:

"i) [The] liberty to pursue one's own economic self-interest should be permitted, as long as there is a corresponding (though it could be unintentional) improvement in social welfare.

ii) If [the] liberty to pursue one's own economic self-interest does not improve the social welfare, then government intervention is justified.

iii) If [the] liberty to pursue one's own economic self-interest improves the social welfare, but harms are also generated, then intervention by either the government or the justice system is justified."

Collins (1998:130)

Furthermore, Jean-Jacques Rousseau expanded on the ideas of John Locke, Adam Smith and John Rawls; and he further refined the concept of the social contract (Wraight 2008). Rousseau states that a society is based on a "covenant" between members; and if the *"...terms of the covenant are ever violated, even in the smallest degree, then the contract becomes null and void..."* (Wraight 2008:35).

The modern company may thus knowingly, or unknowingly, have entered into a contract with the local community, to act responsibly. As part of the social contract, the welfare of a company's stakeholders should be accepted as a legitimate goal, in addition to making profits; and in return, society would make available the resources to ensure the company's future sustainability (Halal 1984:34). In contrast, a violation of the social contract could lead to a perception by society that the company is not legitimate (Mäkelä & Näsi 2010: 153). The *communication* of the company's environmental performance is important, as this is a means for the community to know whether the social contract has been dishonoured, or is under threat.

2.7.2. Social Justice

A local community needs, and probably expects, to be treated fairly by the various other groups that make up society, including companies. The idea of fair treatment is embedded in the social justice theory, a branch of moral philosophy (Smith 1994: 23). The term social justice refers to “...*how people should be treated in particular circumstances...*” (Smith 1994:27). The companies applicable in this study could thus be evaluated by the community to determine whether they are acting ethically and morally – or not.

The terms ‘morals’ and ‘ethics’ stem from the Latin and Greek words, respectively *mores* and *ethos* (Pojman & Pojman 2012: 4). Morality usually refers to the customs, principles and practices of people; while ethics refers to the whole domain of morality and moral philosophy. The purpose of moral philosophy is to secure valid principles of conduct and values that can be instrumental in guiding human actions and producing good character (Pojman & Pojman 2012). The actions taken by a company can be evaluated by a community, in order to determine whether the actions are “of good character”.

One of the actions a company can take is to disclose information about its environmental performance. Once the community has received information regarding a company's environmental performance, it could then decide whether the company's performance, or actions, are moral and ethical – or whether they are not.

The company can also evaluate its actions before implementing them, which could possibly assist in avoiding unnecessary conflict with the community.

One of the decision-making tools available to the community is “ethical assessment”, which is used to determine whether a particular action is just or unjust. The domains of ethical assessment are the *act*, what the *consequences* of the act are, what the *character* of the act is, and what the *motive* for the act is (Pojman 2001). As an example of the aforementioned evaluation, the impact of pollution, from the community's perspective, could be reduced to ethical terms. An example is shown in Table 2-2.

Table 2-2 An Ethical Assessment of The Problem Under Investigation

Domain	Evaluation
The act: The generation of pollution by a company.	Is it right and permissible to pollute a community?
Consequences of the act: The health effects could be acute or chronic in nature.	Are the health effects bad?
Character of the act: The act is committed during the production of various products	Is the act virtuous, vicious or neutral?
What is the motive for the act? Why are the organisations polluting the environment?	Is the act as a result of good will, malevolent intention, or is it neutral?

Source: Adapted from Pojman (2001: 5)

The assessment in Table 2-2 shows that if any act by the company is perceived to negatively affect the community, this could result in a conflict between the company and the community.

A further tool to aid decision-making has been developed by Geva (2000). This is called the *Phase Model for Moral Decision-Making*; and it is based on three phases. The first phase (Principle-Based Evaluation) is an evaluation of the act under investigation in terms of *utilitarianism* (aiming for the greatest happiness of the greatest number), *deontology* (the ethical theory of duties and rights) and *justice* (being right and fair).

The second phase (Virtue-Based Solution) concentrates on the agent who performs the act; while the third phase (Contract-Based Decision) determines whether the act is in accordance with the group's norms (Geva 2000). The Phase Model has the same conclusion as the Pojman's ethical assessment, in that an "act" by a company can be evaluated to determine whether it would negatively affect the community.

A company's accountability to a community could, thus, be enhanced if the company is always aware of whether its actions, or inactions, are moral and ethical. The accurate, and appropriate, disclosure of a company's environmental performance could thus allow the community to determine whether they are being treated fairly; and whether social justice is being administered equitably – or not.

2.7.3. Accountability

Traditionally, accounting information has been reported in monetary units; but according to Gray (1992), the company could also provide information in an accountable and transparent manner on the resources it has consumed. Society could then exercise a valuation process on the data on the benefits or burdens that society has to bear from the consumption (Gray 1992:415). Gray also proposes that accountability should be the foundation of an accounting framework that has the public interests at heart (Gray 1994).

Gray (1994:26) further explained that accountability “... *is the duty to provide an account about those actions for which one is responsible.*” Accountability can also be seen as identifying specific actions, for which the organisation is responsible, and then being held accountable for these actions. Gray (1994: 27) describes a number of characteristics of accountability:

- It is essentially non-radical;
- It reflects justice and fairness;
- It re-introduces an ethical basis to accounting;
- It is grounded in concepts of community; and
- It is a reflection and a necessity for the operational forms of democracy.

The above characteristics can be seen as extensions of the social contract, or possibly as elements thereof, as the concepts of justice, ethics and community that Gray includes, form the basis of the social contract. Accountability is thus a concept that drives the information rights of a wide range of individuals or groups (Gray 1994). The distrust of the company by the community is one of the reasons that a community demands that the company be held accountable. CSR reporting is, therefore, essential in the accountability model, in order to inform individuals or groups about the issues that affect them.

A study conducted by De Villiers and Vorster (1995) appeared to have found evidence to support accountability theory – as a reason for CSR disclosure from a South African perspective.

It could be argued that accountability is based on the premise that the information that is presented to stakeholders is correct and appropriate. If the information is not correct, then the motivation of those giving the account could be questioned. One of the methods that stakeholders use to determine if a company's disclosure is accurate, and that the company is not violating their rights, is to audit the company's activities, or have an independent party assure the information is correct. The traditional method of auditing financial accounting information may not be appropriate for social auditing, as various non-financial aspects need to be measured and organisational accountability determined.

If a social audit is not conducted, communities might only know that their rights have been violated when it is too late. A stakeholder council that could audit the activities of an organisation to measure whether it has met its declared social, community or environmental objectives has been proposed by Turnbull (1995). The organisation could thus be held accountable to this committee. The reporting of environmental performance is one of the methods companies could use to aid in the accountability process. The establishment of community action groups on a specific area of environmental performance e.g. air pollution, is another method whereby company accountability can be monitored. In the context of this study, the establishment of the Odour-Nuisance-Action Committee is an example where company's level of accountability on air pollution could be monitored.

In conclusion, accountability can be seen as having two components; firstly, for a company to give an “account” of its CSR; and secondly, the “process” that the company follows to give the account (Adams 2004). The provisions of the King III Report (IOD 2009) address both these components. They are discussed in more detail in Section 2.9.6.

2.7.4. The Business Case for Reporting Environmental Performance

A number of reasons for reporting environmental performance were identified by De Villiers (1996a: 51 - 57). These reasons should improve the business prospects of a company. These are listed below, together with a short discussion on each reason.

a) *Favourable environmental actions by companies could lead to increased profitability.*

Several studies have found that companies that have positive CSR practices perform better economically (Michelon, Boesso & Kumar 2013; Sun 2012; Ekatah, Samy, Bampton & Halabi 2011). They also have a higher share price (de Villiers and Marques 2013; de Klerk & de Villiers 2012), than those that do not have CSR reporting initiatives in place. In an earlier study, Toms found that in the United Kingdom, over the period 1991 to 1997, “... *green companies outperformed other companies by just under five per cent on their return on capital, which represents a substantial competitive advantage*” (Toms 1999: 5-7).

It appears that conducting the organization's activities in an environmentally responsible manner could be a compelling reason for improving the financial bottom line. In a study conducted in South Africa, Wingard showed that “*There is a positive relationship between environmental responsibility and the financial performance of South African listed companies...*” (Wingard 2001: ix). As a specific example, the reduction of waste could be one of the ways to act in an environmentally responsible manner. In Canada, Laughlin and

Varangu (1991) showed that the cost of non-hazardous waste disposal increased by a factor of ten over a six-year period, when the inflation rate was at four to five per cent per annum. There could thus be sound financial reasons for introducing waste-reduction programmes (an environmentally responsible activity). Cutting costs is only one of the benefits of conducting a business in an environmentally responsible manner. There are three “sides” to the economic benefits of environmental performance, namely: risk reduction, cutting costs, and improvements in marketing and public relations (Palmer 1998).

If these three facets of environmental performance are interdependent, as suggested by Palmer, then the reporting of environmental performance could significantly improve the overall financial profitability of a company.

- b) *The public image of the company could be enhanced by favourable environmental performance. If a stakeholder has a choice between companies, all other things being equal, any decision would favour the company with the more positive corporate image.*

The South African Human Sciences Research Council (HSRC) found that the general population associated environmental degradation with “...companies (ahead of consumers), urban growth, and government and agricultural practices” Visser (1998). The public image of a company could thus be important in the mindset of the general population, when deciding whether to buy those companies’ products, or not to do so. The public image or reputation that a company has could thus be considered an asset, as it can translate into tangible economic benefits, such as higher prices for its products (Bebbington, Larrinaga & Moneva 2008).

Positive CSR disclosure could also assist the company in improving its reputation, or risk to its reputation, if it is under threat due to an adverse event⁹. During a crisis environmental event, the company would most probably choose to use its website to disclose environmental information, as this could assist in managing any short-term risks to its image and reputation, which in turn might have economic impacts (de Villiers & Van Staden 2011a).

- c) *Those companies that are more environmentally aware can gain competitive advantage. The consumer would rather support those companies that are environmentally aware; and therefore, the company's market share would increase.*

The oil spill by BP into the Gulf of Mexico in 2010 resulted in consumers boycotting BP's products (Cronin, Smith, Gleim, Ramirez & Martinez 2011). Similarly, consumers in the United States and Western Europe boycotted the products of Royal Dutch Shell due to its poor environmental performance and human rights practices in Nigeria (CUSU – Green 1996).

Human rights issues are now being included in CSR reporting guidelines, such as the Global Reporting Initiative (GRI), even though the responsibility for human rights is still largely the domain of the State (Gray & Gray 2011:784). In the case of Royal Dutch Shell, the Nigerian government brought charges against Ken Saro Wiwa and other protesters, who were Nigerian environmental and political activists (Gray & Gray 2011:784). It was

⁹ Bebbington et al. (2008a) contend that Reputation-Risk Management should be seen separately from Legitimacy Theory. This view is opposed by Adams, who states that Reputation-Risk Management is Legitimacy Theory, using another label (Adams 2008). Bebbington et al., with support from Unerman (2008), provided a rebuttal to Adams in a subsequent article (Bebbington et al. 2008b).

perceived that the minimal protest actions by Shell Nigeria in the Ken Saro Wiwa trial were not enough to save him and his co-accused from the death penalty (Greenpeace 1995). As a result, Shell suffered a decreased market share in the aftermath of the hangings (CUSU – Green 1996).

- d) *Banks and creditors (and investors) would favour those companies that have a sound environmental performance. This is due to the high cost of environmental remedial action, arising from public pressure or legislative requirements. Environmental disclosure would communicate to institutional lenders and creditors that an environmental-management system is in place, in order to minimise environmental incidents.*

The voluntary disclosure of CSR information could result in a lower cost of equity capital (Dhaliwal, Li, Tsang & Yang 2011). This implies that investors are willing to accept a lower return if the risks faced by a company are less. The reporting of CSR and environmental-performance information decreases the information asymmetry facing investors, as they now have information on how the company is managing their business risks. Dhaliwal et al. (2011) also show that greater equity capital is available to those companies that disclose CSR, than to those that do not.

- e) *Insurance premiums could escalate for those companies that have a high environmental risk, due to the nature of their operations. The communication of sound environmental performance could at best lower or delay any increase in premiums. An environmental-management system could also help to avoid exclusions from the insurance contract.*

The poor environmental performance of a company could lead to its insurance premiums escalating, as well as those of other companies in similar industries. The insurance

premiums for drilling for oil in deep-water oil reserves escalated by 100% after the BP Deep Water Horizon oil spill (Kollowe 2010). The BP Deep Water Horizon disaster thus shows that the company's insurers could impose a direct and short-term financial surcharge on companies with poor environmental performance. Furthermore, Tilt (1997) found that insurance companies exercise as much influence over a company's environmental activities as the shareholders do.

- f) *Ethical investment funds are based on the principle that investors would not support unethical companies. Environmentally sensitive companies may thus not have access to a larger pool of funds, thus making the cost of capital more expensive. The reporting of environmental performance would thus show that the companies are behaving in an ethical manner.*

A number of investment funds have been established in South Africa that concentrate on responsible investing. This is also known as social investing (Viviers, Bosch, Smit & Buijs 2008; de Villiers & Lubbe 1998). There are several methods for deciding on how to invest responsibly (Sparkes & Cowton 2004; Kinder & Domini 1997). The first method, exclusionary social screening, is designed to exclude undesirable industries that sell or produce weapons, alcohol, tobacco, pornography and nuclear energy (Sparkes & Cowton 2004:46). These are industries that are seen as having a negative social impact. The second method, inclusionary or positive-social screening, is to invest in industries that create benefits for society as a whole, such as infrastructural development or companies that are seen as good citizens and operate in an environmentally responsible manner.

De Vries and De Villiers (1997a: & 1997b) proposed a list of ethical criteria to be used by South African fund managers in the evaluation of investment opportunities. The criteria are listed in Table 2-3.

Table 2-3: Ethical Criteria to Evaluate Investment

POSITIVE CRITERIA	NEGATIVE CRITERIA
- o Promotion of human-rights - o Equal-opportunity employment - o Good employee relations - o Environmentally sound - o Pollution control - o Safe / good quality products - o Recycling of resources - o Use of alternative energy sources - o Significant participation in the community - o Urban renewal - o Local job creation	- o Involved with alcohol - o Involved with tobacco - o Involved with drugs - o Other harmful / addictive products - o Nuclear power - o Weapons - o Environmentally damaging - o Poor employment practices - o Poor labour relations - o Discrimination against women - o Involved with pornography - o Involved with gambling - o Does tests on animals - o Violation of human rights

Source: de Vries & de Villiers (1997a: 27)

In a subsequent study, de Vries and de Villiers (1997b) tested the response of the above investment criteria with various investment fund managers. They concluded that the fiduciary responsibility of fund managers exceeded any ethical investment considerations. They also found that fund managers might in future expect investors to exert pressure on them to take ethical issues into account (de Vries & de Villiers 1997b). The means by which ethical information can reach fund managers is through corporate social reporting and environmental-performance reporting.

In a study conducted by van Niekerk and Vorster (1998), the investment decisions taken by unit trust fund managers were investigated. The study focused on how they take environmental information into consideration when investing. The study showed that:

- Unit trust fund managers will invest in those companies that disclose environmental information.
- Fund managers of unit trusts consider the social responsibility of companies towards the environment, when making decisions.
- Factors other than social responsibility are given precedence by fund managers, when making investment decisions.

(Van Niekerk & Vorster 1998: 316-319)

It has been reported that the investment decisions made by fund managers are not influenced significantly by a narrative type of social disclosure report (Milne & Chan 1999). The study concluded that if social information is quantified in monetary terms, and directly incorporated into the company's financial statements, it would provide a basis to assess risks, and in turn, this would help in making the right investment decision (Milne & Chan 1999). This view was supported by Neu, Warsame and Pedwell (1998), who suggested that narrative information can be tailored to improve a company's public image. Similarly, Hopwood (2009) contends that narrative information can be used to increase the company's legitimacy, and to obfuscate its actual environmental activities.

A further aspect of socially responsible investment is the individual investor, as opposed to the institutional investor described above. In the United States, non-institutional shareholders are also interested in having their companies report on social aspects (Epstein and Freedman 1994). They found that the private shareholder would also like the company to report on the ethics, employee relations and community involvement of the company. Furthermore, shareholders would like these reports to be audited. This finding was supported in a study conducted in New Zealand, where it was found that individual

shareholders (as opposed to institutional shareholders), wanted environmental information disclosure to be compulsory, as well as being audited, as they wanted companies to take responsibility for their environmental impacts (de Villiers & van Staden 2012; de Villiers & van Staden 2010a).

In a further multi-country study (Australia, the United Kingdom and the United States), that supported the New Zealand study, it was found that the shareholders require compulsory environmental disclosure; and they preferred this in a separate section of the annual report (de Villiers and van Staden 2010b; de Villiers and van Staden 2011).

g) *Legislation may drive companies to report on environmental matters for regulatory or social reasons.*

There are a number of listed activities (i.e. processes) in South Africa that require an environmental licence and permits for air emissions, waste sites, agricultural processes, power producers and suchlike (South Africa 2004; South Africa 1989). The conditions attached to the issue of a permit would usually be to report the level of emissions on an annual basis to the regulatory authority that issues the licence¹⁰. As the licence may contain information regarding the reduction, monitoring and control of environmental impacts, the local community might well have access to this information (South Africa 2000a; South Africa 2000b). The reporting of environmental performance, as required by legislation, is discussed fully in Section 2.7.

10 The National Environmental Management Act: Air Quality Act requires the reporting of atmospheric emissions in Section 8 of GN 248 of 31 March 2010.

- h) *A company would report on its activities, in order to legitimise its operations and existence in society.*

A company needs to be perceived as a legitimate member of society, in order to maintain its existence (Gray, Kouhy & Lavers 1995). If an organisation is affecting a community, the community may want to know the extent of the problem, and what is being done about the problem. Environmental disclosure regarding an organization's activities can maintain, improve or repair the organization's legitimacy (Milne & Patten 2002).

Legitimacy theory is discussed in more detail in Chapter 3. Furthermore, the more environmentally responsive¹¹ a company is, the more likely it would be to disclose CSR information to maintain its legitimacy (van Staden & Hooks 2007).

2.7.5. Sustainability

A challenge of the new millennium is perhaps the need to provide the present generation and their descendants, with a sustainable planet. In the context of this study, the long-term protection of the environment would be of direct benefit to all employers, employees and other stakeholders. If a business operates in a manner that does not ensure its future survival, it is not meeting its fiduciary or social responsibilities towards its stakeholders (Gray et al. 1993). According to Gray et al. (1993: 3), "... *environmental issues are business issues.*" What Gray et al. (1993) are possibly alluding to is the interdependence of the environment and the company.

¹¹ Environmental responsiveness in this instance means the company has strategies, policies, objectives and targets to address their environmental responsibility (van Staden & Hooks 2007:198).

In order to illustrate the interdependence between the company and the environment, Laughlin and Varangu (1991:43) described a simplified description of the industrial manufacturing economy in a number of steps, as follows:

- i. *Digging the raw material from a hole in the ground, creating greater or lesser environmental damage;*
- ii. *Refining, and using the raw material to make products;*
- iii. *Using these products for a time, ranging from a few minutes for some packaging products, to a few decades for some domestic appliances and durable goods;*
- iv. *Putting the discarded products back into another hole in the ground with more or less environmental damage.*

If mankind were to continue in the above fashion indefinitely, without considering the damage each step is causing, we would soon be unable to start at step one, as the process would quickly become unsustainable. According to Gray, there are many different definitions of sustainability; and there is no general agreement on what it actually means (Gray et al. 1993).

The 1987 Brundtland Report's definition of sustainability is "*...development, which meets the needs of the present without compromising the ability of future generations to meet their own needs*" (United Nations World Conference Environment and Development 1987:8).

Gray incorporates a more exact view of sustainability and asks the following questions when grappling with this concept:

- *Sustainable for what?*

-
- *Sustainable for whom?*
 - *Sustainable in what way?*
 - *Sustainable for how long?*
 - *Sustainable at what level of resolution?*

(Gray et al. 1993: 282-287)

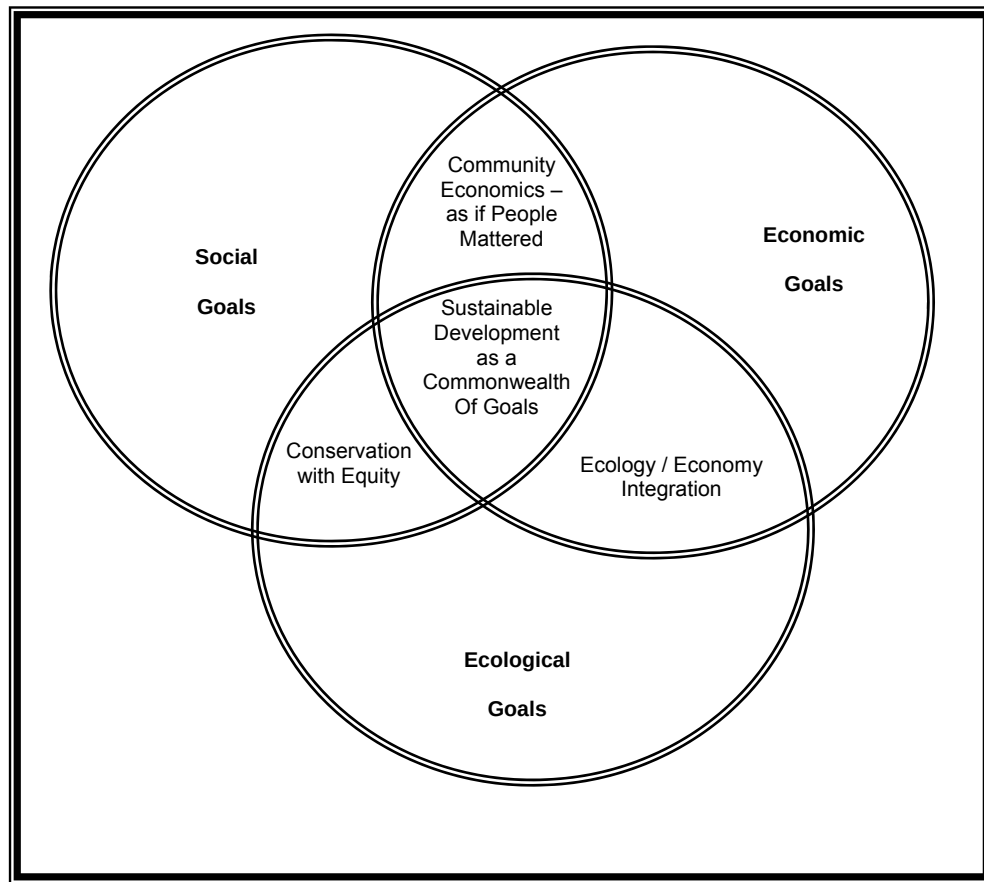
What Gray could be alluding to, is the fact that sustainability could be a complex concept to define. Gray states the point that the modern corporations of the world have the following characteristics that make them suitable candidates to tackle sustainable development:

- Corporations control a large proportion of the world's economic activity;
- Corporations drive technological change;
- Corporations can influence society's range of choices;
- Corporations hold much of the international power;
- Corporations control many of the world's resources; and
- Corporations employ a significant amount of the world's population.

(Gray et al. 1993: 282-287)

The modern organisation, thus, has a social, economic and environmental responsibility to ensure that it conducts its affairs in a responsible manner (IOD 2009). A further perspective on sustainable development is offered by Milne (1996). This captures the principles of sustainability as three inseparable areas. This can be seen in Figure 2-3.

Figure 2-2 - The Principles of Sustainability



Source: Milne 1996: 138

Figure 2-3 illustrates that the social and ecological goals of the company are intertwined with the economic goals. This notion is supported by the aforementioned studies (Michelon, Boesso & Kumar 2013; Sun 2012; Ekatah, Samy, Bampton & Halabi 2011; de Villiers and Marques 2013; de Klerk & de Villiers 2012) that linked profitability to environmental responsibility. The commonwealth of goals, as suggested in Figure 2-3, implies that the goals set by a company are congruent with the goals of society as a whole, i.e. an improvement in the quality of human life, in the present and in the future.

Congruent goals would enable intergenerational equity in that the wealth (natural and human) that the present generations enjoy is available for future generations (Lubbe 1995).

In the South African context, the King III Report deals extensively with company sustainability. The King III Report states that:

“Sustainability is the primary moral and economic imperative of the 21st century. It is one of the most important sources of both opportunities and risks for businesses. Nature, society, and business are interconnected in complex ways that should be understood by decision-makers. Most importantly, current incremental changes towards sustainability are not sufficient – we need a fundamental shift in the way companies and directors act and organise themselves.”

(IOD 2009:9)

The challenge for companies is, thus, to move away from the rhetoric of the sustainability discourse and to make meaningful changes that would benefit all members of society. It has been contended that, in South Africa, companies have overemphasised their role in the sustainability discourse, while “*continuing to mask malpractice*” (Fig 2005:617).

2.8. South African Environmental Law

The crux of this study from a legal perspective is twofold. Firstly, to determine whether there are any legal rights that communities may enjoy regarding the environment in which they live. Secondly, whether there is any legal obligation on a company to report or communicate their environmental performance (whether this is good or bad) to a regulatory authority, or a

community. This section will thus attempt to identify if there are legal requirements that would compel organisations to report their environmental performance, or to protect the environmental rights of others.

The volume of South African environmental law has been substantially added to since the African National Congress (ANC) came to power in 1994 (approximately 60 environmentally related statutes have been added since 1994, see Appendix 7). In addition to the new South African Constitution, the ANC-led government has promulgated several other important instruments of environmental law, of which the National Environment Management Act is arguably the most important in the context of this study.

There are approximately 100 national and provincial Acts that have some Health, Safety or Environmental (HSE) requirement (Butterworths 2013). A list of the applicable legislation is contained in Appendix 7.

In this section a legal definition of the environment will be discussed, in order to determine when communities could have recourse if pollution occurs. This is important, since the environment is ultimately what could be affected, or changed by the company; and thus, South African environmental law may become applicable in such a situation.

In this section the main statutes will also be discussed that contain the communication requirements of a regulatory authority that has jurisdiction over the statute. The main sources of environmental law will be discussed, in order to determine whether African customary law has any recognition in terms of environmental laws.

2.8.1. Legal Definition of the Environment

It is important to define the environment from a legal perspective – before an explanation of the applicable legislation is offered; as this would determine whether a polluted community has any *locus standi* (legal standing) whenever a dispute arises.

The environment is defined in two statutes, namely: the National Environment Management Act (NEMA), Act 107 of 1998 (South Africa 1998a), as well as the Environment Conservation Act (ECA), Act 73 of 1989. The two definitions are:

ECA - “Environment” means the aggregate of surrounding objects, conditions and influences that influence the life and habits of man, or any other organism, or collection of organisms.

(South Africa 1989: s1)

NEMA - “Environment” means the surroundings within which humans exist and that are made up of -

- (i) The land, water and atmosphere of the earth;*
- (ii) Micro-organisms, plant and animal life;*
- (iii) Any part or combination of (i) and (ii) and the inter-relationships among and between them; and*
- (iv) The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.*

(South Africa 1998a: s1)

The NEMA definition is an extension of the ECA definition, in that it includes the sub-systems of the environment. The ECA definition is more broad and encompassing; and it is more readily applicable to the pollution effects of a company, i.e. the “*influences that influence the life and habits of man*”.

In the context of this study, the environment would thus include all the activities (influences) of companies and how they can impact others. There is thus a legal basis for the residents of communities to argue that an outside influence or action (from a company) could affect their life and habitat.

An alternative definition of the environment is offered by Glazewski, who argues that there can be no definition of the environment, as the all-encompassing nature of the environment would make all law environmental law (Glazewski 2000). This approach suggests that all company laws, labour laws, international laws, and suchlike, which apply to human interaction, have ultimately some impact on the environment, as it regulates relationships between members of society, which the definition of the environment includes.

2.8.2. Command and Control Legislation

Traditionally, legislation on the environment has been the ‘command and control’ type, where the regulator has sought to control emission limits (Smink 2002). The better option for legislating a cleaner technology or a substantive change in technology that eliminates pollution altogether is rarely found in South African environmental legislation. Smink suggests that there are advantages to the command-and-control type of legislation, namely:

- Reliability, since it is relatively straightforward to identify breaches of legislation;
- Easy to articulate, predictable in impact and ease of enforcement;

- It triggers innovation since organisations generally emit less than the permissible limit;
- The clean-up of environmental pollution is driven by the legislation.

(Smink 2002: 58-61).

The disadvantages of this type of legislation include the following:

- The legislation is a compulsory form of government intervention;
- The legislation is costly and inefficient to implement;
- The legislation is too static, since the permits are often indefinite, and better technology may be available;
- It is ineffective because it focuses on end-of-pipe technologies;
- There are always enforcement difficulties;
- Organisations can 'legally pollute', as long as they stay within their permissible limits;
- An implementation deficit can occur between the executive policy and the actual limits in the permits; and this leads to the policy intention not being met.

(Smink 2002: 62-68)

2.8.3. The Constitution and Environmental Rights

The right to a protected environment is contained in the Constitution of the Republic of South Africa. In Section 24 of the Bill of Rights, the Constitution states that:

"Environment – Everyone has the right -

- (a) To an environment that is not harmful to their health or wellbeing; and*
- (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 the use of natural resources, while promoting justifiable economic and social development."*

(South Africa 1996: s24)

The above Constitutional right is divided into two parts. Part (a) being an inalienable fundamental right to an environment that is not harmful; and Part (b) being societal measures that protect the environment. It is the second part that is seen as a directive principle towards the State to protect all citizens' rights (Glazewski 2000). In the light of the Constitution, if a dispute arises between an organisation and a community, and administrative justice needs to be applied, the courts will decide what the "harm" is, and whether there are sufficient "measures" to protect individuals' environmental rights.

The issue of economic development – while maintaining environmental rights – can become a source of conflict when two constitutional rights compete. An example of this is the constitutional right to freedom of trade, occupation and profession (South Africa 1996: s22) versus the right to a protected environment (South Africa 1996: s24). One could ask whether the constitutional right to a protected environment could be waived in favour of development, when the proposed development might affect a local community. The equality of different constitutional rights was contested in a Witwatersrand Local Division court case involving BP South Africa (Pty) Ltd. versus the MEC for Agriculture, Conservation, Environment and Land Affairs (SALR 2004b). The courts confirmed that where a right to the environment competes with other constitutional rights, no right may enjoy priority over any others, but all rights concerned have to be balanced against each other (SALR 2004(b): 124).

The enforcement of rights in terms of the Constitution is contained in Section 38:

“Anyone listed in this section has the right to approach a competent court, alleging that a right in the Bill of Rights has been infringed or threatened, and the court may grant appropriate relief, including a declaration of rights. The persons who may approach a court are:

- (a) Anyone representing themselves;*
- (b) Anyone acting on behalf of another person who cannot take the case to court;*
- (c) Anyone acting as a member of a group, or in the interests of a group or class of people;*
- (d) Anyone acting in the public interest;*
- (e) Any association acting in the interests of its members.”*

(South Africa 1996: s38)

Section 38 of the Constitution is important. It gives anyone whose rights may have been infringed an opportunity to obtain relief from the courts, including the declaration of a right. Section 38 also gives lobby groups, such as non-governmental groups (NGOs) the *locus standi* to represent people whose rights have been infringed.

2.8.4. General Environmental Laws Applicable to this Study

Environmental law in South Africa comprises a number of statutes that require some form of communication with the regulatory authorities. This includes, but is not limited to, the following national legislation:

- The National Environmental Management Act;
- The Environment Conservation Act;

- The Occupational Health and Safety Act;
- The National Water Act;
- The Promotion of Access to Information Act;
- The Promotion of Administrative Justice Act;
- Atmospheric Pollution Prevention Act;
- National Environmental Management: Air Quality Act;
- National Environmental Management: Waste Act.

Each of the above statutes will be briefly discussed, in order to show how the statute is applicable to this study.

2.8.5. The National Environmental Management Act

The National Environmental Management Act (NEMA) was assented to on 19 November 1998; and it was implemented on 29 January 1999. The NEMA, in conjunction with the Environment Conservation Act, is the main driver of environmental management in South Africa. The primary function of any national environmental Act is to lay down the administrative structures and legal mechanisms to further the environmental cause, which in the case of South Africa would be Section 24 of the Constitution (Glazewski 2000).

2.8.5.1. Definitions

In Section 1 of the NEMA, the community is defined as:

“... means any group of persons, or a part of such a group, who share common interests, and who regard themselves as a community; and...”

(South Africa 1998a: s21)

This above definition includes the provision that a community comprises people that share a common interest. In the context of this study, this would mean that the residents of Bluewater Bay, who may want to improve their air quality, and other pollution issues (a common interest), are legally viewed as a *community* in terms of the NEMA definition. This definition thus confirms the *community* status of the residents of Bluewater Bay from a legal standpoint.

2.8.5.2. Agreements

The provisions in NEMA allow for the regulatory authorities to conclude environmental management co-operation agreements with communities, in order to implement the environmental principles that are contained in Section 2 of NEMA, and to improve the environmental standards laid down by law (South Africa 1998a: s35). The aforementioned agreements include periodic monitoring and reporting of targets (South Africa 1998a: s35[3]).

2.8.5.3. Principles

The NEMA also contains a set of national environmental management principles (in Section 2). These principles place the onus on all organs of State that could significantly affect the environment to implement measures that protect the environment. The principles may not only be applicable to the State. They may have horizontal implications to private persons as well (Glazewski 2000). Glazewski's position is supported by the NEMA principle that the 'polluter pays' – and that this principle is applicable to everyone (South Africa 1998a: s2 (4p)), even though it is contained in the section on principles with which organs of State have to comply. The principles are important in that they:

“...guide the interpretation, administration and implementation of this Act, and any other law concerned with the protection or management of the environment.”

(South Africa 1998a: s2[1e])

The implication of this provision in the NEMA is that the provisions of NEMA are the foundation, in conjunction with the Constitution, for just administrative action. The NEMA thus acts in guiding the lawmaker or conciliator, when environmental disputes arise.

In terms of this study, the NEMA Section 2, subsections two and three, are important since the principles state that environmental management must place people and their needs at the front of its (environmental management) concern. This is to be done in order to:

“...serve their physical, psychological, cultural and social interests equitably,” and “development must be socially, environmentally and economically sustainable.”

(South Africa 1998a: s2[2-3])

The NEMA principles thus afford the legislator the tools to aid decision-making, and to aid the conflict-resolution process. Conflict resolution is dealt with in more detail in Chapter 4 of the NEMA (Fair Decision-Making and Conflict-Management). This section of the NEMA provides for conflict resolution frameworks, such as facilitation, conciliation, arbitration and investigation (South Africa 1998a: s17-22).

These frameworks provide mechanisms for inter-governmental department conflict resolution, as well as government versus private body conflict resolution.

2.8.5.4. Application to this Study

Section 28 of NEMA requires every person to take reasonable measures to prevent pollution and degradation of the environment, and to remediate any environmental damage that occurs (South Africa 1998a: s17-22). Section 28 (4) further requires the regulatory authorities to direct polluters to take steps to either mitigate or stop polluting activities. The NEMA Section 28 has been tested in the Eastern Cape Division of the High Court on the specific area under study, namely: Markman Industrial Township (SALR 2004(a): 393).

Pelts Products operate a hides and skins tanning facility in Markman Industrial Township; and it produces effluent that is settled into ponds and emits pollutants including hydrogen sulphide, which causes an “*unbearable*” stench (SALR 2004(a): 396). Hi-change Investments, a neighbour of Pelts Products, operates a vehicle distribution centre for General Motors South Africa. The operations of Pelts Products and the other tanners in the area have also been an issue of concern for the residents of Bluewater Bay.

The stench from the tanneries severely affects the operations of Hi-change Investments. Their employees complained of health problems; and as the presiding Judge stated, “...one should not be obliged to work in an environment of stench” (SALR 2004(a): 396). The crux of the case was that Hi-change Investments sought relief under Section 28 (4) of NEMA by attempting to compel the Eastern Cape MEC for Environmental Affairs and Tourism to close down the Pelts Products factory, until such time as Pelts Products complied with their permit requirements for scheduled sulphur processes in terms of the Atmospheric Pollution Prevention Act (since repealed).

The court in the end did not order the closure of the factory – for other reasons; but it did direct the Eastern Cape MEC, the fourth respondent, to take steps against the first respondent: Pelts Products. The point to be made for this study is that if an organ of State is not performing its duty to protect the environmental rights of the community, then the State can be taken to court by the community; and the court can compel the State to take action against the offender. This recourse is one of the fundamental objectives of the promotion of just administrative action.

In April 2006 (amended in June 2010), the Minister of Environmental Affairs and Tourism published the Environmental Impact Assessment Regulations, in terms of Section 37 of the NEMA (South Africa 2006). In Chapter 5 of the Regulations (Regulation 8 (a)[vii]), a competent authority (i.e. municipality or provincial authority) has to take certain factors into account when approving any new development or activity that comprises “listed activities”. These are defined in three separate publications. The factors that have to be considered include any representations or comments from interested and affected parties.

The public participation process is regulated in terms of Chapter 6 of the Regulation (South Africa 2010). The regulator is thus including the community in the decision-making process, before any development can take place.

2.8.6. The Environment Conservation Act

The ECA was promulgated in June 1989, and prior to NEMA, was the main Act on broad environmental issues in South Africa. The Act has largely been repealed and replaced by the NEMA. The issue of waste-disposal site permits issued under the ECA are still valid until such time as they are withdrawn and replaced by permits under the new NEMA: Waste Act.

The control of waste-disposal sites in South Africa is conducted under the auspices of the Department of Environmental Affairs.

A hazardous landfill site is situated within five kilometres of Bluewater Bay, and two kilometres from Motherwell. The site has a permit to operate in terms of Section 20 of the ECA. There have been complaints that the general public has access to the waste site, as well as complaints of leachate leaks (Adkins 2000).

2.8.7. Other Specific Environmental Laws Applicable to this Study

2.8.7.1. The Occupational Health and Safety Act

The Major Hazard Installation Regulations (MHIR) of the Occupational Health and Safety Act (South Africa 1993) were promulgated in July 2001 (South Africa 2001: r5). The aim of the regulation is to protect employees and the community from a catastrophe (such as a major gas or liquid leak), which emanates from activities on its premises. The MHIR requires that a risk assessment be conducted by a Department of Labour Approved Inspection Authority (South Africa 2001: r5). If the facility is regarded by the assessor as a major hazard, several legal requirements have to be met:

- An onsite emergency plan has to be developed, in order to mitigate any emergencies.
- The plan has to be approved by the local authority; and it must take into account risks related to the health and safety of the public.
- The risk assessment must be made available for review by any person (the public) that could be affected by such an emergency event.

This statute is applicable to this study, as it highlights the fact that the public have the right to participate in the risk-assessment process at major hazard installation sites. The type of sites that could be classed as major hazards are typically those that store bulk toxic or

flammable gasses, bulk chemical storage vessels, as well as large refrigeration plants that contain ammonia as a refrigerant.

Based on these requirements, the meat-processing facility and refrigeration plants at the abattoir in the Markman Township area are likely to be classed as major hazard installations.

The National Water Act

The National Water Act (NWA) contains two provisions on the protection of water resources in South Africa from pollution. There are no rivers in the vicinity of the area under study that qualify as a water resource; but it is feasible that underground water resources in the area could be polluted through surface pollution (aquifers are included in the definition of a water resource in Section 1 of the NWA). In terms of Section 19 of the NWA, the owner or user of land must “prevent and remedy” the effects of any pollution, which causes, or is likely to cause, pollution of a water resource (South Africa 1998b: s19).

If pollution does occur, the person responsible for the pollution has to report the incident to the Department of Water Affairs, the South African Police Services, as well as the relevant Catchment Management Agency (South Africa 1998b: s20). The costs for remediation of the pollution are the responsibility of the polluter. A similar requirement for the reporting of environmental emergency incidents is contained in the NEMA Section 30 (South Africa 1998a: s30).

2.8.7.2. The Promotion of Administrative Justice Act

The Promotion of Administrative Justice Act (PAJA) was introduced to give effect to the Constitutional right to “administrative action that is lawful, reasonable and procedurally fair” (South Africa 1996: s33). The Constitution thus provides the broad framework; and it is left to Parliament to provide the details and make a fundamental right operative by providing the appropriate legislation (Lange & Wessels 2004). Section 3 of the PAJA requires that an administrator (organ of State) must provide reasonable opportunity for a person who could be affected by an administrative action to make a representation(s).

This is to be done if their rights or expectations might be materially or adversely affected (South Africa 2000b: s3).

The right to make a representation is especially important in cases where organisations have applied for permits to operate businesses that could impact negatively on local communities. The community thus has an opportunity to make a representation, in order to state its concerns, which may be regarding air pollution, aesthetics, or any other parameter contained within the definition of the environment, as discussed previously.

2.8.7.3. The Promotion of Access to Information Act

In the same way that the PAJA was introduced to give effect to a constitutional right, the Promotion of Access to Information Act (PAIA) was introduced to give effect to the right to access information. Section 32 of the Constitution states that everyone has the right to access any information held by the State, or any other person, in order to exercise or protect any right (South Africa 1996: s33). The PAIA provides for the right to access private

records within the procedural requirements determined within the Act (South Africa 2000a: s50).

Thus, if an organisation has conducted air-pollution testing, a community (or an individual) can apply for access to the test records held by the organisation. This would thus afford the community the opportunity to make informed decisions if further action is to be taken against the polluter.

2.8.7.4. Atmospheric Pollution Prevention Act

The Atmospheric Air Pollution Prevention Act (APPA) was the only Act regulating air pollution up until the passing of the Air Quality Act. The APPA controls the emissions of noxious and offensive gasses, atmospheric pollution by smoke, dust control, and pollution from fumes emitted by vehicles. The APPA has listed seventy-two processes that require a permit in order to operate (South Africa 1965: s9). The operational limits or requirements are usually listed in the permit.

In terms of the PAIA, the community would have access to the permit. The tanneries in Markman Industrial Township need permits to operate, as the tanning process is sulphur-based, and is listed in the APPA as a scheduled process. The APPA has been repealed, but the permits issued in terms of APPA are still valid until 2015, whereafter they have to be converted into Atmospheric Emission Licences.

2.8.7.5. National Environmental Management: Air Quality Act

The APPA is being replaced by the National Environmental Management: Air Quality Act (AQA). The AQA is part of a series of legislations on general environmental management,

hence the long title. The general environmental management series of legislations, as at December 2012, included air quality, bio-diversity, waste management and protected areas. The AQA should provide guidelines for ambient air quality and emission standards, as well as guidelines for regulating the scheduled process permit framework that is currently under the auspices of the APPA.

Under the AQA, the Minister of Environmental Affairs and Tourism can list certain activities that would require an atmospheric emission licence (South Africa 2004: s22).

Section 39 of the AQA lists the factors that a licensing authority has to take into account before issuing an atmospheric emission licence. This list includes such factors as best practicable environmental options to minimise pollution, whether the applicant is a fit and proper person, together with any other submissions from interested persons and the public. The community would thus have an opportunity to raise concerns before the licence is issued; and the licence may include requirements to address the concerns of the public.

A key provision in the AQA would be the environmental impact report that a polluter may have to provide if an air quality officer suspects the AQA or a licence condition has been contravened.

The impact could be on the:

“...health, social conditions, economic conditions, ecological conditions or cultural heritage”; or it could be pollution that “has contributed to the degradation of ambient air quality.”

(South Africa 2004: s30)

2.8.8. African Custom as a Source of Law

There could be instances when no specific provisions are made in environmental law and a local community is being affected by an organization. An example could be the development or degradation of a portion of land that is used for a customary practice, such as African initiation rites. In such cases, customary law could be used to deal with such a dispute. The sources of environmental law, according to Glazewski (2000), are international law, common law, the South African Constitution, statute law, custom, and African customary law.

The provision for the role of traditional leaders under customary law is contained in the South African Constitution in Section 211, in that:

“(3) The courts must apply customary law when that law is applicable, subject to the Constitution and any legislation that specifically deals with customary law.”

(South Africa 1996: s211)

This provision in the Constitution could thus be extended to include environmental rights in an African customary context.

2.8.9. Applicable Local Legislation

During 1999, the Nelson Mandela Metropolitan Municipality commenced with a survey to quantify and identify, which substances were being released into the atmosphere by fuel-burning appliances. This has required organisations within the Municipal boundary to report on their air emissions. This type of compliance/mandatory reporting has one downfall, since

the custodian of the information is the legislator, who does not readily share this information publicly¹². The PAIA could, however, be invoked to gain access to this information.

The following local legislation has since been promulgated that is applicable to all companies within the jurisdiction of the Nelson Mandela Metropolitan Municipality.

a) ***Air Pollution Control By-Law*** (Nelson Mandela Metropolitan Municipality 2010a)

The by-law has provisions that all persons in the metropole have a duty to prevent air pollution, and to mitigate any air pollution that has occurred (Part II). In addition, no person in the metropole may emit a nuisance, odour or dust that could affect other persons (Parts VII, VIII, and IX respectively).

b) ***By-Law Relating to the Prevention of Public Nuisances and Public Nuisances Arising from the Keeping of Animals*** (Nelson Mandela Metropolitan Municipality 2010b)

Chapter 1 of the notice prohibits any person from doing any work on premises, or conducting a business that causes discomfort, annoyance or danger to others.

c) ***Waste Management By-Law*** (Nelson Mandela Metropolitan Municipality 2010c)

The Waste by-Law regulates all issues relating to the collection and transport of waste.

The local authority legislation, which has been discussed in this section, gives power to the community. They could, through the courts, seek administrative justice if the regulatory authority, in this case the Nelson Mandela Metropolitan Municipality, does not apply the law

¹² Access to this information was denied by the Air Pollution Prevention Officer on the grounds that it was private information.

to transgressors. (This is what transpired in the Hi-change Investments vs Pelts Products case described in Section 2.8.5.4.)

2.9. Frameworks for Reporting Environmental Performance

In 1999, there were approximately three dozen initiatives on sustainability reporting (White 1999: 36). This section will explore a number of existing report frameworks that aid the organisation in reporting environmental performance. A selection of the organisations that have produced guidelines for reporting, or are in some way evaluating corporate social reports, is:

- United Nations Centre for Transnational Corporations Inter-Governmental Working Groups of Experts on International Standards of Accounting and Reporting (UN CTC ISAR);
- United Nations Environment Programme – Industry and Environment (UNEP-IE);
- European Environment Agency (EEA);
- Coalition for Environmentally Responsible Economies (CERES);
- European Chemical Industry Council;
- Green Accounts Programme (Denmark);
- Investor Responsibility Research Centre (IRRC);
- World Business Council for Sustainable Development (WBCSD);
- Public Environmental Reporting Initiative (PERI);
- Canadian Institute of Chartered Accountants (CICA);
- Institute of Chartered Accountants in England and Wales (ICAEW);
- Centre for Social and Environmental Accounting Research (CSEAR);
- National Resources Defence Council (NRDC);

- Chartered Association of Certified Accountants (ACCA);
- World Wildlife Fund (WWF);
- International Chamber of Commerce (ICC);
- Account-Ability;
- International Standards Organisation (ISO).

This study will concentrate exclusively on the guidelines produced by four of the organisations listed above, namely: the PERI Guidelines; the CERES Report (Standard Format); the UNEP – IE 50 Reporting Ingredients; and the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines. The more recent versions of frameworks, such as ISO 26000, AA1000 and SA 8000 will not be discussed, since they were published well after the study commenced.

The reasons for choosing the above guidelines are that the organisations that developed them are widely accepted by governmental, non-governmental and industrial organizations. These organisations have also been developing guidelines over the last 15 years, with the exception of the GRI guidelines, which the other three organisations are supporting. In order to determine any common elements, the individual guidelines will be described briefly. (A more detailed description can be found in the appendices.)

As regards the methods of communicating the content, ISO 14063:2004 was chosen, as this standard incorporates most, if not all, of the methods offered by a number of authors. Authors that have proposed methods of communicating environmental information include Sobnosky (2001: 56), Valør & Tinge (2000a: 1-33 and 2000b), Holgaard (2006: 1-17), and Cox (2006: 129-133).

2.9.1. ISO 14063:2006 (Environmental Communication)

ISO 14063:2006 is one of the ISO 14000 series published by the International Standards Organisation (ISO) on environmental communication. The final version was published in August 2006; and it contains information on twenty-six communication methods and tools (ISO 14063 2006: 11- 14). (These methods are reproduced in Appendix 4.) The acceptability of these methods was tested in the empirical study.

2.9.2. PERI

The PERI guidelines were established in 1993 by a group of North American corporations (KPMG 1999b). The PERI guidelines include chapters on the profile of an organization, information on the environmental policy, environmental management with regard to organisational accountability, and the environmental management structure, as well as releases to the environment, the conservation of resources, environmental-risk management, environmental compliance, product stewardship, the recognition of employees, and the involvement of stakeholders (Skillius and Wennberg 1998).

The PERI guidelines are intended for use across industrial sectors. Organisations do not have to report on all the elements at once, but rather on those on which it has developed sufficient information. The PERI guidelines can be seen to have been superseded by the GRI guidelines. The PERI guidelines in the context of this study thus offer a historical account of the development of reporting guidelines.

2.9.3. CERES

The Coalition for Environmentally Responsible Economies (CERES) is a network of investment funds, environmental organisations and other public-interest groups that promotes advances in the environmental stewardship of businesses. CERES was formed in 1989 as a partnership between environmental groups and institutional investors. It was formed after the Exxon Valdez oil spill in Alaska motivated the environmental and investor communities to push for higher standards of corporate environmental performance and disclosure.

In 1997, CERES launched the Global Reporting Initiative and published the first set of guidelines in 1999 (CERES 1999a).

The CERES guidelines were produced to comply with one of the Valdez Principles. The principles were unveiled on US Earth Day in 1990, and were drawn up by CERES on behalf of the Social Investment Forum. The ten principles are:

- a) Protection of the Biosphere;
- b) Sustainable Use of Natural Resources;
- c) Reduction and Disposal of Waste;
- d) Wise Use of Energy;
- e) Risk-Reduction;
- f) Marketing of Safe Products and Services;
- g) Damage Compensation;
- h) Disclosure;
- i) Environmental Directors and Managers;
- j) Assessment and Annual Auditing.

(Macve & Carey 1992: 11)

The CERES reporting guidelines are available in two formats. Manufacturing concerns will use the standard format, and service or smaller organisations may use the short format. The 1998 CERES Standard Form is similar to the PERI Guidelines, and contains nine chapters. The chapters included are: the company profile, environmental policies, organisation and management, workplace health and safety, community participation and accountability, product stewardship, supplier relationships, use and conservation of natural resources, emissions and waste, compliance information, and priorities and challenges (CERES 1999b: 1-35).

An analysis of the CERES guidelines shows that the coverage is extensive; and it provides for approximately 100 performance quantitative indicators and qualitative aspects of an organization's activities.

2.9.4. The UNEP – IE 50 Reporting Ingredients

The United Nations Environment Programme's Industry and Environment Centre (UNEP-IE) commissioned a report in 1993 entitled: *"Company Environmental Reporting: A Measure of the Progress of Business and Industry towards Sustainable Development."* The title suggests that company environmental reporting is a measure of the progress towards sustainable development. This suggestion is important, as sustainability should be the justification for any environmental management programme and the subsequent reporting thereof. In 1994, the UNEP-IE commissioned SustainAbility Limited to develop a set of reporting guidelines that covered a wide range of environmental-management issues.

The guidelines contained 50 reporting ingredients, which were grouped into five sections. The five main sections are listed below.

Section 1: (Items 1 - 13) Management Policies and Systems

Section 2: (Items 14 - 30) An Input-Output Inventory of The Environmental Impacts of Production Processes and Products

Section 3: (Items 31 - 36) The Financial Implications of the Environmental Actions

Section 4: (Items 37 - 46) Relationships with the Environmental Stakeholders

Section 5: (Items 47 - 50) The Sustainable Development Agenda

UNEP-IE (1994: 30-53)

The UNEP-IE guidelines are not to be viewed as reporting standards, but rather as a foundation that organisations can use, based on their own needs. The UNEP-IE states that *"...the 50 ingredients provide a solid framework within which the development of common reporting frameworks can take place"* (UNEP-IE 1994: 30). This is evident in that the UNEP-IE is supporting the GRI initiative extensively, and has petitioned 200 Environmental Ministers worldwide to support the GRI guidelines (White 1999).

2.9.5. Global Reporting Initiative

The Global Reporting Initiative was established in 1997 to design an enterprise level guideline for sustainability reports. The GRI was convened by CERES and the United Nations Environment Programme (UNEP) and had a wide variety of stakeholders participating in the process (GRI 1999; Mullins 2000 & Bebbington 1999). A set of draft guidelines was available in 1999, with the first set of guidelines being published in 2000. A second version was released at the World Summit for Sustainable Development in 2002. A third revision was published in October 2006, and is known as GRI G3 (GRI 2006a-g).

The use of the 2006 guidelines in this study is based on the G3 version, which was published for public comment. The final GRI G3 version was published in 2007 (GRI 2007)¹³. A fourth revision is currently available for public comment. The GRI guidelines seek to link the three core aspects of sustainability, namely: environmental aspects, social aspects and economic aspects. The purpose of these guidelines is to facilitate comparable sustainability reporting that is in a standard format. The guidelines state that, “*Sustainability reporting is the practice [of] measuring, disclosing and being accountable for organisational performance towards the goal of sustainable development*” (GRI 2006: 4). The guidelines are presented in three parts.

- Part 1 contains the report content, boundary and quality;
- Part 2 includes management disclosures on five sustainability aspects: economic, environment, human rights, labour, product responsibility, and society issues. There are 79 indicators that describe the organisational performance in addressing the sustainability aspects;
- Part 3 contains information regarding the guidelines’ use and report compilation, including quality assurance of the data.

The guidelines contain technical protocols on each of the indicators to ensure consistency in reports, so that meaningful comparisons can be made between different reports, as well as different reporting periods. Furthermore, sector supplements aid various economic sectors, such as mining, chemicals and suchlike. to report on issues that are specific to a particular sector.

¹³ A more recent version was published in May 2013 and is known as GRI - G4. The G4 version was not used as it was received too late to be included in this study.

The GRI indicators that are of particular interest in this regard consist of the 30 environmental indicators, as well as one society indicator, being the programmes and practices for assessing and managing the impacts of operations on communities, including the “*entering, operating and exiting*” of communities (GRI Society Indicator Set 2006d: 2).

The GRI indicators are contained in full in Appendix 4. Furthermore, the list corresponds well with the environmental input and output factors, as proposed by Lehn (1998). The factors include those aspects that could have a tangible effect on the community; and thus the community would want information regarding the organisations’ environmental performance with reference to the factors.

The factors identified by Lehn are reproduced in Appendix 5.

In conclusion, the GRI Indicators are gaining widespread recognition as a global reporting standard; since 80% of the G250 companies and 69% of the N100 companies surveyed by KPMG, used the GRI Indicators (KPMG 2011).

2.9.6. The King III Report

The King Committee on Corporate Governance was formed in 1992 by the South African Institute of Directors (IOD). The committee was formed to consider corporate governance, which was becoming of considerable interest globally (IOD 2002). The King Code of Governance for South Africa (King I) was published in 1994; and a further report was published in 2002, known as the King II Report. The King Code of Governance for South Africa 2009, referred to as the King III Report, was published after changes were made to the South African Companies’ Act (IOD 2009).

The King III Report became effective on 1 March 2010. The King III report was updated in 2012, in order to address further changes to the South African Companies' Act. The King III report contains nine elements of good governance and 75 principles. The governance elements are:

- Ethical leadership and corporate citizenship;
- Boards and directors;
- Audit committees;
- The governance of risk;
- The governance of information technology;
- Compliance with laws, rules, codes and standards;
- Internal audit;
- Governing stakeholder relationships; and
- Integrated reporting and disclosure.

(IOD 2009)

Elements eight and nine of the Code are directly applicable to this study, as they provide the basis for the disclosure of CSR information from a company's perspective. The King Codes can be seen to incorporate the concepts of CSR in corporate governance by making *"explicit reference to stakeholders"* (Ramlall 2010:281).

The Code is of particular relevance to this study, as it deals with the identification of the stakeholders and the importance of realising that stakeholders' perceptions could influence a company. Principle 8.1 of the King III Report requires the measuring and managing of the gap in expectations between the stakeholders and the company (IOD 2009). Stakeholder engagement is thus central to the principles embodied in King III.

According to King III, the management board of a company should delegate to management the requirement to proactively deal with stakeholder relationships (Principle 8.2). This would require that policies and procedures be developed to manage stakeholder relationships and to consider formal and informal means to engage with the stakeholders. Principle 8.3 requires that the legitimate interests and expectations of the stakeholders are taken into account when making decisions regarding the best interests of the company.

Principle 8.5 states that transparent and effective communication with a company's stakeholders is essential, in order to maintain their trust and confidence. Principle 9.1 deals with the disclosure of an integrated report that should be produced annually. The report should promote transparency and accountability.

The King III Report has laid the basis for good governance and disclosure; but it is not a reporting framework as such. The Institute of Directors publishes Practice Notes that assist companies to implement the principles. The JSE issues requirements with which companies have to comply, in order to be listed on the JSE (IOD 2013; JSE 2013). The JSE has taken an "apply-or-explain" approach to the implementation of the King III requirements in Section 8.63 of the Listing Requirements (IOD 2013; JSE 2013).

Companies thus have to provide a narrative on how they have applied the King III principles, or explain why they have not done so.

The King II Report that was issued in 2002 is important for the purposes of this study, as it differs from the King III Report in that stakeholders were categorised as three different

entities. These are the parties that contract with the organization, the parties that have a non-contractual nexus with the organisation (civil society, local communities and non-governmental organisations etc.), and lastly the State (IOD 2002). The stakeholder is further described as:

“ Those whose relations to the enterprise cannot be completely contracted for, but upon whose co-operation and creativity it depends for its survival and prosperity”; furthermore, the “community in which the company operates, its customers, its employees and its suppliers, amongst others, need to be considered when developing the strategy of a company.”

(IOD 2002: 103)

The King III Report has simplified the definition of the stakeholder as, *“Any group affected by and affecting the company’s operations”* (IOD III 2009). The King II (IOD 2002) states that from a holistic perspective, the environment should be treated as a stakeholder in its own right, and that the “Best Practicable Environmental Option’ should be applied to all decisions, in order to preserve the environment at a cost that is acceptable to society. Additionally, companies should make open and transparent disclosures on environmental matters (IOD 2002: 120-121).

The King II and King III Reports have thus laid the foundation for organised business in South Africa to communicate matters of environmental concern to their stakeholders through stakeholder engagement. Furthermore, in order to give effect to KING III, the Practice Notes issued by the IOD, and adopted by the JSE, suggest that companies provide an integrated report that *“presents a holistic picture of how the company is creating value now and will continue [to do so] into the future”* (IOD 2013:4).

2.9.7. South African Prescribed Financial Reporting Standards

In South Africa, all companies have to comply with the Companies Act (Act 71 of 2008). A company has to comply with financial reporting standards, and must prepare financial statements that fairly present the financial position and results of their operations (South Africa 2008 S28&S29). In terms of the Companies Act, it is an offense to provide false or misleading information (South Africa 2008 s241).—The Companies Act, together with its amendments, has also given legal status to the pronouncements by the South African Institute of Chartered Accountants (SAICA) (Pretorius, Venter; von Well & Wingard 2006).

The pronouncements are not all legally binding; for example, the *guidelines* issued by the SAICA are non-binding. An explanation to the regulatory authorities may, however, be required when companies do not comply with guidance pronouncements (Pretorius, Venter; von Well & Wingard 2006).

The South African accounting standards are identical to the International Financial Reporting Standards (IFRS) that are issued by the International Accounting Standards Board (IASB) (Oberholster et al. 2011). Furthermore, the International Financial Reporting Interpretations Committee (IFRIC) issues interpretations based on the IFRS pronouncements (IFRS Foundation 2010). The IFRIC interpretations are of particular interest to this study, as there are a number that have implications for the management of the environment.

The accounting standards that are used have historically not been supported by a theoretical framework (Pretorius et al 2006). However, the Board of the International

Accounting Standards Committee issued a Framework in 1989, and this was adopted by the IASB in 2001 (IFRS Foundation 2010: A13). The Framework has also been adopted in South Africa (Oberholzer et al. 2011).¹⁴

International Accounting Standard (IAS) 37 deals with Provisions, Contingent Liabilities and Contingent Assets (IFRS Foundation 2010). A provision is seen as "...a liability of uncertain timing or amount" (IFRS Foundation 2010:A915). In the context of this study, the definition of a liability is particularly pertinent, as any pollution issues can be viewed as a present or future liability, given that the remediation of pollution can involve substantial economic resources.¹⁵ A liability is defined in the framework, as well as in IAS 37 (AC130), as "...a *present obligation of the entity arising from past events, the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits...*" (IFRS Foundation 2010: A915)¹⁶. When interpreting the financial provisions made by companies in terms of IAS 37, the user of the information may need to be cautious. In a study conducted by Cho, Freedman and Patten (2012:500), it was found that companies that disclose environmental capital expenditure often disclose immaterial amounts, and do this for strategic reasons. The environmental problems they are making provisions for may thus be far bigger than the amount of money set aside for this purpose.

¹⁴ The *Conceptual Framework for Financial Reporting 2010* includes portions of the 1989 Framework (Oberholster et al. 2011:11).

¹⁵ Arcelor Mittal, A South African steel producer has set aside R1.5 Billion in legacy costs to clean up past pollution events at some of its sites (Salgado 2011).

¹⁶ The discussion in this section on liabilities includes contingent liabilities, whose occurrence, or non-occurrence, is contingent upon a future uncertain event. A definition of contingent liabilities is contained in IAS 37 Paragraph 10 (IFRS Foundation 2010: A916).

The reporting of provisions and liabilities (or contingent liabilities) can be a valuable source of information for the community if the organisation's financial statements are made public. The community could further determine whether the provisions have been made to remedy any pollution effects that may directly affect them, or whether they are provisions for litigation, fines and suchlike involving pollution issues. The provisions should, therefore, be accounted for; and if the organisation is a listed company, the financial statements would be in the public domain, and would thus be accessible to communities.

In the environmental context, an organisation could provide a financial provision for a permit-application process. The permit requirements may include pollution abatement equipment that is expensive and requires significant investment. Additionally, a company could have a contingent liability, as a result of a past pollution event. Such a contingent liability would have to be disclosed in the financial statements. If a pollution spill occurs, and there is environmental damage, the organisation may face clean-up costs, as well as a legal fine. The fine would depend on a successful prosecution by the State.

The organisation would, thus, have a contingent liability equal to the maximum fine contained in the applicable legislation that it transgressed. The disclosure of liabilities, contingent liabilities or provisions could thus be a source of information for the community, in order to determine the impact that a company's activities could have on them.

Furthermore, the International Financial Reporting Interpretations Committee (IFRIC) issues interpretations that could be applicable in the environmental context and be regarded as a source of information for the community:

- IFRIC 1 - contains guidance on accounting for changes in existing decommissioning, restoration and similar liabilities that an organisation might incur. This would include expenses to clean up pollution as a result of decommissioning.
- IFRIC 3 - specifies the accounting practices for organisations that participate in government schemes aimed at reducing greenhouse gas emissions, such as carbon trading. It requires companies to account for the emission allowances they receive from governments as intangible assets. It also requires companies to recognise a liability for the obligation to deliver allowances to cover those emissions. This interpretation was subsequently withdrawn in July 2005, as not all European Union members had introduced the required legislation to deal with carbon-trading schemes (IASB 2005).
- IFRIC 5 - specifies the accounting practices for organisations participating in Decommissioning, Restoration and Environmental Rehabilitation Funds. IFRIC 5 explains how to treat expected reimbursements from funds set up to meet the costs of decommissioning plant or equipment, or in undertaking environmental restoration or rehabilitation.
- IFRIC 6 - liabilities arising from Participating in a Specific Market / Waste Electrical and Electronic Equipment. The costs associated with waste management should be accounted for.

(IASB 2006; IFRS Foundation 2010)

The role of the auditor in South Africa is governed by the Independent Regulatory Board for Auditors (IRBA); and this is a legislated body in terms of the Auditing Professions Act (South Africa 2005). An independent auditor's report has to comply with the International Standard on Auditing (ISA) 700 (Revised) report format (IRBA 2006: 11). In Sections 44 and 45 of the

Auditing Professions Act, the Act deals with the duties in relation to an audit, as well as the duty to report any irregularities.

Reportable irregularities are defined in Section 1 of the Auditing Professions Act as, “... *any unlawful act or omission committed by any person responsible for the management of an entity, which - (a) has caused or is likely to cause material financial loss to the entity, or to any partner, member, shareholder, creditor or investor of the entity in respect of his, her or its dealings with that entity...*” (South Africa 2005 s1). The auditor, thus, has to report any “reportable irregularity” to the IRBA without delay (South Africa 2005 s45[1a]). The definition includes unlawful acts, such as pollution that could incur financial loss. The auditor has a further duty to state in the audit report, which forms part of the financial statements of the organisation, whether or not any report regarding “reportable irregularities” was made to the IRBA (South Africa 2005 s44[3e]).

The financial statements (including the audit report) are thus a source of information for the community if “irregularities” have occurred within the organisation when these could have environmental and financial implications.

The relevance of the above information for the community is that there are legislated accounting standards that obligate the organisation to account for expenditure or losses as a result of its activities, which might include environmental activities and performance. Furthermore, expenses as a result of environmental investment or amelioration activities

might possibly be explained in the notes to the Statement of Comprehensive Income (IFRS Foundation 2010), which could also be a source of information for stakeholders¹⁷.

This information could be a valuable source of information for a community if potential or actual pollution is going to affect them as a result of these activities. The South African JSE listed companies are compelled to implement the international accounting standards, such as IAS 37, IFRIC 1,,5 and 6 (Oberholzer et al. 2011).

2.9.8. The United Nations Global Compact

At the World Economic Forum in January 1999, the United Nations (UN) Secretary-General, Kofi Annan, made an appeal to the leaders of business to join an international initiative called the Global Compact. This forum would bring companies together with UN agencies, labour and civil society to support universal environmental and social principles. The forum was formally introduced in July 2000. The Global Compact consists of ten principles that the participants adopt. Organisations communicate their progress on a voluntary basis. As of March 2013, there were approximately 10 000 participants, which included over 7000 businesses (UN Global Compact 2013).

The ten principles are sourced from the following international treaties or commitments:

- The Universal Declaration of Human Rights;

¹⁷ An example of this type of expense is ArcelorMittal South Africa which invested R128 million in environmental equipment in 2012 to maintain their operation. This is reflected in Note 25.4 to their 2012 Annual Financial Statements (ArcelorMittal 2012).

- The International Labour Organization's Declaration on Fundamental Principles and Rights at Work;
- The Rio Declaration on Environment and Development;
- The United Nations Convention Against Corruption;

The Global Compact, requires companies to “embrace, support and enact, within their sphere of influence, a set of core values in the areas of human rights, labour standards, the environment, and anti-corruption” (UN Global Compact 2013).

The ten principles are as follows:

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights;

Principle 2: Businesses should make sure that they are not complicit in human rights abuses;

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4: Businesses should strive for the elimination of all forms of forced and compulsory labour;

Principle 5: Businesses should lobby for the effective abolition of child labour;

Principle 6: Businesses should strive for the elimination of discrimination in respect of employment and occupation;

Principle 7: Businesses should support a precautionary approach to environmental challenges;

Principle 8: Businesses should undertake initiatives to promote greater environmental responsibility;

Principle 9: Businesses should encourage the development and diffusion of environmentally friendly technologies; and

Principle 10: Businesses should work against all forms of corruption, including extortion and bribery.

(UN Global Compact 2013)

The UN Global Compact, thus, allows organisations to commit themselves publicly to the principles, and then to report on their progress. The UN Global Compact supports the GRI Guidelines to report on the organization's progress. Principles 7, 8 and 9 are of particular interest to this study, as they could be a tool that an organisation might wish to use to show public commitment.

2.10. Chapter Summary

This chapter has presented a background to the possible pollution issues in Bluewater Bay; and it has identified that water and pollution are the main concerns of the residents. The location of Bluewater Bay within its regional context was explained, as well as its proximity to the ecologically sensitive Swartkops River Estuary, Motherwell Township and Markman Industrial Township. The possible types of pollution emanating from companies in Markman Industrial Township were presented; and it was shown that the air pollution concerns resulted in an Odour Nuisance Action Committee being formed to address this issue.

The pollution threat on the Swartkops River Estuary from nearby industrial activities was discussed; and the role of the Swartkops Conservancy to protect the ecological importance of the Swartkops River Estuary was also presented. The history of the various conflicts between the residents of Bluewater Bay and Markman Industrial Township was presented,

as well as an explanation of the litigation that has occurred as a result of the pollution concerns in this area.

The increased threat of pollution in this area was discussed because of the development of the Coega Industrial Development Zone, as it would contain metal working and chemically related industries, which traditionally produce significant environmental impacts.

This chapter has explained the concepts of social and sustainability accounting, which describe the accounts that companies give regarding their activities (Gray 2002). In a South African context, the King III Report on Corporate Governance was discussed; and this prescribes how companies should publicly disclose their social and sustainability accounts (IOD 2009). The term corporate social responsibility (CSR), which is an element of a company's social account, was introduced and a discussion was presented.

The specific area of disclosure that this study is investigating is environmental-performance reporting. A review of the literature has shown that in the past the quality of CSR disclosure has been poor; and it has taken place in the absence of any widely accepted reporting framework. The quantity of CSR disclosure is steadily increasing among many companies (KPMG 2009; KPMG 2011); but historically, the quality of information in some instances has been poor. The goal of CSR disclosure should be to ensure that such reporting is informative, relevant, understandable and comparable (Hooks & van Staden 2011).

It was shown that there could be a difference, or gap in expectations, between groups that prepare CSR information, and groups that use the information. The main aim of this study

was to address the expectations gap between the users and the preparers of CSR information.

There are several reasons to disclose CSR performance information; for example, to comply with legislation, to improve the company image or brand, to comply with lender requirements and community expectations, to manage powerful stakeholder groups, for ethical considerations, and to show that the company is accountable to the community (Deegan 2002; van Staden 2003; KPMG 2011). The reasons for disclosure were investigated in depth; and the social contract that companies have with society was presented.

It was shown that society enters into a social contract with companies, in order to derive a benefit from the resources that society provides to the company. If the cost to society outweighs the benefits, then society could withdraw these resources. It was also shown that for a community to know if a company is acting morally and ethically, the company should disclose information about its CSR practices.

The business case for reporting CSR information was presented; and it was shown that there are several economic benefits if a company conducts its business in a socially responsible manner. These benefits would include higher profitability, lower cost of capital, lower insurance premiums and market advantages over competitors. Furthermore, in the long term, socially responsible companies would improve their sustainability for themselves, and for society as a whole.

The South African legal requirements were discussed; and it was shown that there are numerous laws that require disclosure of environmental-performance information, and that the public has a right to access this information in terms of specific legislation, such as the Promotion of Access to Information Act (South Africa 2000a & South Africa 2004). Furthermore, all South Africans have the right to an environment that does not harm them, according to Section 24 of the South African Constitution (South Africa 1996).

Several standardised frameworks for reporting CSR information were presented, with, internationally, the GRI indicators, and locally, the King Report on Corporate Governance being the most important in terms of this study. In conclusion, the South African financial reporting standards were shown to contain important requirements to provide for and take into account actual or expected environmentally related expenditure.

The information presented in Chapter 2, in addition to the theoretical frameworks, will be used to develop the research objectives and the methodology. The discussion of the theoretical frameworks for reporting CSR information will be presented in Chapter 3.

CHAPTER 3 THE THEORETICAL FRAMEWORK

3.1. Introduction

In this chapter the theoretical frameworks that are applicable to this study are identified and discussed. The theory is applied to the study area; and additionally, the research objectives are presented.

Corporate Social Responsibility disclosure has been explained in the academic literature by using three broad categories of theory, namely: decision-usefulness theories, economic theories, and social and political theories (Gray, Koughy & Lavers 1995a). These theories all attempt to describe interactions within a social system. Political-Economy Theory posits that, in society, social, political and economic interactions occur that are inseparable from one another (Gray, Owen & Adams 1996). It is the interactions between the members of this social system that comprise the area of this study.

The social system may contain some members whose power might be perceived to be stronger than that of other members; and consequently, conflicts could arise between the members.

The premise of this study is that companies are members of a social system that includes the public, investors, government, the media, employees, interest groups, suppliers, industrial bodies and consumers (Deegan 2009:321 Figure 8.1). The members of a social system can interact with one another and influence one another, as the boundaries between

the members are not fixed, but can be “...*porous and problematic*” and are not “...*tightly bounded entities clearly demarcated from the surrounding environment*” (Suchman 1995:571). As the members of the social system interact, they may exchange information, make decisions based on the received information, and then decide what actions need to be taken. The various theories that inform this study will now be discussed.

3.2. Political-Economy Theories

Political Economy Theories explain the manner in which power and economic organisations work in a social system (Gray, Owen & Adams 2010). The foundation of the Political Economy Theories is that power, politics and society cannot be separated when investigating any interactions within a social system. Such a system is referred to as the political economy (Deegan 2009). The disclosure of any accounting records, such as audit reports and environmental-performance information are considered tools that a company would use to maintain its power and position within the political economy; and this information cannot, therefore, be seen as neutral or unbiased (Guthrie & Parker 1990).

The interplay between the powerful elites in society, such as the State, large companies, labour, political parties, and other sectors of society, is associated with Classical Political Economy Theory; and this has its roots in Marxism (Gray, Owens & Adams 2010). The pluralistic view, which ignores the differences in power and other inequalities, concentrates on the nature of the interactions in society; and this is known as Bourgeois Political Economy, Theory, as associated with the English philosopher James Stuart Mill (Gray, Owen & Adams 1996; Gray et al. 1995a).

There are two approaches to power and conflict within the system. Firstly, it may be accepted that although power is not distributed equally among members (the pluralistic concept), it is the relationship and interaction between the relevant “publics” that is important. The second approach is that the struggle for power arises because of the differences between the various class structures within society, and that some members of the social system could be dominated by a small elite (Deegan 2009).

Political Economy Theory frameworks have given insight to other theories that are able to explain the social interactions with better resolution (Deegan 2002). These theories include Legitimacy Theory, Stakeholder Theory, Institutional Theory (Deegan 2009), and Resource-Dependence Theory (Chen & Roberts 2010). Legitimacy Theory and Stakeholder Theory are the most widely used theories to explain social and environmental disclosures (Campbell, Craven & Shrives 2003; van Staden 2003; Wilmshurst & Frost 2000, Deegan & Rankin 1996; Lindblom 1993; Tilt 1994).

Classical Political Economy Theory can be seen as a meta-theory (system level)¹⁸; whereas Legitimacy Theory and Stakeholder Theory, are located at the micro-level of resolution, since they are able to explain social interactions at the organisational level (Gray, Owen & Adams 2010). Although Institutional Theory¹⁹ could be applied to this study, it is here largely ignored, as the theoretical level of resolution required is more suited to using the

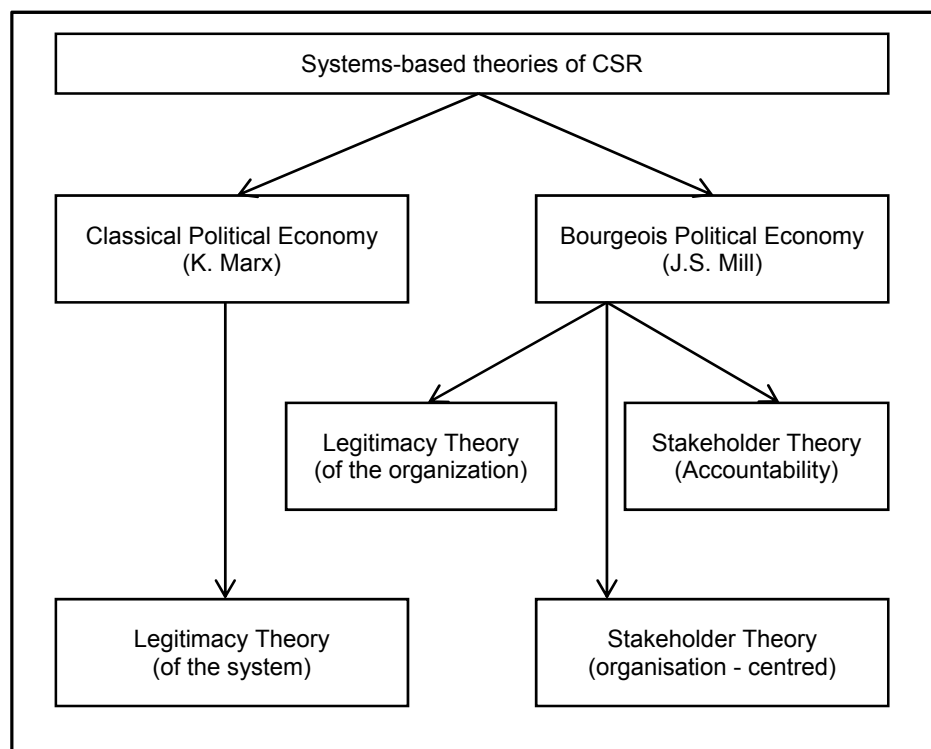
¹⁸ The theories used in social accounting, and their level of resolution are described in Table 2, in Gray, Owen & Adams (2010:12).

¹⁹ Cognisance is taken of the view that Institutional Theory can describe elements of this study, such as the GRI Indicators, as they occur in socially constructed spaces or fields (Larrinaga-Gonzalez 2007).

Stakeholder Theory (the Bluewater Bay community being the stakeholders), and legitimacy theory (to explain the historical actions by the Markman Industrial Township companies). Furthermore, legitimacy theory and the Stakeholder Theory have been widely used to explain CSR disclosure (Mathews 1993).

A diagrammatic overview of the theories that inform CSR disclosure from a *Legitimacy Theory and Stakeholder Theory* point of view is presented in Figure 3-1 below.

Figure 3-1 - Overview of Stakeholder and Legitimacy Theories Informing CSR Disclosure



(Source: Gray, Owen & Adams 1996:49)

As previously mentioned, the two theoretical frameworks to be used in this study are the Stakeholder Theory and Legitimacy Theory. They are seen as overlapping and not

competing theories (Gray et al. 1995a). These theories, in the context of this study, affirm a pluralistic view (Gray et al. 1995a), since both the community and the company, theoretically, have equal rights and power, as entrenched in South African legislation. Notwithstanding equal legal rights, there may, however, still be elements of a power struggle evident within the South African CSR disclosure debate, as there appear to be numerous instances when environmental-performance information is not disclosed by companies, or by the State (CER 2013).

The South African Centre for Environmental Rights (CER) reports that private and public bodies are using administrative justice law (PAIA) to avoid disclosing any environmental information (CER 2013). The quest to obtain this information is thus best described by the Bourgeois branch of Political Economy Theory, as it illustrates the power struggle between various groups in society.

Furthermore, the apartheid government allowed little or no community consultation before factories and other developments were established in an area, as the legislation allowing broad community consultation was only introduced after the ANC came to power (South Africa 1998). The power thus rested with the State and with the large companies. This view is supported by the number of environmental laws requiring community consultation and information disclosure after the fall of apartheid. (South Africa 1998; South Africa 2000a; South Africa 2000b; South Africa 2004 & South Africa 2006).

Legitimacy Theory and Stakeholder Theory will be discussed in the following sections.

3.2.1. Legitimacy Theory

A company's existence is dependent on access to natural and human resources. These resources are provided by the members of society (Deegan 2002). A social contract (as described in Chapter 2) underlies the interactions between society and companies. Societal rules thus allow companies to be resourced and to operate; and therefore, if companies do not provide benefits to society, or if companies flout social rules, then the resources may be withdrawn (Deegan 2002).

In order to ensure continued access to these resources, companies attempt to be seen as legitimate members of society. The more scarce the resources are that a company requires, the greater the influence of those who control the resources over the company (Milne & Patten 2002). This suggests that as the scarcity of resources increases, the more critical would be the level of overall legitimacy a company would require, in order to ensure their long-term survival. This then suggests that organisational legitimacy can in itself be seen as a *“valued but problematic resource”* (Ashforth & Gibbs 1990:191).

Legitimacy Theory thus describes how organisations align their activities with the values and norms of society (Savage, Cataldo & Rowlands 2000) – in order to secure the resources they need. In order to do this, a company would adopt various strategies or actions in an attempt to legitimise its presence in society. The legitimacy afforded the company is not permanent; and it can be withdrawn, if the overall benefit to society is perceived as being too costly.

The company must thus ensure that its activities are congruent with the goals of society, in order to remain legitimate (Dowling and Pfeffer 1975).

Suchman (1995: 571) provides a definition of legitimacy as follows:

"...[it is] a generalised perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions."

It can be inferred from this definition that legitimacy is mostly conferred by the "relevant publics", and that it is a state of mind or a generalised perception, rather than a process. A company, traditionally, has merely to be profitable, in order to be considered legitimate (Patten 1991); but as societies' perceptions and values have changed, legitimacy is now required by a wider public, as suggested in the above definition by Suchman (1995).

Furthermore, a company should also have legal legitimacy, i.e. it must be legally permitted to operate, and it should meet all its legal requirements. There may, however, be times when a company might have legal legitimacy, but it might lack "overall legitimacy" (Samkin & Schneider 2010). The laws may thus be slow to change to meet societies more stringent expectations; and this could result in a legitimacy gap between what the community expects, and how they perceive a company's actual actions (Dowling & Pfeffer 1975).

3.2.1.1. The Legitimacy Gap

Societal expectations are constantly evolving; and therefore, corporate legitimacy is a dynamic construct, i.e. companies have to constantly reassess their operations to ensure that they continue to comply with the current societal norms (Lindblom 1993). A company can thus either gain, maintain, or be required to repair, their legitimacy status (Suchman 1995). A legitimacy gap could manifest when a company is operating in exactly the same

manner as before, but if the societal norms have changed. This implies that as a company's legitimacy decreases over time, the company must respond before the gap in expectations, between the company and society, reaches a point where conflict ensues. It is much harder to repair legitimacy than it is to maintain the legitimacy that a company already possesses (O'Donovan 2002; Suchman 1995; Ashforth & Gibbs 1990).

The reason for this is that legitimacy is a dynamic construct, as it is the result of a *relationship* with another party; and it is not necessarily a product that is obtained, and then possessed indefinitely (Suchman 1995). In order to maintain legitimacy, a company needs to provide its publics with the assurance that all is well; and it needs to anticipate, and prevent, any threats that may challenge its legitimacy (Ashforth & Gibbs 1990).

A company's legitimacy gap can also increase if some previously unknown information (usually negative) is made available (Nasi, Nasi, Phillips, & Zyglidopoulos 1997). This can occur when the mandatory disclosure of legal non-compliance occurs, such as pollution spills that require regulatory reporting in terms of the South African National Water Act (which was explained in Chapter 2). The company may respond, through internal processes, by ensuring that there are no further legal violations, as the mandatory disclosure of any violations would decrease their legitimacy (Mobus 2005). This, in turn, would reduce the legitimacy gap.

There are two attributes of legitimacy that need to be discussed in terms of this study. Firstly, legitimacy is *not possessed* objectively, but it is *created subjectively* (Suchman 1995). The residents may, consequently, make up their own minds regarding the legitimacy of an organization. One could thus have different perceived levels of legitimacy conferred

upon an organization by different members of the same community. Secondly, legitimacy is dependent on a group of people's shared beliefs, but not on any one individual's beliefs (Suchman 1995). Therefore, if one resident feels different to the majority, this would not necessarily affect the legitimacy of the organization. The question one might ask is: 'When is a critical mass of shared beliefs reached that could threaten the legitimacy of a particular organisation? And are there different types of legitimacy?'

Organisational legitimacy can be grouped into three broad types (Suchman 1995: 571-610), namely:

- *Pragmatic legitimacy*, where the organisation interacts with its most immediate audience to further its own self-interest;
- *Moral legitimacy*, where the audience (or evaluator) would judge whether an organization's activities are conducted correctly in their view. This is done by either an evaluation of outputs and consequences, an evaluation of techniques and procedures, an evaluation of categories and structures, or an evaluation of leaders and representatives; and
- *Cognitive legitimacy*, where the audience affirmatively backs the organisation, or merely accepts it – based on a taken-for-granted cultural account of belief.

3.2.1.2. Strategies to Gain, Maintain or Repair Legitimacy

Legitimation is the process of reaching legitimacy (Dowling & Pfeffer 1975; Richardson 1987; Adams, Hill & Roberts 1998; Savage, Cataldo & Rowlands 2000 and Deegan 2002). One of the legitimation activities needed to ensure the company remains legitimate is to disclose CSR information (Deegan 2002, Cahan & van Staden 2009). The level of CSR information that a company discloses could increase or decrease over time, as societal

demands change (Laine 2009; Deegan, Rankin & Tobin 2002; de Villiers & van Staden 2006).

This implies that companies might alter their actions, including CSR disclosure, in order to maintain their legitimacy. As discrediting publicity occurs, the level of CSR information disclosure could increase; and it would mostly be positive – in order to maintain their legitimacy (Summerhays & de Villiers 2012; Samkin & Schnieder 2010; Aerts & Cormier 2009; Patten 2002; Brown & Deegan 1998; Deegan & Rankin 1996). The company can thus use CSR disclosure to increase its existing legitimacy, to maintain the current level of legitimacy, or to restore its legitimacy that may have been lost through an adverse or discrediting event (O'Donovan 2002).

It may also be easier to disclose positive CSR information, than to make substantive changes to the way the company operates (Neu, Warsame, & Pedwell 1998). However, the use of CSR disclosure on its own may not achieve a satisfactory legitimacy state for a company (O'Donovan 2002). In some instances, such as the tobacco and mining industries, the company may lose their legitimacy – to a level that any further disclosure could prove fruitless; and they may, therefore, curtail or even cease disclosing any CSR information (de Villiers and van Staden 2006, Tilling & Tilt 2010).

Dowling and Pfeffer (1975) describe three strategies that the organisation can pursue, in order to become legitimate:

- Adapt its output, goals and methods to the current definition of legitimacy;
- Attempt by communication to change the definition society has of legitimacy, in order to align this with the organization's current practices; and

- By communicating with society to become identified with the symbols, values or institutions that have a strong social legitimacy basis.

A similar set of strategies was offered by Lindblom (1993), namely:

- Educating and informing stakeholders that the organisation's actions are appropriate, and that the organisation is in line with society's values and norms;
- Alter societal expectations of the organisation's performance and actions – without actually changing the organisation's actions;
- Using emotive symbols to change the stakeholders' perceptions and to demonstrate compliance with society's expectations in other areas; and
- Change the societal expectations of the organisation's performance.

Consistent with the above strategies, Ashforth and Gibbs (1990) proposed that there are two general management strategies that companies could use to seek legitimacy, namely: substantive and symbolic strategies. These legitimization strategies are expanded to include twelve different techniques (Ashforth & Gibbs 1990; Savage 1998). The substantive strategies involve real change in the behaviour of the organisation; and society, generally, favours these strategies. The symbolic strategies attempt to portray the organization's activities as being compatible with societal norms; but no real change is introduced in the organization's performance.

The symbolic strategies are generally preferred by the organization, as they are cheaper to implement and more flexible than the substantive strategies. The techniques that Ashforth and Gibbs (1990) describe are:

Substantive Strategies

- *Role performance* – the organisation changes its activities to suit the expectations of society. An example of a change in role performance is the case of Exxon Valdez. The Exxon Corporation, in their 1998 annual report, only included 0.6 pages of environmental information, versus 6 pages in the 1989 annual report – after the Valdez accident (Patten 1992: 472). This is supported by later research, which shows that the worse a company's environmental performance, the more extensive the disclosure becomes (Chen & Roberts 2010).
- *Pressure from relevant publics*²⁰ – the organization, over time, blends society's norms and beliefs into the organisational structure and culture that clearly shows the organization's desire to meet the needs of society.
- *Altering socially institutionalized practices* – the organisation attempts, through selective communication, to alter the definition society has of legitimacy, to suit the organization's activities (Archel, Husillos, Larrinaga, & Spence 2009).

Symbolic Strategies

- *Espousing socially acceptable goals* – the organisation promotes socially acceptable goals, while its actions are less than fully acceptable.
- *Denial and concealment* – activities that are not legitimate are denied or concealed.
- *Identification with symbols, values or other organizations*²¹ – The organisation attempts to become identified with an institution that has an established base of

²⁰ This is similar to Isomorphism, as explained by Institutional Theory, which posits that organizations converge in their behaviours to provide stability in their fields of operation (Gray, Owen & Adams 2010).

²¹ This type of symbolic strategy is consistent with the mimetic behaviour, as explained in Institutional Theory (Larrinaga-Gonzalez 2007).

social legitimacy. An example of this is Mazda South Africa, which was involved in approximately 29 projects with organisations, such as the World Wildlife Fund of South Africa, and Birdlife SA, amongst others (Mazda 2013). The reason why some companies may choose to follow these strategies is to increase their legitimacy by “manipulating societal perceptions by associating with symbols that have a highly legitimate status” (Pellegrino & Lodhia 2012).

A further example is given by Deegan and Blomquist (2006) who report on an audit conducted on the CSR disclosures of selected Australian mining companies by the Worldwide Fund for Nature (WWF-Australia). The audit resulted in the amount of disclosure increasing, and the companies thus associating themselves with the positive image that the WWF portrays to the public.

- *Offering accounts* – the organisation offers excuses for its actions, so that its legitimacy is not affected negatively.
- *Offering apologies* – The organisation may offer an apology for an adverse event.
- *Ceremonial conformity* – actions that are highly visible and on the surface are the “right” thing to do, without any real organisational change taking place.
- *Admission of guilt* – creating an impression of honesty, but with little substantive action subsequently being taken.
- *Misrepresentation or open to misrepresentation* – supplying ambiguous information that is misleading or open to misrepresentation.
- *Avoiding, trivializing or skirting around the issue* – the organisation offers partial information, or fails to address the problem at hand.

(Ashforth & Gibbs 1990)

The exclusive use of symbolic strategies could be construed as a negative process from the community's point of view. Alternatively, the substantive strategies that the organisation could adopt would result in the organisation aligning itself with the community's needs and goals, and in turn, then addressing the legitimacy gap.

A rebuttal of legitimacy theory is offered by Guthrie and Parker (1989), who analysed the corporate social reporting of a major Australian corporation, BHP over a hundred-year period. The content of disclosures to shareholders was examined (annual and half-yearly reports). The researchers found no conclusive evidence to support legitimacy theory as the driver for corporate social reporting. In a subsequent study, Deegan, Rankin and Tobin (2002: 312) tested the same company from 1983 to 1997 and found evidence to support the legitimising effect of environmental disclosure by utilising a different methodology.

Cognisance is taken of these findings, as they were conducted by using the annual report as the sole means of communication. The area under study in this research is looking at information exchange in a wider sense, as *"the annual report may not be the only or best vehicle for disclosure"* (Lindblom 1993: 20).

3.2.2. Stakeholder Theory

A theory that deals with corporations as an entity was proposed by Milton Friedman, and was named *"restricted egoism"* (Humber 2002: 207). Friedman stated that the sole purpose of the corporation was to maximise profits, while staying within the law and accepted ethical customs (Friedman 1970). The Stakeholder Theory developed as a response to Friedman's view, with R.E. Freeman proposing that managers had duties other than a fiduciary responsibility. These duties included moral obligations to other stakeholders, such as civil

society (Humber 2002). It was further argued that civil society as a whole should be at the top of the stakeholder list, rather than the shareholder or customer (Lépineux 2005).

Stakeholder Theory examines how “corporations interact with their stakeholders, in order to secure important resources” (Steurer 2006: 57). These resources could be natural, capital, technical, geographical location, labour, and legal permits to operate. Stakeholders can be divided into two main groupings, namely, those that are essential for the survival of the company, and those that are affected or could influence the company (Humber 2002).

The development of Stakeholder Theory has resulted in two main branches. Firstly, there is the ethical or moral branch (also known as the normative branch); and secondly, there is the positive or managerial branch (Deegan 2009). The ethical branch seeks to prescribe stakeholder engagement, so that the firm could ensure its long-term success for example with regulatory authorities; whereas the positive branch suggests that companies pursue CSR, in order to understand and satisfy their stakeholders (Ditlev-Simonsen & Midttun 2011).

3.2.2.1. The Ethical Branch

The ethical branch of Stakeholder Theory posits that all stakeholders have equal rights²², irrespective of the power they have over a company or the economic contribution they make to its success (Deegan 2009). As previously discussed, in South Africa, local communities and companies have equal rights, as enshrined in the South African Constitution. A

²² Brown & Forster (2013:307) provide a useful discussion on perfect and imperfect rights and which stakeholders should be given priority in CSR practices.

company would thus need to satisfy the rights of all its stakeholders, in order to ensure company sustainability.

The identification of exactly who the stakeholders are in an organisation can be a difficult task, as twenty-eight different definitions of “stakeholders” were found in the literature survey by Kaler (2002). There have been several debates on whether the organization’s shareholders are also deemed to be stakeholders. The view adopted by Freeman, Wicks and Parmar (2004) is that business is about all the stakeholders (suppliers, customers, employees, communities, managers etc.), all wanting to win over time; and consequently, shareholders are thus also stakeholders.

A further view is to classify stakeholders into four groupings (Henriques & Sadorsky 1999).

These are:

- Regulatory stakeholders, such as government, professional regulatory bodies (accounting professional bodies);
- Organisational stakeholders, such as investors, employees, customers, suppliers etc.
This group can directly influence the bottom line of the organization;
- Community stakeholders, such as community groups, environmental organisations and lobby groups; and
- Media stakeholders that can influence how the organisation is perceived by the media recipients.

A list of “user groups” of CSR information has been identified by Azzone, Brophy, Noci, Welford and Young (1997), which, they state, could be viewed as company stakeholders. These stakeholders: are academia, employees, environmental NGOs, the financial

community, regulators and policy makers, shareholders, trade and industry, and the local community (Azzone et al. 1997).

3.2.2.2. The Managerial Branch

The second perspective on Stakeholder Theory, the managerial branch, is concerned with managing stakeholders, according to their importance to the organization. The more important the stakeholder, the more effort the company would expend in managing the relationship (Gray, Owen & Adams 1996). The identification of a stakeholder on the basis of the attributes of *power*, *legitimacy* and *urgency* is suggested by Agle, Mitchell and Wood (1997). The importance of the stakeholder would thus be related to the strength of the aforementioned three attributes.

The term ‘power’ is not used in the traditional Max Weber style of carrying out one’s will in spite of resistance, but rather in a broader sense, i.e. a party in a relationship could have access to a coercive, utilitarian or normative means to impose its will (Agle, Mitchell and Wood 1997). It has also been noted that as the power among stakeholders increases, so their diversity decreases – since the most powerful stakeholders, for example, the shareholders, would be well-defined and identified (Spitzeck & Hansen 2010).

The “power” in terms of this study will be the community’s power to invoke legislation and other actions in defence of their constitutional rights, as explained in Chapter 2.

As described above by Agle, Mitchell and Wood (1997), the *legitimacy* attribute of stakeholder identification is closely linked to Legitimacy Theory where one could ask the question “Is the community a legitimate stakeholder in the polluting organization?” The *urgency* attribute of stakeholder identification attempts to address the issue of when a

stakeholder's claim could call for the immediate attention of an organization. The concept of "*time*" is thus brought into the argument (Agle, Mitchell and Wood 1997: 868). If, over time an organisation does very little about a claim, the urgency would increase from a community perspective; and the power and legitimacy would thus further increase as well. These three attributes together can form a basis for identifying stakeholders. Those stakeholders that have all three attributes would get more attention from the organisation than those that only had one or two attributes (Scott & Lane 2000).

The stakeholder attributes described thusfar also contribute to the stakeholders' "salience". The company's chief executive officer would place a higher priority on the more salient stakeholders (Agle, Mitchell & Sonnenfeld 1999). Furthermore, the national culture of the stakeholders appears to cause differing levels of CSR disclosure (Orij 2010). This may be particularly relevant to this study, since the population in South Africa is made up mostly of two distinct cultural groups, namely: those with a western culture and those with an African culture; and both these groups live in Bluewater Bay (Statistics SA 2013).

There have been a number of issues that have been highlighted as problematic for Stakeholder Theory. Firstly, the theory does not provide assistance to managers in dealing fully with legal or natural-environmental issues. The theory is thus only useful as an heuristic tool, as in the natural environment there are no human beings (Orts & Strudler 2002). Orts and Strudler (2002) contend that Stakeholder Theory does not offer any guidance as to how to value the natural environment. What value does one place on the aesthetic beauty of a landscape? What level of compliance should one strive for regarding legal requirements?

These are moral decisions that managers of companies have to make, which the theory does not adequately address.

Secondly, there are many methodological strands within the theory, which could lead to divergent thinking that could threaten the acceptance of the theory as a whole (Donaldson 1999; Humber 2002). And there is little agreement on the scope of the theory (Harrison & Freeman 1999). Given that Stakeholder Theory has evolved into two separate branches of thinking, several other authors have raised similar concerns on whether it promotes convergent or divergent thinking (Phillips [1997]; Reed [1999]; Gioia [1999]; Freeman [1999]; Jones and Wicks [1999]; Treviño and Weaver [1999]; Child and Marcoux [1999] and Hendry [2001]).

A view taken by Treviño and Weaver (1999: 224), is that Stakeholder Theory is “*best characterized as the stakeholder research tradition*”, rather than a convergent theory that has all the answers.

Notwithstanding the criticism of the Stakeholder Theory, it offers the researcher a useful tool in helping to identify the role players in a conflict situation that have *locus standi*. Stakeholders, in this study, as described by Kaler (2002), are those groups which are non-shareholders, but could be seen as having a just interest at “stake” in relation to the activities of the business. The stake that the community has in the context of this study is a healthy environment in which to live.

In summary, on the management of stakeholder relations, Freeman (1994) proposed that three principles' would facilitate the reform of companies (corporations) to act responsibly.

The principles are:

“The Stakeholder-Enabling Principle

Corporations shall be managed in the interests of their stakeholders, defined as employees, financiers, customers, employees, and communities.

The Principle of Director Responsibility

Directors of the corporation shall have the duty of care to use reasonable judgment to define and direct the affairs of the corporation, in accordance with the Stakeholder-Enabling Principle.

The Principle of Stakeholder Recourse

Stakeholders may bring an action against the directors for failure to perform the required duty of care.”

(Freeman 1994:417)

The King III report could be seen as an example of how the above principles, described by Freeman (1994), have been practically applied in the South African context. Firstly, Freeman's *Stakeholder Enabling Principle* is contained in Principle 1.1.5 of the King II Report that requires the leaders of a company “...to take into account the impact it has on the internal and external stakeholders” (IOD 2009:19). Secondly, Freeman's *Principle of Director Responsibility* is contained in Principle 1 – Ethical Leadership and Corporate Citizenship, and Principle 8 – Governing Stakeholder Relationships of the King III Report

(IOD 2009). Thirdly, Freeman's *Principle of Stakeholder Recourse* is a requirement in sub-section 8.6, Dispute Resolution of Principle 8 in the King III Report (IOD 2009:48).

3.3. Theory Application and the Development of the Research Objectives

The importance of various stakeholders relative to one another, and their demands, is not homogeneous, as different stakeholder groups would have different information needs (Neu et al 1998). The legitimacy conferring "*multiplicity of publics*" may often have competing interests; and the more powerful the publics are, the more attention they would get from a company (O'Dwyer 2002). The implication of this is that a company may dismiss, or provide symbolic gestures to less powerful stakeholders, if there are conflicting demands between a powerful stakeholder, such as a company's shareholders and bankers, and a community group, who may be considered less powerful (O'Dwyer 2002).

The relative importance to the company of its various stakeholder groups, as identified in Stakeholder Theory, and the importance of the different legitimacy-conferring publics, as explained in Legitimacy Theory, would be central in determining the extent of an expectations gap. The less powerful stakeholder groups would only receive elementary CSR information, if any at all (O'Dwyer 2002). The more legitimacy a "public" confers on a company, the more power the public would have over the company, which in turn means the more information the public would be able to demand, in order to assess the issues that affect them.

A method to increase the power that a community has over a company is to increase the media attention on the company²³. An increase in media attention can result in a higher level of CSR disclosure (Brown & Deegan 1998). If the community can utilise the media to publicise an environmental issue, this may result in greater disclosure and co-operation from the company, as the company may see the community as being more powerful.

Furthermore, increasing the importance of an environmental issue by using the media has the added benefit that it could result in substantive changes by the company, especially if it is trying to repair its legitimacy (O'Donovan 2002). Substantive changes could thus result in the company conforming to society's expectations. In order to get their issues addressed, stakeholders need to "*control the agenda for discussion*" (O'Dwyer 2005:33). In Chapter 2 it was shown that one of the reasons for disclosing CSR information is when adverse publicity threatens a company's legitimacy, or when a powerful stakeholder group raises an issue with the company (Deegan 2002).

The ability to increase the power of a community thus appears central to the issues being addressed. The community should thus attempt, to firstly, ensure the company views them as an important stakeholder, and secondly, ensure that their issues are well publicised and that the company sees them as a potential threat to its legitimacy. The theories that have been discussed in this chapter can now be applied to the relationship between the residents of Bluewater Bay and the companies in Markman Industrial Township.

²³ An effective way for a community to increase its power is to use the media, as described in Media Agenda Setting Theory, which is outside the scope of this study.

The companies in Markman Industrial Township may all have the required legal legitimacy to operate, but they may not have broader societal legitimacy because of their air, water and soil-polluting emissions. The companies may thus comply with all the laws on the levels of air pollution dangerous to *health*; but the laws might not have been amended sufficiently to take into account the much lower *nuisance* levels of air pollution, which the local residents and neighbouring businesses find offensive.

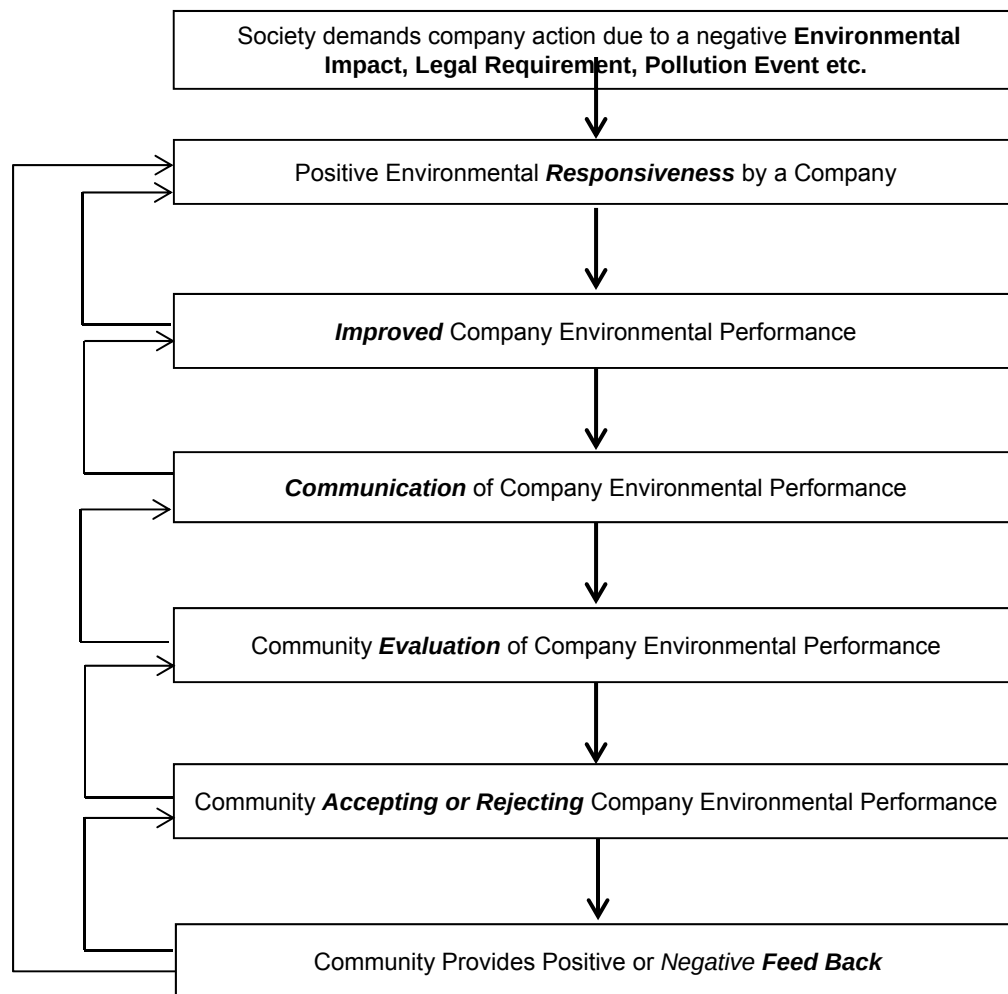
The applicable regulatory authorities, residents and the companies are part of the broader societal system of this area. Bourgeois Political Economy Theory informs us that, notwithstanding the different levels of power, the dynamics of the relationships in the social system are extremely important when addressing the issues between members of the system. In an effort to increase their power, the residents are members of an Odour-Nuisance-Action Committee, in order to present a more co-ordinated effort in their struggle for better air quality.

The committee was formed before important legislation, such as the South African Constitution and the NEMA, was introduced, which gives the residents the legal rights to environmental protection. The committee can thus be seen as a means whereby the residents attempted to increase their power when dealing with the authorities and the companies (Odour-Nuisance-Action Committee 2001a). Furthermore, the environmental issues in this area have received media attention (as presented in Chapter 1 and Chapter 2), although this does not appear to have had much success (Gilham 2000; Rogers 1999a-f; Watkins 1999a-b; Rogers 2000a; Woolard 2000; Mphande 2000).

The objective that the community is seeking is to improve the quality of its environment. In order to achieve this, the companies must improve their environmental performance, and thereby reduce the environmental impact on the community. Improved environmental performance is, however, the result of internal processes (environmental responsiveness) that the company implements, such as policies, procedures, and environmental targets,, as described by van Staden and Hooks (2007).

It is only when the company communicates information on its environmental performance, that the community can evaluate the information, and then place pressure on the company to improve its performance even further. A clear distinction thus needs to be made between improved environmental performance and improved CSR disclosure, which includes environmental information. This process is shown in Figure 3-2 below.

Figure 3-2 – The Environmental Responsiveness, Performance and Communication Process



In order to “kick-start” the process, the company needs to be motivated, coerced, or forced, to disclose CSR information by starting the communication process. This could be done through various means; firstly, a legal agreement between the government, community and the company, in terms of the NEMA, or through new legislation, which forces the company to communicate its environmental performance; and secondly, through adverse media reporting that threatens the company’s legitimacy.

Based on the theoretical frameworks that have been presented in Chapter 2 and Chapter 3, the main research objectives for this study can now be proposed and developed.

3.3.1. Research Objective 1

The first research objective is to determine whether there is any evidence of a legitimacy gap between the residents of Bluewater Bay and the companies in Markman Industrial Township. The method whereby the legitimacy gap can be determined is to investigate the perceptions on the company's environmental impact on the community. If there is a difference in the level of environmental impact that the companies perceive as opposed to the level of impact the community perceives, then a legitimacy gap exists.

Secondly, if the companies do not consider the community as a legitimate stakeholder, and the community believes they are a stakeholder, a legitimacy gap could likewise occur (Gray, Owen & Adams 1996). Furthermore, if the companies do believe the community is a stakeholder, but regard them as being less important than the other stakeholders, then a legitimacy gap may also occur. The literature indicates that companies may use symbolic legitimization strategies when interacting with less powerful stakeholders, such as the community (Ashforth & Gibbs 1990; Savage 1998).

The use of symbolic strategies by the companies can thus be tested to determine whether there is any evidence of an expectation gap between that of the residents and that of the companies. The identification of the use of symbolic strategies may be an indication that the company is not willing to make substantive changes, as they may not perceive the expectations gap to be wide enough.

The sub-objectives are:

Research Objective 1A

Does the community believe the companies in the Markman Industrial Township negatively affect the natural environment in a substantial manner? And do the companies believe differently?

Research Objective 1B

Does the community believe they are a legitimate stakeholder in the companies located in Markman Industrial Township? And do the companies believe differently?

Research Objective 1C

How does the community view the companies' perceptions of the importance of the various stakeholder groups? And do the companies have a different view?

Research Objective 1D

Have the communities identified any symbolic and substantive legitimization strategies that the companies might have used?

3.3.2. Research Objective 2

The second main research objective is to determine whether an expectations gap exists between the environmental-performance information the organisations in Markman Township provide, and the information the community requires, in order to assess the impact of the environmental issues affecting Bluewater Bay. Secondly, what methods of communication do the residents believe would be most effective when the company discloses the required information? It must be stated that the research objectives are developed from the **community's** perspective. This implies that companies may have the information available that a community needs, but decides for various reasons not to

disclose this information (there is thus no expectations gap). The community may thus perceive there is an expectations gap, but the company may not have the same perspective. It was thus difficult to determine the companies' actual viewpoint and this could therefore have influenced the company survey results.

The sub-objectives are thus:

Research Objective 2A

What type of environmental-performance information does the community need? And what type of information are the companies willing to provide?

Research Objective 2B

What type of environmental-performance communication methods do the community and the companies believe would be effective?

3.4. Chapter Summary

In this chapter, the theoretical frameworks that informed the study were discussed; and the theory was applied to the Bluewater Bay community. Political Economy Theory was discussed, as it provides insights to legitimacy theory and the Stakeholder Theory. The latter theories offer a better resolution to study the social interactions between the companies and community in this study. Furthermore, these two theories are seen as overlapping; and they complement each other (Gray et al. 1995).

It was shown, by using legitimacy theory, that a company requires legitimacy to ensure that it has the necessary resources to operate, and that organizational legitimacy can be seen

as a resource in itself (Ashforth & Gibbs 1990). It was shown that a legitimacy gap can occur when a company does not meet its social expectations, and that it could have legal legitimacy, while lacking any overall legitimacy (Samkin & Schneider 2010). Furthermore, companies may have to gain, maintain or repair their legitimacy, as this is a fluid construct, that once conferred by a relevant public is not automatically possessed indefinitely (Dowling & Pfeffer 1975).

The process of gaining legitimacy is called legitimation. There are various legitimation techniques, such as symbolic and substantive strategies, which companies can use to gain, maintain or repair their legitimacy (Ashforth & Gibbs 1990; Lindblom 1993).

The Stakeholder Theory was presented and discussed. This theory shows that companies have moral duties to other stakeholders beside the fiduciary duty they have to their shareholders (Humber 2002). Stakeholder Theory has two branches, namely: the ethical branch and the managerial branch (Deegan 2009). Azzone et al. (1997) identified eight groups of stakeholders, namely: academia, employees, environmental NGOs, the financial community, regulators and policy-makers, shareholders, trade and industry, as well as the local community. Agle, Mitchell and Wood (1997) stated that stakeholders can be identified as those using the attributes of power, legitimacy and urgency. By using these attributes, the more salient a stakeholder is, the more attention s/he would receive from company managers (Agle, Mitchell & Sonnenfeld 1999).

The theories that were presented were then used to develop the research objectives. A total of six objectives were developed. The method used to investigate the research objectives will be discussed in Chapter 4.

CHAPTER 4 THE RESEARCH METHOD

4.1. Introduction

This chapter will deal with the research method used to investigate the research objectives, including the development of the field-survey questionnaires. The questionnaires were developed to test the presence of an expectations gap between the community and the company's respondents on the company's environmental performance. The questions to test the company and community perception of the importance of various stakeholders will be also developed. Furthermore, the questions relating to the use of various legitimization strategies will be presented; and the method of data collection and the statistical analysis explained.

4.2. Method of Data Collection

The most appropriate method for obtaining empirical evidence for this study is the descriptive survey (Leedy 1993). The data that are needed to study the research objectives were collected by using a questionnaire. The participation in the survey was voluntary; and the respondents could remain anonymous. The questionnaire form also allowed for respondents' feedback. This is contained in the appendices.²⁴ According to Leedy (1993), it is necessary to take the following into account to ensure the validity of the conclusions based on a descriptive survey:

²⁴ The respondent's wishes regarding anonymity, participation and feedback were respected, as described in the research method. At the time the survey was done, the University of Pretoria did not require formal ethical clearance for survey research.

- The survey population must be carefully chosen, defined and delimited to set precise parameters to ensure discretion to the population. The data must be protected against any bias that could lead to distortion.
- The data that are collected must be organised and presented systematically, to ensure the validity and the accuracy of the conclusions drawn therefrom.
Leedy (1993: 187)
- In order to ensure the validity of the survey, as described by Leedy (1993), firstly, the survey population was identified from the municipal records that contain the erf numbers. The potential community and company respondents were thus accurately delimited. Secondly, the results were statistically tested to identify any bias; and thirdly, upon receipt of the completed questionnaires, the data were systematically recorded and date-stamped.
- Each of the requirements to improve the survey validity, as suggested by Leedy (1993), was considered in developing the questionnaire; and these will be addressed in more detail in the sections below.

4.3. The Questionnaire Used to Collect the Data

A common method of collecting CSR data is to use a questionnaire (see e.g. Deegan and Rankin 1997; de Villiers 2003; de Villiers & van Staden 2010b). As the questionnaire is the main tool of data acquisition, it could “...*affect the response rate, and the reliability and validity of the data you collect*” (Lewis & Thornhill 1997: 224). Valid and reliable data, as well as good response rates, can be positively influenced by:

- Careful design of the questions;
- A clear layout of the form;

- The purpose of the questionnaire must be well explained; and
- There should be a pilot test.

(Leedy 1993)

Furthermore, the questionnaire language must be unmistakably clear, and should be designed to fulfil a specific research objective, as questionnaires will only succeed as data-gathering tools if they are properly planned (Leedy 1993). A questionnaire should consist of three sections, namely:

- The administrative section, to record the identity of the respondent (if anonymity is not an issue);
- The demographic section, to describe the respondent; and
- The information that is being sought.

Wegner (1993)

Attention should also be paid to the type of questions to be included, the order of the questions, and the structure and wording of the questions (Wegner 1993). Regarding the questions themselves, Wegner (1993) states the following:

- Avoid redundant and ambiguous questions;
- Where possible, use fixed alternative questions, and avoid any leading or open-ended questions, which would be difficult to analyse;
- Arrange the questions in a logical and coherent sequence;
- Use a pilot questionnaire;
- The questions and the questionnaire should be short and simple;
- Avoid technical jargon, and do not require calculations;
- The instructions must be clear and explicit;

- Questions must be specific and only address one issue; and
- Avoid emotive language and sensitive issues.

Wegner (1993: 18)

The types of data that are collected through the questionnaires can be grouped into four distinct types, namely: attitudes, beliefs, behaviour and attributes (Saunders, Lewis & Thornhill 1997). The aim of the questionnaire to be used in this study was to collect the data to determine what respondents **believe** should be part of an environmental-performance reporting framework, what **behaviours** the company should adopt, and what **attitudes** the community and the company have towards each other. The belief-type question, according to Saunders et al. (1997: 251) "*should imply neither good nor bad, only an assessment of what the respondent thinks*".

In order to address the above points, the layout of the questionnaire contained six parts for the community survey and for the company survey. The structure of the questionnaires is indicated in Table 4-1 below.

Table 4-1 - The Questionnaire Structure

Contents	<u>Community</u> Questionnaire	<u>Company</u> Questionnaire	Discussed in Section
<i>Administration</i>	Part 1a	Part 1a	4.4.1
<i>Demographics</i>	Part 1b	Part 1b	4.4.1
<i>Measurement of the Expectations Gap</i>	Part 2a	Part 2a	4.4.2
<i>Types Environmental Information</i>	Part 2b	Part 2b	4.4.3
<i>Environmental Communication Types and Methods</i>	Part 3 & 4	Part 3 & 4	4.4.4
<i>Legitimation Techniques</i>	Part 5	-	4.4.5

Contents	<u>Community Questionnaire</u>	<u>Company Questionnaire</u>	Discussed in Section
<i>Stakeholder Importance</i>	Part 6	Part 5	4.4.6
<i>Company Environmental Improvements</i>	-	Part 6	4.5

Two questionnaires were prepared, one for the companies in the Markman Industrial Township, and one for the residents of Bluewater Bay (see Appendices 8 & 9). The questions were structured to be as short and concise as possible, and were not open-ended. It is always prudent that questionnaires should be pre-tested before a main field survey occurs (Babbie 1998). A pilot study was thus conducted using five people²⁵ to determine whether the instructions and questions were clear, and would be understood by the respondents, who were not environmental experts.

Changes were made to the introduction to the questionnaire, as well as to the questions themselves, as a result of the pilot study. Further changes to facilitate the understanding of the questions, to rule out ambiguity, and to facilitate statistical comparisons, were also made at the suggestion of a statistician at the Nelson Mandela Bay Metropolitan University. The updated and improved questionnaire, "Version 3", was used in the field study. In order to test what the respondents believed about an issue, statement or question, a Likert scale was used. The rating scale is described in Section 4.3.1. At the time of the survey the University of Pretoria did not require any Ethics Committee approval for this type of survey.

²⁵ The five persons chosen to test the questionnaire were not experts in research methods and questionnaire design. The aim of the test was to gauge whether community respondents, who are not environmental experts, would be able to understand the questionnaire.

4.3.1. The Rating Scale used in the Survey

In order to gauge how strongly the respondents agree or disagree on a given statement, a five-point Likert rating scale was used for various sections of the questionnaire. This type of ordinal-rating scale provides non-interval-scaled data that possess both order and distance properties (Wegner 1993). The drawback of using this type of data is that it does not have an absolute origin of zero; and therefore, the ratio of the values cannot be meaningfully compared. According to Wegner (1993: 10), the *"differences between the ratings are assumed to reflect equal differences between perceptions or expressed preferences"*.

The rating scale that was used to determine whether the respondent agrees or disagrees with a statement is contained in Table 4-2 below.

Table 4-2 - The Likert-Rating Scale Used in the Questionnaire

Part 2				
Strongly Disagree	Disagree	Uncertain/ Does not matter	Agree	Strongly Agree
1	2	3	4	5
Part 4				
Very Ineffective	Ineffective	Neutral	Effective	Very Effective
1	2	3	4	5
Part 6				
Totally Unimportant	Unimportant	Uncertain / Does Not Matter	Important	Very Important
1	2	3	4	5

The allocation of scores to the rating scale allows for statistical manipulation of the data to facilitate the development of descriptive statistics. In order to test the research objectives, a

number of questions and statements were presented; and the respondents were asked to rank these. The development of the questions that were used in the various parts of the questionnaire is presented in Section 4.4.

4.4. The Community Questionnaire

The complete community questionnaire that was used in the field study is contained in Appendix 8. The development of the various parts of the questionnaire is presented below.

4.4.1. Questionnaire Development - Part 1

The administrative section, Part 1, of the questionnaire required the respondent to state his/her name (which was optional, in order to facilitate anonymity if required). The demographic section of the residents' questionnaire included questions on whether the respondent owned the dwelling, and the length of time they had been a resident in the dwelling. This was important to determine, as the pollution on record has been ongoing since at least 1999 (Binning & Baird 2001; Rogers 2001a; Rogers 2000a; Rogers 2000b; Adkins 2000; Schoeman 1999; Viljoen 1999; Matavire 1999; Swartkops Trust 2006).

The longer a resident had been in the area, the more likely they were to have experienced any environmental impacts from the companies in Bluewater Bay, and the more likely it is that they would be aware of the history of pollution-related events. If the residents were new to the area, they might not have experienced any pollution events during their residency. The home language of the respondent was also recorded, to determine any intra-population differences due to culture or language, as the census data indicate the presence of different ethnic groups in this area (Statistics SA 2013).

The Nelson Mandela Bay Municipal Ward demarcation shows that Bluewater Bay falls within Ward 60, which incorporates a number of other suburbs, such as Redhouse to the north, Swartkops Village to the north-west, and a portion of Motherwell to the north-east (Municipal Demarcation Board 2010). The 2011 census data show that different ethnic groups are present in the different wards (Statistics SA 2013). This is shown in Table 4-3, which shows the population of Ward 60, of which Bluewater Bay is a part, compared with Motherwell Township.

Table 4-3 – Population Group Differences Bluewater Bay and Motherwell

Population Group	Ward 60 Population	Percentage of Total	Motherwell Population	Percentage of Total
Black African	19,534	78%	150,284	87%
Coloured	1,753	7%	11,773	7%
Indian or Asian	101	0%	179	0%
White	3,658	15%	9,158	5%
Other	96	0%	684	0%
Total	25,143		172,077	

(Statistics SA 2013)

The above table shows that there are ethnic differences in the Bluewater Bay population that could influence the responses to the survey. The ethnicity of the respondent is important because prior to 1994, Bluewater Bay was a whites-only suburb. The residents that were living in this area may thus have experienced more pollution-related events; and this could thus influence their responses. The ethnic and language data were, therefore, recorded and analysed to determine whether there were any statistically significant differences between the different respondent groups.

4.4.2. Questionnaire Development - Part 2a

The Expectations Gap

The objective of Part 2a of the questionnaire is to determine whether there is evidence of an expectations gap in the perceived environmental performance of the companies. An expectations gap could arise if the community believes the companies impact their environment and should ameliorate that impact, while the companies believe differently (IOD 2009; Deegan & Rankin 1999; de Villiers 1996a), or have a different opinion. Furthermore, an expectations gap could also arise if the community's needs regarding the companies' environmental performance had changed and the companies had not taken cognizance of this change in social norms.

This could result in the companies' legitimacy being threatened, which could ultimately impact their ability to operate (O'Donovan 2002; Suchman 1995; Ashforth & Gibbs 1990).

In order to determine whether an expectations gap was evident - and importantly the gap should be measured, as required by Section 8.1 in the King III Report (IOD 2009), the following questions were included in the survey on company-environmental performance:

Question 2.1 – The companies in Markman Industrial Township are polluting the environment, and this is affecting the residents of Bluewater Bay.

Question 2.4²⁶ – There are urgent environmental issues in Bluewater Bay that have been caused by Markman Industrial Township companies, and these issues need to be resolved as soon as possible.

²⁶ The different questions relating to Stakeholder and Legitimacy Theory in Part 2 were not presented sequentially, on the survey form; therefore, the actual question numbers that were used are presented

If there is a statistically significant difference in the responses to these questions/statements, between the community and company respondents, this would indicate the likelihood of there being an expectations gap in the companies' environmental performance. These questions address Research Objective 1A, which is to *"determine whether the community believe the companies in the Markman Industrial Township negatively affect the natural environment in a substantial manner. And do the companies believe differently?"*

Furthermore, Stakeholder Theory suggests that companies have moral obligations to other stakeholders, such as civil society (Humber 2002); and that civil society, including local communities, should be at the top of the stakeholder list (Lépineux 2005). Question 2.2 asked the residents whether they believed that *"the community has the right to be viewed as legitimate stakeholders in the companies in Markman Industrial Township"*. This addressed Research Objective 1B: *"Does the community believe they are a legitimate stakeholder in the companies located in Markman Industrial Township? And do the companies believe differently?"*

A further test to determine the likelihood of an expectations gap concerned the power a community has to bring about positive changes to their environment. The more powerful a stakeholder is, the more demands they can place on another party that is impacting their environment (Scott & Lane 2000). Question 2.3 thus tests whether the community believe

here. Furthermore, the survey form contained questions as well as statements, but for ease of clarity, the term "Question Number" is used throughout this study when referring to the numbering system.

they have the necessary power to positively influence the companies in Markman Industrial Township. A statistically significant difference in the response to this question could indicate the presence of an expectations gap – if the community feel they have the requisite power to compel companies to take positive environmentally related actions, and the company believes the community does not have this power. Question 2.3 is thus as follows:

Question 2.3 – The local communities east of the Swartkops River have the power to compel the Markman organizations to take positive environmental actions to improve the environment.

The community's right to information is entrenched in several South African statutes (South Africa 1996; South Africa 1998a; South Africa 2000a; South Africa 2000b; South Africa 2004). Furthermore, the King III Report requires South African companies to disclose their environmental performance. If the community is expecting CSR performance information and the companies are unwilling to provide this information, then an expectations gap is likely to occur. Questions 2.5 and 2.6 tested whether the residents believed that they had a right to environmental information, and whether the companies in Markman Industrial Township should provide this information. The two questions that addressed these issues are as follows:

Question 2.5 – The residents of Bluewater Bay have the right to demand environmentally related information from the Markman Industrial Township companies.

Question 2.6 – Markman, Industrial Township companies should continually or regularly inform the residents of Bluewater Bay about their environmental performance.

4.4.3. Questionnaire Development - Part 2b

Environmental Performance Information Needs

An expectations gap could also arise if the community believe that certain environmental information is required, and the companies do not want to disclose this information. Whilst not everyone may know what environmental information is, a list of the possible types of environmental information the community may require was derived from the King III reporting requirements (IOD 2009), the GRI indicators (GRI 2007), as well as ISO 14063 (2006) and ISO 26000 (2010). The preference for the various types of information was tested in Questions 2.7.1 – 2.7.11 of the questionnaire; and this is presented in Table 4-4 below. The list is also consistent with the types of information that South African shareholders require in a study conducted by de Villiers and van Staden (2010).

The disclosure of CSR information could thus serve the dual purpose of satisfying community and shareholder needs. The questions addressed Research Objective 2A – *What type of environmental-performance information does the community need? And what types of information are the companies willing to provide?*

Table 4-4 Survey Questions regarding Environmental Information Preferences

Question Number	Question	Question Number	Question
Questions relating to Information Needs			
2.7.1	The amount of raw materials consumed per annum.	2.7.7	The amount and type of hazardous and non-hazardous waste generated.
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	2.7.8	The amount of the products of each organisation that can be recycled.
2.7.3	The amount of water used per annum.	2.7.9	Incidents of non-compliance with environmental laws and regulations.

Question Number	Question	Question Number	Question
Questions relating to Information Needs			
2.7.4	The amount and type of liquid effluents discharged to sewer.	2.7.10	The significant impact of transport used for logistical purposes.
2.7.5	The amount and type of air emissions from each organization.	2.7.11	The total environmental expenditure by type per annum.
2.7.6	The amount and type of chemical spills emanating from each organization		

4.4.4. Questionnaire Development - Parts 3 & 4

In Part 3, the respondent's preference for verbal or non-verbal communication methods was tested. In Part 4, the perceived effectiveness of the 26 communication methods contained in ISO 14063:2006 was tested. The questions are presented in Table 4-5 below. Parts 3 & 4 of the questionnaire addressed Research Objective 2B – *What types of environmental-performance communication methods do the community and companies believe would be effective?*

Table 4-5 Survey Questions relating to Communication Methods

Question Number	Question	Question Number	Question
Questions relating to the Effectiveness of Communication Methods			
4.1	Art exhibitions	4.14	Community-liaison groups
4.2	Help desk	4.15	Websites
4.3	Presentation groups	4.16	Formal Environmental Reports
4.4	Community dinners	4.17	Newsletters
4.5	Theatre presentations	4.18	Product labels with environmental information
4.6	Co-operative projects with the community	4.19	Posters displayed at local points such as Supermarkets
4.7	Sustainability agreements	4.20	Displays with environmental information manned by organization employees at local points, such as Supermarkets
4.8	Focus groups on a specific topic	4.21	Letters to residents
4.9	Surveys	4.22	Newspaper feature articles
4.10	Open house / information days	4.23	News releases

Question Number	Question	Question Number	Question
Questions relating to the Effectiveness of Communication Methods			
4.11	Guided tours with environmental focus	4.24	Advertising
4.12	Workshops / conferences	4.25	Public meetings
4.13	Radio interviews	4.26	Personal contact / interviews

4.4.5. Questionnaire Development - Part 5

Legitimation Strategies

If the community believes that only symbolic legitimation strategies have been used by the companies, it may indicate that the companies see the community as less important than other stakeholders (Questions 5.1-5.10 in Table 4-3 below). These questions are derived from the legitimation strategies discussed in Chapter 3, and by authors, such as Ashforth and Gibbs (1990); Lindblom (1993); Savage (1998); Archel, Husillos, Larrinaga and Spence (2009); Chen and Roberts (2010). The red /bold font indicates whether the strategy is regarded as substantive or symbolic in nature.

Table 4-6 Survey Questions relating to Legitimation Strategies

Question Number	Question	Question Number	Question
Questions relating to Legitimation Strategies			
5.1	Markman companies have changed their activities to suit society. (Substantive Strategy)	5.6	Markman companies offer public excuses for some of their actions. (Symbolic Strategy)
5.2	Markman companies have implemented changes that are substantive and positive to blend in with society's norms and beliefs. (Substantive Strategy)	5.7	Markman companies make highly visible "right thing to do" actions without real company change taking place. (Symbolic Strategy)
5.3	Markman companies have through communication, altered their definition of societal legitimacy to suit their own needs. (Substantive Strategy)	5.8	Markman companies admit guilt when their actions affect others, but do little else. (Symbolic Strategy)
5.4	The Markman companies advocate socially acceptable goals, while their actions are less acceptable. (Symbolic Strategy)	5.9	Markman companies supply ambiguous or misleading information regarding their activities that is open to misinterpretation. (Symbolic Strategy)

Question Number	Question	Question Number	Question
Questions relating to Legitimation Strategies			
5.5	Markman companies have denied or concealed activities that are not legitimate. (Symbolic Strategy)	5.10	Markman companies offer trivial or partial information and do not address environmental problems. (Symbolic Strategy)

- a) The questions presented in Table 4-3 above address Research Objective 1D – *Have the communities identified any symbolic and substantive legitimation strategies that the companies may have used?*

4.4.6. Questionnaire Development – Part 6

The measurement of the perception of the importance of various stakeholder groups was tested in Questions 6.1 to 6.9, and these questions provide information on the level of stakeholder salience. According to earlier literature, the more salient a stakeholder is, the more attention they will receive from company managers (Gray, Owen & Adams 1996; Agle, Mitchell and Wood 1997; Neu et al 1998). If there is a statistically significant difference between the community and the company's respondents on the importance of the community as a stakeholder group, then an expectations gap could also occur.

Questions 6.1 to 6.9 tested this view, and addressed Research Objective 1C: *"How does the community view the companies' perceptions of the importance of the various stakeholder groups and do the companies have a different view?"*

The list of different stakeholder groups that were presented in these questions was identified by authors, such as Henriques and Sadorsky (1999); ISO 14063 (2006); ISO 26000 (2010); Gago and Mariano (2004) and Crane and Ruebottom (2011). The stakeholder groups that were used in the survey questionnaire were thus drawn from these authors; and are:

- Government officials, Regulatory bodies;
- Shareholders, Investors;
- Banks etc. where loans are accessed;
- People in the community;
- Environmental lobby groups;
- Employees;
- Media;
- Customers;
- Trade organizations.

4.5. The Company Questionnaire

The company questionnaire that was used in the field study is contained in Appendix 9. The questionnaire is largely the same as the community questionnaire, but with minor differences. The administrative section of the questionnaire required the respondent to state the name of the company (which was optional, in order to facilitate anonymity, if required).

The demographic section required the respondent to provide the following information:

- The respondent's position in the company;
- The economic sector in which the company operates;
- Whether the company has been certified as ISO 14001:2004; and
- Does the company have an environmental communication strategy?

The above questions were asked to determine whether there were any statistically significant differences in the company responses. Those companies which had received formal environmental management certification, or had formal communication strategies,

might respond differently. Furthermore, those companies that are in more environmentally sensitive industries, such as the tanning and food-processing companies, might also respond differently.

The same question motivation, and question content, as that used in the community survey was used in the company survey. The development of the community survey questions is thus applicable here; and they are not repeated. In Part 6, the company respondents recorded whether any environmental improvements had been made at their companies prior to, and, within the last 24 months. This was to determine whether the perception of the community on the use of substantive legitimization strategies was accurate.

4.6. Sample Identification

The sample for the community survey was derived from a Nelson Mandela Metropolitan Municipality drawing of the erven in Bluewater Bay and Amsterdamhoek. The drawing indicated that a total of 1514 plots have been proclaimed in this area (Nelson Mandela Metropolitan Municipality 2004). The survey forms were hand-delivered to each plot over a three-week period starting in the last week of August 2006. Respondents were requested to either drop the completed forms off at two convenient places in the community (Engen Garage and Pick 'n Pay) where a box was available for this purpose, or they could contact an appointed co-ordinator in the community who would fetch the forms. The survey box was cleared every week and the date recorded on the survey form. A total of 133 survey forms were collected by the third week in October; and none were placed in the collection boxes the following week.

Starting in the last week of October 2006, the last 20 survey forms were collected by two trained field researchers. The field researchers requested 20 randomly selected erven from the 1514 plots; and they requested these residents to participate in the survey. This method was necessary for two reasons: firstly, the number of voluntary returns had ceased and the sample size was just below 10% of the population. Secondly, a part of the survey method was to determine whether the residents who chose not to take part in the survey, answered the same as those who had volunteered their responses. This approach enabled a non-response bias test.

In total 153 surveys were completed which equates to a 10% sample size.

The Markman Industrial Township population was determined by conducting an inspection of the area, and recording the names of all the companies on the occupied plots, as there are still a number of undeveloped plots in the area. This was the most accurate way of determining the company population. The companies were all contacted telephonically to determine who the most senior person was in each company. The surveys forms were e-mailed or faxed to the most senior person, or their nominated alternative, such as the Environmental Manager and Production Manager. Those companies that did not respond after three weeks, were all telephoned, at least twice, or until a formal refusal had been received. There were 26 responses out a possible 66 active companies in this area, which equates to a 39% response rate.

The initial field survey was conducted in 2006. Due to the length of time that had elapsed before the data were fully analysed, a second community survey was conducted in 2010. This was to determine whether the community would respond differently given the elapse of

time, since the demographics, the residents' views and the societal norms could have changed. The second survey was conducted on 30 randomly selected homes that were not part of the initial survey. All the homes that were contacted participated in the survey. The response rate here was thus 100%. A second survey of the companies was not deemed necessary as the initial sample size was small and the same companies were still operational.

The response rates for the community and the company surveys appear to be acceptable when compared to other studies: For example, de Villiers and Vorster (1995) 7.5% and Deegan and Rankin (1997) 24%. A disadvantage when encountering low response rates is the possibility of non-response bias (Kanuk & Berenson 1975); but Sax, Gilmartin and Bryant (2003) report that if the respondent characteristics are representative of the non-respondents, then low response rates do not necessarily result in bias. The second community survey that was conducted could be seen to be a non-response bias test; and furthermore, the follow-up of the last group of respondents in the first survey could also be taken to represent the non-responders.

4.7. Method of Data Analysis

The data were collected and analysed by using a spread sheet and a statistical package. Three types of statistical tests were performed, namely: measures of central location, measures of dispersion, and tests to determine the statistically significant differences between two independent groups.

The tests that were chosen were designed for use with non-parametric data – for three reasons. Firstly, no information was available on the probable distribution in the population.

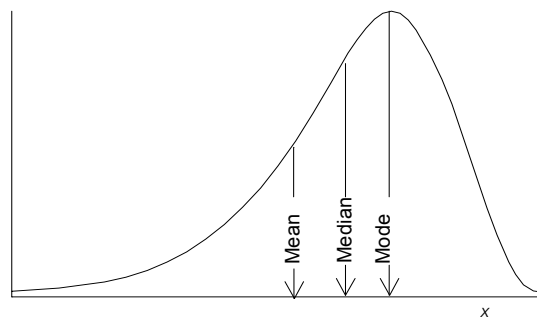
Secondly, the sample sizes were small (26 company respondents); and thirdly, only ordinal data were collected. It was, therefore, appropriate to conduct non-parametric tests (Diamantopoulos & Schlegelmilch 2000; Wegner 1993).

As the response questionnaire was received, it was date-stamped, allocated a unique number, and entered into a spreadsheet. The following measures of central location and dispersion were calculated in the spread sheet:

- The arithmetic mean;
 - The mode (the most frequently occurring value in the data set);
 - The median (the value above which and below which half the values lie);
 - The standard deviation (a description of how the data are spread about the mean);
- and
- The measure of skewness (a description of the shape of the distribution of the observations, which refers to the degree of departure from symmetry).

The measure of skewness showed that the data could be skewed to the left or right. This indicated how the arithmetic mean of each question was influenced by a few small values or high values, and would thus cause the mean to lie to the left or to the right of the mode, and the median values. This is graphically illustrated in an example in the Figure 4-1 below.

Figure 4-1 Skewed Data Distribution



Data Skewed To The Left

4.7.1. Kruskal-Wallis' One-Way Analysis of Variance Test

The Mann-Whitney U-test is the non-parametric equivalent of the parametric one-way ANOVA test for three or more independent groups (Diamantopoulos & Schlegelmilch 2000). This test was used to test the null hypothesis across three more groups, assuming that the distribution in the population was the same, and any differences occurred in the location of the values – and in particular the median. Once a difference was established across the groups, using the Kruskal-Wallis One-Way ANOVA, the Mann-Whitney U-test was used to determine between which groups the differences occurred.

4.7.2. Mann-Whitney U-Test

The Mann-Whitney U-test is also known as the “*Wilcoxon Rank Sum W-test*”; and it is used to compare two groups on a variable that has ordinal-scale properties (Diamantopoulos & Schlegelmilch 2000: 180). The Mann-Whitney U-test is the non-parametric equivalent of the t-test.

4.8. Chapter Summary

In this chapter, the research method to collect the empirical data was explained. The importance of the delimitation of the population, to ensure reliable results was discussed. The survey method was shown to be consistent with other studies, where CSR disclosure was considered (Deegan & Rankin 1997; de Villiers & van Staden 2010a, de Villiers & van Staden 2010b). The design of a survey questionnaire was discussed, which included the pitfalls to avoid when designing a questionnaire including the use of closed questions, demographic sections and pilot surveys to improve the data accuracy (Wegner 1993).

A pilot survey was conducted. This resulted in changes being made to the questionnaire to improve the survey reliability and accuracy. The Likert-rating scale was introduced, as it is a means to obtain numerical data for statistical analytical purposes, albeit that the respondent's subjective beliefs on various issues were being tested.

The development of the questions to test whether an expectations gap was evident between the company and community respondents was presented. The King III Report on Corporate Governance (IOD 2009) requires companies to measure the expectations gap between the company's performance and their stakeholders' expectations. The questions were developed from previous studies conducted by O'Donovan (2002); Suchman (1995); Ashforth and Gibbs (1990); Deegan and Rankin (1999); and de Villiers (1996a).

A further part of the survey was to develop the questions on stakeholder importance. It was shown that the more important a stakeholder is perceived to be, the more attention they would receive from company managers (Gray, Owen & Adams 1996; Agle, Mitchell and Wood 1997). The questions on the symbolic and substantive legitimacy strategies were

developed to identify whether the community believed that any of these strategies were being used by the Markman Industrial Township companies.

The use of only symbolic legitimization strategies could ultimately contribute to a legitimacy gap, and threaten a company's overall legitimacy to operate, even if they had the legal legitimacy to operate (Samkin & Schneider 2010).

The types of information that the community might require were identified from various sources, such as the King III reporting requirements (IOD 2009), the GRI indicators (GRI 2007), ISO 14063 (2006), and ISO 26000 (2010). The questions relating to the community preferences for the various types of communication methods were presented. The types of communication methods were identified in ISO 14063:2006.

The identification of the sample in Bluewater Bay and the Markman Industrial Township was discussed. The response rates were presented, and the reason for a second community survey explained. Lastly, the method of data analysis was presented – including the two statistical tests for analysing non-parametric data. In Chapter 5, the results of the survey will be presented.

CHAPTER 5 PRESENTATION OF THE RESULTS

5.1. Introduction

In this chapter the results of the field survey are presented and discussed. The descriptive statistics are presented and the responses to each question are discussed in detail. This is followed by a summary and a discussion at the end of this section – to provide some perspective on the findings. A summary of the findings from the two questionnaires, by mean score, is presented. The findings are linked to the research objectives, and a discussion thereof follows.

5.2. Community Survey Results – Descriptive Statistics

The results of the community survey are presented below. The results are divided into six parts, and each part is discussed separately. Part 1 deals with the respondent details; Part 2 tests the expectations gap, using the Stakeholder Theory and legitimacy theory, as well as the types of information required by the respondents; Part 3 tests the respondents' preference for verbal or non-verbal communication; in Part 4 the respondents are asked to rate the effectiveness of the various communication methods; Part 5 determines if there is evidence of any legitimization strategies that the companies might have used; and Part 6 tests the importance of the various stakeholder groups. The entire questionnaire is reproduced in Appendix 8.

5.2.1. Community Survey Results Part 1

Table 5-1 – Duration of Residence in Bluewater Bay (Months)

N	Months			Standard Deviation
	Mean	Minimum	Maximum	
146	158.64	2	850	149.08
Respondents who did not answer = 7				

In Question 1.1, the survey number was recorded. In Question 1.2 the respondents voluntarily recorded their surname. These details are recorded in Appendix 12.

The duration that the residents have resided in Bluewater Bay varies greatly; and this was recorded in Question 1.3 of the questionnaire. Table 5-2 indicates a histogram of the above information; and it shows that the most frequent respondent group comprises those residents that have resided in the area for between 5 to 10 years. A test to determine whether the duration of the residence resulted in any statistically significant differences is contained in Section 5.8.2.

Table 5-2 - Histogram of Duration of Residence in Bluewater Bay

Duration	Frequency Count
1-12 Months	10
13-24 Months	16
25-36 Months	8
37-48 Months	7
49-60 Months	13
61-120 Months	28
121-180 Months	15
181-240 Months	13
241-360 Months	21
>360 Months	15

Table 5-3 indicates that 80.4% of the respondents own their own dwellings. A test to determine whether homeowners or residents that rent their homes had a statistically significant effect on the results is contained in Section 5.8.1. A discussion on the reason why this test was conducted is included in Section 5.8.1.

Table 5-3 – Ownership of Dwelling

Response	Count	Cumulative Count	Per cent	Cumulative Percent
No	22	22	14.4%	14.4%
Yes	123	145	80.4%	94.8%
Number of respondents that omitted the question	8	153	5.2%	100.0%

Table 5-4 indicates that the majority of the respondents speak either English or Afrikaans. A test to determine whether the respondents' language had any statistically significant effect on the results is contained in Section 5.8.3.

Table 5-4 – Home Language

Language	Count	Cumulative Count	Per cent	Cumulative Per cent
Xhosa	11	11	7.2%	7.2%
Afrikaans	39	50	25.5%	32.7%
English	91	141	59.5%	92.2%
Other	9	150	5.9%	98.0%
Number of respondents that omitted the question	3	153	2.0%	100.0%

5.2.2. Community Survey Results Part 2

The descriptive statistical results for Part 2 of the questionnaire are presented below, by question. A summary is provided in Section 5.3.

Question 2.1 – The companies in Markman Industrial Township affect the environment in a substantial manner.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	0	0.0%	0.7%	N	148
Disagree	2	1	0.7%		Mean	4.4
Uncertain/ Neutral	3	15	10.1%	10.1%	Median	5
					Mode	5
Agree	4	50	33.8%	89.2%	Std. Dev.	0.7
Strongly Agree	5	82	55.4%		Skewness	-0.98

The results show that 89.2% of the residents believe that the environment is affected by the Markman Industrial Township companies. The response has a mean score of above four and a mode of five. This statement is important since it lays the foundation for other statements on the companies' environmental performance. If the majority of the residents did not agree that the companies in the area affect the environment substantially, then the collective perception of a legitimacy gap between the actual company-environmental performance, and what the community expects of the company, would have been difficult to determine. The results to this question could be used to measure the gap in stakeholder expectations, as required by the King III Report (IOD 2009).

Questions 2.2 – The local communities east of the Swartkops River are legitimate stakeholders in the Markman companies.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	2	1.4%	6.9%	N	145
Disagree	2	8	5.5%		Mean	3.8
Uncertain/ Neutral	3	46	31.7%	31.7%	Median	4
					Mode	5
Agree	4	44	30.3%	61.4%	Std. Dev.	0.98
Strongly Agree	5	45	31.0%		Skewness	-0.40

The results indicate that 61.4% of the residents agree that they are legitimate stakeholders in the Markman Industrial Township companies. The residents that agree with this statement may thus expect to be informed of any issues that might affect them. This expectation may then require the companies to determine what information is to be communicated, and how it should be communicated.

Question 2.3 – The local communities east of the Swartkops River have the power to affect the Markman companies.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	5	3.4%	17.9%	N	145
Disagree	2	21	14.5%		Mean	3.6
Uncertain/ Neutral	3	33	22.8%	22.8%	Median	4
					Mode	5
Agree	4	53	36.6%	59.3%	Std. Dev.	1.09
Strongly Agree	5	33	22.8%		Skewness	-0.49

The results indicate that 59.3% of the respondents agree that they have the power to affect the companies. This lower mean score (3.6) of this question compared to the mean score (3.8) of Question 2.2, that tested whether the community believe they are a stakeholder in the companies, could indicate that the residents who view themselves as stakeholders do not necessarily feel that they can influence the companies.

Question 2.4 – The local communities east of the Swartkops River have urgent environmental issues with respect to Markman companies.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	1	0.7%	2.0%	N	148
Disagree	2	2	1.4%		Mean	4.4
Uncertain/ Neutral	3	18	12.2%	12.2%	Median	5
					Mode	5
Agree	4	50	33.8%	85.8%	Std. Dev.	0.80
Strongly Agree	5	77	52.0%		Skewness	-1.21

The majority of the respondents (85.8%) agree there are environmental issues relating to the activities of the Markman Industrial Township companies. The high median score (5) confirms that there is a widespread perception of the environmental issues. An analysis of the response rates indicates that of the 21 respondents that were uncertain or disagreed with the statement, six of these respondents had lived in Bluewater Bay for less than 24 months. This could explain why they disagreed with the statement, as they may have limited knowledge of the past history on pollution events.

Question 2.5 – The local communities have the right to demand environmentally related information from Markman companies.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	1	0.7%	2.6%	N	151.0
Disagree	2	3	2.0%		Mean	4.6
Uncertain/ Neutral	3	11	7.3%	7.3%	Median	5
					Mode	5
Agree	4	30	19.9%	90.1%	Std. Dev.	0.77
Strongly Agree	5	106	70.2%		Skewness	-2.01

The results indicate that 90.1% of the respondents agreed with this statement. This is higher than those who agreed that they are stakeholders in the company (61.4%). It would appear

that even though some residents may not think they are stakeholders, they still have the right to demand environmental performance information.

Question 2.6 – Markman companies should have a continuing dialogue with the local communities on their environmental performance.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	2	1.3%	1.3%	N	151.0
Disagree	2	0	0.0%		Mean	4.6
Uncertain/ Neutral	3	8	5.3%	5.3%	Median	5
					Mode	5
Agree	4	40	26.5%	93.4%	Std. Dev.	0.72
Strongly Agree	5	101	66.9%		Skewness	-2.26

The results indicate that 93.4% of the respondents agree with this statement.

Question 2.7.1 – Markman companies should provide information to the local community on the amount of raw materials consumed per annum.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	4	2.7%	8.0%	N	150
Disagree	2	8	5.3%		Mean	3.9
Uncertain/ Neutral	3	34	22.7%	22.7%	Median	4
					Mode	5
Agree	4	52	34.7%	69.3%	Std. Dev.	1.0
Strongly Agree	5	52	34.7%		Skewness	-0.80

The results indicate that 69.3% of the respondents agree with this statement.

Question 2.7.2 – Markman companies should provide information to the local community on the amount of energy consumed per annum (oil, gas, electricity, coal).

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	2	1.3%	6.7%	N	150
Disagree	2	8	5.3%		Mean	4.0
Uncertain/ Neutral	3	32	21.3%	21.3%	Median	4
Agree	4	61	40.7%	72.0%	Mode	4
Strongly Agree	5	47	31.3%		Std. Dev.	0.9
					Skewness	-0.72

The results show that 70% of the respondents agree with this statement. The consumption of these raw materials in energy production could lead to air pollution, which could have an effect on the community, hence the need for this information.

Question 2.7.3 – Markman companies should provide information to the local community on the amount of water used per annum.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	2	1.3%	4.0%	N	149
Disagree	2	4	2.7%		Mean	4.1
Uncertain/ Neutral	3	31	20.8%	20.8%	Median	4
Agree	4	55	36.9%	75.2%	Mode	5
Strongly Agree	5	57	38.3%		Std. Dev.	0.9
					Skewness	-0.83

The results show that 75.2% of the respondents agree with this statement.

Question 2.7.4 – Markman companies should provide information to the local community on the amount and type of liquid effluents discharged to the sewer.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	0	0.0%	0.7%	N	148
Disagree	2	1	0.7%		Mean	4.4
Uncertain/ Neutral	3	15	10.1%	10.1%	Median	5
Agree	4	50	33.8%	89.2%	Mode	5
Strongly Agree	5	82	55.4%		Std. Dev.	0.7
					Skewness	-0.98

The number of respondents that agree with this statement (89.2%) indicates that the residents require information on the discharges to the sewer. An explanation for the high mean and median scores could be attributed to the tanneries that operate in Markman Industrial Township. The tanneries generally use settling ponds for effluent, as well as discharging liquid effluent to the sewer. The main source of air pollution (hydrogen sulphide) is from the production of effluent, hence the community requiring this information.

Question 2.7.5 – Markman companies should provide information to the local community on the amount and type of air emissions from each company.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	1	0.7%	1.3%	N	150
Disagree	2	1	0.7%		Mean	4.7
Uncertain/ Neutral	3	8	5.3%	5.3%	Median	5
Agree	4	25	16.7%	93.3%	Mode	5
Strongly Agree	5	115	76.7%		Std. Dev.	0.7
					Skewness	-2.53

The high number of respondents that agree with this statement (93.3%) indicates the importance of information on discharges to the atmosphere. As air pollution is probably the most “common” concern, about which the residents complain, the above response was to be expected.

Question 2.7.6 – Markman companies should provide information to the local community on the amount and type of chemical spills emanating from each company.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	1	0.7%	2.0%	N	150
Disagree	2	2	1.3%		Mean	4.7
Uncertain/ Neutral	3	4	2.7%	2.7%	Median	5
					Mode	5
Agree	4	20	13.3%	95.3%	Std. Dev.	0.6
Strongly Agree	5	123	82.0%		Skewness	-3.21

The results show that 95.3% of the respondents agree with this statement. This statement has the highest mean score returned by the community respondents. The explanation could be that the residents are aware that most of the stormwater from the Markman Industrial Township area eventually enters the Swartkops River. The consequences of a spill into the stormwater drains would probably affect the water quality in the Swartkops River estuary.

Question 2.7.7 – Markman companies should provide information to the local community on the amount and type of hazardous and non-hazardous waste generated.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	1	0.7%	0.7%	N	149
Disagree	2	0	0.0%		Mean	4.7
Uncertain/ Neutral	3	8	5.4%	5.4%	Median	5
					Mode	5
Agree	4	22	14.8%	94.0%	Std. Dev.	0.6
Strongly Agree	5	118	79.2%		Skewness	-2.71

This statement has the second highest mean score by the community respondents. The location of a nearby hazardous waste site could explain the respondents' concern about the amount and type of waste that is produced.

Question 2.7.8 – Markman companies should provide information to the local community on the amount of waste from each company that can be recycled.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	1	0.7%	0.7%	N	147
Disagree	2	0	0.0%		Mean	4.2
Uncertain/ Neutral	3	22	15.0%	15.0%	Median	4
					Mode	4
Agree	4	73	49.7%	84.4%	Std. Dev.	0.7
Strongly Agree	5	51	34.7%		Skewness	-0.72

The results show that 84.4% of the respondents agree with this statement.

Question 2.7.9 – Markman companies should provide information to the local community on any incidents of non-compliance with environmental laws and regulations.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	1	0.7%	1.4%	N	147
Disagree	2	1	0.7%		Mean	4.6
Uncertain/ Neutral	3	6	4.1%	4.1%	Median	5
					Mode	5
Agree	4	38	25.9%	94.6%	Std. Dev.	0.7
Strongly Agree	5	101	68.7%		Skewness	-2.18

The results show that 94.6% of the respondents agree with this statement. The high number of respondents agreeing with this statement indicates that the community may feel threatened, as any such instances of legal non-compliance could have off-site consequences, hence the need to know about the legal non-compliances.

Question 2.7.10 – Markman companies should provide information to the local community on the significant impact of transport used for logistical purposes.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	2	1.4%	2.0%	N	147
Disagree	2	1	0.7%		Mean	3.9
Uncertain/ Neutral	3	38	25.9%	25.9%	Median	4
					Mode	4
Agree	4	70	47.6%	72.1%	Std. Dev.	0.8
Strongly Agree	5	36	24.5%		Skewness	-0.59

The results show that 72.1% of the respondents agree with this statement.

Question 2.7.11 – Markman companies should provide information to the local community on the total environmental expenditure by type per annum.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	1	0.7%	2.0%	N	148
Disagree	2	2	1.4%		Mean	4.1
Uncertain/ Neutral	3	33	22.3%	22.3%	Median	4
					Mode	5
Agree	4	50	33.8%	75.7%	Std. Dev.	0.9
Strongly Agree	5	62	41.9%		Skewness	-0.68

The results show that 75.7% of the respondents agree with this statement. The type and amount of environmental expenditure to which the companies are committed would be indicative of a substantive commitment to environmental protection. This type of information is one way whereby the community could monitor the actual environmental management commitment by a company.

5.2.3. Community Survey Results Parts 3 and 4

Question 3.1 – Choose one strategy which you think is best for communicating with the community – Verbal or non-verbal communication.

Category	Count	%
Verbal communication (e.g. public meetings)	36	24.2%
Non-verbal communication (e.g. newsletters)	113	75.8%
# Respondents	149	

The results indicate that 75.8% of respondents prefer non-verbal communication. This is substantiated by the results in Part 4 of the questionnaire that tested the methods of communication preferred by the community. The five highest mean scores were all for non-verbal types of communication.

Part 4 of the questionnaire tested what communication methods the respondents thought were effective.

Question 4.1 – How effective would it be to promote communication with a community using Art Exhibitions?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	25	16.9%	39.2%	N	148
Ineffective	2	33	22.3%		Mean	2.7
Uncertain/ Neutral	3	58	39.2%	39.2%	Median	3
					Mode	3
Effective	4	26	17.6%	21.6%	Std. Dev.	1.1
Very Effective	5	6	4.1%		Skewness	-0.05

The results show that 21.6% of the respondents agree that this communication method would be, in all probability, the most effective.

Question 4.2 – How effective would it be to promote communication with a community by using a Help desk?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	3	2.0%	14.2%	N	148
Ineffective	2	18	12.2%		Mean	3.8
Uncertain/ Neutral	3	27	18.2%	18.2%	Median	4
					Mode	4
Effective	4	65	43.9%	67.6%	Std. Dev.	1.0
Very Effective	5	35	23.6%		Skewness	-0.66

The results show that 67.6% of the respondents agree that this communication method would be effective.

Question 4.3 – How effective would it be to promote communication with a community by using Presentation groups?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	4	2.7%	10.1%	N	148
Ineffective	2	11	7.4%		Mean	3.6
Uncertain/ Neutral	3	45	30.4%	30.4%	Median	4
					Mode	4
Effective	4	68	45.9%	59.5%	Std. Dev.	0.9
Very Effective	5	20	13.5%		Skewness	-0.61

The results show that 59.5% of the respondents agree that this communication method would be effective.

Question 4.4 – How effective would it be to promote communication with a community by using community dinners?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	26	17.6%	50.0%	N	148
Ineffective	2	48	32.4%		Mean	2.5
Uncertain/ Neutral	3	52	35.1%	35.1%	Median	3
					Mode	2
Effective	4	19	12.8%	14.9%	Std. Dev.	1.0
Very Effective	5	3	2.0%		Skewness	0.19

The results show that 14.9% of the respondents agree that this communication method would be effective.

Question 4.5 – How effective would it be to promote communication with a community by using Theatre presentations?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	24	16.4%	43.2%	N	146
Ineffective	2	39	26.7%		Mean	2.6
Uncertain/ Neutral	3	53	36.3%	36.3%	Median	3
					Mode	3
Effective	4	26	17.8%	20.5%	Std. Dev.	1.0
Very Effective	5	4	2.7%		Skewness	0.04

The results show that 20.5% of the respondents agree that this communication method would be effective.

Question 4.6 – How effective would it be to promote communication with a community by using co-operative projects with the community?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	1.3%	4.7%	N	150
Ineffective	2	5	3.3%		Mean	4.1
Uncertain/ Neutral	3	17	11.3%	11.3%	Median	4
					Mode	4
Effective	4	83	55.3%	84.0%	Std. Dev.	0.8
Very Effective	5	43	28.7%		Skewness	-1.13

The results show that 84% of the respondents agree that this communication method would be effective. This method is the highest scoring verbal communication method. It is also a substantive method that the company could use to communicate with the community, as it suggests that a project could be used to jointly solve various environmental issues.

Question 4.7- How effective would it be to promote communication with a community by using sustainability agreements?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	1.4%	4.8%	N	146
Ineffective	2	5	3.4%		Mean	4.0
Uncertain/ Neutral	3	33	22.6%	22.6%	Median	4
					Mode	4
Effective	4	60	41.1%	72.6%	Std. Dev.	0.9
Very Effective	5	46	31.5%		Skewness	-0.71

The results show that 72.6% of the respondents agree that this communication method would be effective.

Question 4.8 – How effective would it be to promote communication with a community by using Focus groups on a specific topic?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	3	2.0%	4.7%	N	150
Ineffective	2	4	2.7%		Mean	4.0
Uncertain/ Neutral	3	34	22.7%	22.7%	Median	4
					Mode	4
Effective	4	62	41.3%	72.7%	Std. Dev.	0.9
Very Effective	5	47	31.3%		Skewness	-0.81

The results show that 72.7% of the respondents agree that this communication method would be effective.

Question 4.9 – How effective would it be to promote communication with a community by using surveys?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	3	2.0%	5.4%	N	149
Ineffective	2	5	3.4%		Mean	4.0
Uncertain/ Neutral	3	21	14.1%	14.1%	Median	4
					Mode	4
Effective	4	82	55.0%	80.5%	Std. Dev.	0.8
Very Effective	5	38	25.5%		Skewness	-1.13

The results show that 80.5% of the respondents agree that this communication method would be effective.

Question 4.10 – How effective would it be to promote communication with a community by using Open-house/information days?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	5	3.4%	8.2%	N	147
Ineffective	2	7	4.8%		Mean	3.6
Uncertain/ Neutral	3	48	32.7%	32.7%	Median	4
					Mode	4
Effective	4	67	45.6%	59.2%	Std. Dev.	0.9
Very Effective	5	20	13.6%		Skewness	-0.68

The results show that 59.2% of the respondents agree that this communication method would be effective.

Question 4.11 – How effective would it be to promote communication with a community by using Guided tours with an environmental focus?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	3	2.0%	8.1%	N	149
Ineffective	2	9	6.0%		Mean	3.9
Uncertain/ Neutral	3	24	16.1%	16.1%	Median	4
					Mode	4
Effective	4	79	53.0%	75.8%	Std. Dev.	0.9
Very Effective	5	34	22.8%		Skewness	-0.97

As may be seen in the table above, 75.8% of the respondents agreed that this method of communication would be effective. This is one method where the residents could see tangible evidence of environmental performance, and the on-site management of environmental risks to the company.

Question 4.12 – How effective would it be to promote communication with a community by using workshops/conferences?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	1.4%	15.6%	N	147
Ineffective	2	21	14.3%		Mean	3.5
Uncertain/ Neutral	3	46	31.3%	31.3%	Median	4
					Mode	4
Effective	4	60	40.8%	53.1%	Std. Dev.	0.9
Very Effective	5	18	12.2%		Skewness	-0.28

The results show that 53.1% of the respondents agree that this communication method would be effective.

Question 4.13 – How effective would it be to promote communication with a community by using radio interviews?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	1.3%	7.3%	N	150
Ineffective	2	9	6.0%		Mean	3.9
Uncertain/ Neutral	3	29	19.3%	19.3%	Median	4
					Mode	4
Effective	4	73	48.7%	73.3%	Std. Dev.	0.9
Very Effective	5	37	24.7%		Skewness	-0.77

The results show that 73.3% of the respondents agree that this communication method would be effective.

Question 4.14 – How effective would it be to promote communication with a community by using community liaison groups?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	1	0.7%	6.8%	N	147
Ineffective	2	9	6.1%		Mean	3.8
Uncertain/ Neutral	3	33	22.4%	22.4%	Median	4
					Mode	4
Effective	4	81	55.1%	70.7%	Std. Dev.	0.8
Very Effective	5	23	15.6%		Skewness	-0.64

The results show that 70.7% of the respondents agree that this communication method would be effective.

Question 4.15 – How effective would it be to promote communication with a community by using Websites?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	6	4.0%	12.1%	N	149
Ineffective	2	12	8.1%		Mean	3.6
Uncertain/ Neutral	3	48	32.2%	32.2%	Median	4
					Mode	3
Effective	4	52	34.9%	55.7%	Std. Dev.	1.0
Very Effective	5	31	20.8%		Skewness	-0.49

The results show that 55.7% of the respondents agree that this communication method would be effective. The response to this question could be influenced by the number of households with internet connect, as well as the speed of the connection. These factors were not investigated at the time of the survey.

Question 4.16 – How effective would it be to promote communication with a community by using formal Environmental Reports?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	1	0.7%	4.1%	N	146
Ineffective	2	5	3.4%		Mean	4.2
Uncertain/ Neutral	3	19	13.0%	13.0%	Median	4
					Mode	5
Effective	4	60	41.1%	82.9%	Std. Dev.	0.8
Very Effective	5	61	41.8%		Skewness	-1.02

The results show that 82.9% of the respondents agree that this communication method would be effective. The publication of a written report could be viewed as being more substantive than an oral report, hence the support for this method.

Question 4.17 – How effective would it be to promote communication with a community by using Newsletters?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	0	0.0%	3.3%	N	150
Ineffective	2	5	3.3%		Mean	4.3
Uncertain/ Neutral	3	11	7.3%	7.3%	Median	4
					Mode	5
Effective	4	65	43.3%	89.3%	Std. Dev.	0.8
Very Effective	5	69	46.0%		Skewness	-1.08

The results show that 89.3% of the respondents agree that this communication method would be effective. The use of newsletters has the highest mean score. As with the formal environmental report, the newsletter is probably favoured because written communications are more “trusted” than oral communications. This may be because written communication is a record in itself, which could be used as evidence, or referred to in the future.

Question 4.18 – How effective would it be to promote communication with a community by using product labels with environmental information?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	1.4%	8.8%	N	147
Ineffective	2	11	7.5%		Mean	3.9
Uncertain/ Neutral	3	28	19.0%	19.0%	Median	4
					Mode	5
Effective	4	61	41.5%	72.1%	Std. Dev.	1.0
Very Effective	5	45	30.6%		Skewness	-0.75

The results show that 72.1% of the respondents agree that this communication method would be effective.

Question 4.19 – How effective would it be to promote communication with a community by using posters displayed at local points, such as supermarkets?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	1.3%	7.3%	N	150
Ineffective	2	9	6.0%		Mean	4.0
Uncertain/ Neutral	3	29	19.3%	19.3%	Median	4
					Mode	4
Effective	4	60	40.0%	73.3%	Std. Dev.	0.9
Very Effective	5	50	33.3%		Skewness	-0.78

The results show that 73.3% of the respondents agree that this communication method would be effective.

Question 4.20 – How effective would it be to promote communication with a community by using displays with environmental information manned by company employees at local points, such as supermarkets?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	1.4%	7.4%	N	148
Ineffective	2	9	6.1%		Mean	3.9
Uncertain/ Neutral	3	33	22.3%	22.3%	Median	4
					Mode	4
Effective	4	60	40.5%	70.3%	Std. Dev.	0.9
Very Effective	5	44	29.7%		Skewness	-0.67

The results show that 70.3% of the respondents agree that this communication method would be effective. It is noteworthy that the respondents were slightly more in favour of information posters, which are unmanned by the company employees. The non-verbal communication method is once more confirmed as being the communication method of preference.

Question 4.21 – How effective would it be to promote communication with a community by using letters to the residents?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	1.3%	4.0%	N	149
Ineffective	2	4	2.7%		Mean	4.1
Uncertain/ Neutral	3	21	14.1%	14.1%	Median	4
					Mode	5
Effective	4	69	46.3%	81.9%	Std. Dev.	0.8
Very Effective	5	53	35.6%		Skewness	-1.05

The results show that 81.9% of the respondents agree that this communication method would be effective. This method has the fourth highest mean score. The use of letters could be viewed as a record that could be used as “evidence” in the future when the need arises.

Question 4.22 – How effective would it be to promote communication with a community by using Newspaper-feature articles?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	1.3%	2.0%	N	149
Ineffective	2	1	0.7%		Mean	4.2
Uncertain/ Neutral	3	14	9.4%	9.4%	Median	4
					Mode	4
Effective	4	81	54.4%	88.6%	Std. Dev.	0.7
Very Effective	5	51	34.2%		Skewness	-1.24

The results show that 88.6% of the respondents agree that this communication method would be effective. It has the third highest mean score.

Question 4.23 – How effective would it be to promote communication with a community by using News releases?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	1	0.7%	2.0%	N	148
Ineffective	2	2	1.4%		Mean	4.1
Uncertain/ Neutral	3	22	14.9%	14.9%	Median	4
					Mode	4
Effective	4	78	52.7%	83.1%	Std. Dev.	0.7
Very Effective	5	45	30.4%		Skewness	-0.77

The results show that 83.1% of the respondents agree that this communication method would be effective; and the mean score is ranked fifth.

Question 4.24 – How effective would it be to promote communication with a community by using Advertising?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	3	2.0%	6.8%	N	148
Ineffective	2	7	4.7%		Mean	3.8
Uncertain/ Neutral	3	41	27.7%	27.7%	Median	4
					Mode	4
Effective	4	67	45.3%	65.5%	Std. Dev.	0.9
Very Effective	5	30	20.3%		Skewness	-0.62

The results show that 65.5% of the respondents agree that this communication method would be effective.

Question 4.25 – How effective would it be to promote communication with a community by using public meetings?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	6	4.1%	15.5%	N	148
Ineffective	2	17	11.5%		Mean	3.5
Uncertain/ Neutral	3	49	33.1%	33.1%	Median	4
					Mode	4
Effective	4	54	36.5%	51.4%	Std. Dev.	1.0
Very Effective	5	22	14.9%		Skewness	-0.40

The results show that 51.4% of the respondents agree that this communication method would be effective. The mean score for this method is ranked 23rd out of 26 identified methods.

Question 4.26 – How effective would it be to promote communication with a community by using personal contact/interviews?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	6	4.1%	17.6%	N	148
Ineffective	2	20	13.5%		Mean	3.5
Uncertain/ Neutral	3	48	32.4%	32.4%	Median	4
Effective	4	45	30.4%	50.0%	Mode	3
Very Effective	5	29	19.6%		Std. Dev.	1.1
					Skewness	-0.29

The results show that 50% of the respondents agree that this communication method would be effective.

5.2.4. Community-Survey Results Part 5

Part 5 relates to legitimacy theory and the processes of legitimation. It was shown in Chapter 3 that there are two general management strategies that companies use to gain legitimacy, namely substantive and symbolic strategies (Ashforth & Gibbs 1990). The survey tested whether the community believed that the companies had used any of the legitimation strategies in their interaction with the community. The legitimation strategy, the type of strategy, and the response are shown in the table below.

#	Question	Type of Legitimation Strategy	Count	% Respondents that have noted evidence of the strategy	N
5.1	Markman Industrial Township companies have changed their activities to suit society.	Substantive	6	4.1%	145
5.2	Markman Industrial Township companies have implemented changes that are substantive and positive to blend in with society's norms and beliefs	Substantive	7	4.8%	145

#	Question	Type of Legitimation Strategy	Count	% Respondents that have noted evidence of the strategy	N
5.3	Markman Industrial Township companies have through communication, altered their definition of societal legitimacy to suit their own needs.	Substantive	18	12.4%	145
5.4	The Markman Industrial Township companies advocate socially acceptable goals while their actions are less acceptable	Symbolic	40	27.6%	145
5.5	Markman Industrial Township companies have denied or concealed activities that are not legitimate.	Symbolic	61	42.1%	145
5.6	Markman Industrial Township companies offer public excuses about some of their actions	Symbolic	52	35.9%	145
5.7	Markman Industrial Township companies make highly visible “right thing to do” actions without any real company change taking place.	Symbolic	29	20.0%	145
5.8	Markman Industrial Township companies admit guilt when their actions affect others, but do little else.	Symbolic	24	16.6%	145
5.9	Markman Industrial Township companies supply ambiguous or misleading information on their activities that is open to misinterpretation.	Symbolic	55	37.9%	145
5.10	Markman Industrial Township companies offer trivial or partial information, and do not address environmental problems.	Symbolic	89	61.4%	145

The above table indicates that there were 350 responses with the identified symbolic legitimization strategies, (Statements 5.4 – 5.10). There were only 31 responses that identified the use of substantive legitimization strategies, (Statements 5.1 – 5.3). The predominant belief that the companies use symbolic legitimization strategies could indicate that the communities are viewed as being less powerful; and therefore, a legitimacy gap is likely.

5.2.5. Community Survey Results Part 6

Part 6 of the community questionnaire relates to stakeholder identification, and how the community perceives the companies' perspectives on the importance of various stakeholders. In Chapter 3 it was shown that the more salient a stakeholder is to a company, the more attention they would get from company managers (Gray, Owen & Adams 1996; Agle, Mitchell and Wood 1997). The questions in Part 6 thus test the perceived importance of the various stakeholder groups identified in the literature. In order to help the discussion, the results were ranked based on the aggregate percentage of importance expressed in each question (for example, in question 6.2, the data show that 74.6% of the respondents believe the shareholders are the most important stakeholders). A summary of the ranked results is presented in Section 5.2.6. The results of the individual questions are presented below.

Question 6.1 – How important do you think the Markman companies view:

Government officials and regulatory bodies?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	11	7.9%	32.1%	N	140
Unimportant	2	34	24.3%		Mean	3
Uncertain/ Neutral	3	39	27.9%	27.9%	Median	3
					Mode	2
Important	4	37	26.4%	40.0%	Std. Dev.	1.2
Very Important	5	19	13.6%		Skewness	-0.05

The results indicate that 40% of the community respondents perceive that the regulatory bodies and government officials are important to the company. A reason for this could be that a number of respondents feel the Markman Industrial Township companies might be contravening environmental legislation, without any sanction; and therefore, the companies do not view the authorities as being important. This concern was expressed to the field

researcher when collecting the survey forms, (for example, “the government is doing nothing about the pollution problems in Bluewater Bay”).

Question 6.2 – How important do you think the Markman companies view:

Shareholders and Investors as being?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	7	5.1%	10.1%	N	138
Unimportant	2	7	5.1%		Mean	4
Uncertain/ Neutral	3	21	15.2%	15.2%	Median	4
					Mode	5
Important	4	39	28.3%	74.6%	Std. Dev.	1.1
Very Important	5	64	46.4%		Skewness	-1.19

The score indicates that the shareholders are viewed as being the most important of the nine identified stakeholders.

Question 6.3 – How important do you think the Markman companies view:

banks and such institutions, where loans can be accessed?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	6	4.4%	8.8%	N	137
Unimportant	2	6	4.4%		Mean	4
Uncertain/ Neutral	3	36	26.3%	26.3%	Median	4
					Mode	5
Important	4	37	27.0%	65.0%	Std. Dev.	1.1
Very Important	5	52	38.0%		Skewness	-0.80

The banks that companies use to access capital are viewed as the second most important stakeholders by the community.

*Question 6.4 – How important do you think the Markman companies view:
people in the community as being?*

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	53	38.1%	67.6%	N	139
Unimportant	2	41	29.5%		Mean	2
Uncertain/ Neutral	3	26	18.7%	18.7%	Median	2
					Mode	1
Important	4	13	9.4%	13.7%	Std. Dev.	1.2
Very Important	5	6	4.3%		Skewness	0.83

The results indicate that the community perceives that the companies view them (the local community) as the least important of the nine identified stakeholders. This could be one of the sources of a legitimacy gap between the companies and the community.

*Question 6.5 – How important do you think the Markman companies view
Environmental lobby groups as being?*

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	35	25.4%	60.1%	N	138
Unimportant	2	48	34.8%		Mean	2
Uncertain/ Neutral	3	36	26.1%	26.1%	Median	2
					Mode	2
Important	4	11	8.0%	13.8%	Std. Dev.	1.1
Very Important	5	8	5.8%		Skewness	0.66

The environmental lobby groups are perceived to be the eighth most important stakeholder of the nine listed options.

Question 6.6 – How important do you think the Markman companies view:

Employees as being?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	9	6.6%	27.9%	N	136
Unimportant	2	29	21.3%		Mean	3
Uncertain/ Neutral	3	71	52.2%	52.2%	Median	3
					Mode	3
Important	4	20	14.7%	19.9%	Std. Dev.	0.9
Very Important	5	7	5.1%		Skewness	0.07

The results indicate that the employees are viewed as the seventh most important stakeholder group.

Question 6.7 – How important do you think the Markman companies view:

The media as being?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	11	8.0%	31.4%	N	137
Unimportant	2	32	23.4%		Mean	3
Uncertain/ Neutral	3	47	34.3%	34.3%	Median	3
					Mode	3
Important	4	41	29.9%	34.3%	Std. Dev.	1.0
Very Important	5	6	4.4%		Skewness	-0.20

The results indicate that the media are viewed as the sixth most important stakeholder group.

Question 6.8 – How important do you think the Markman companies view:

Customers as being?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	7	5.0%	14.4%	N	139
Unimportant	2	13	9.4%		Mean	4
Uncertain/ Neutral	3	28	20.1%	20.1%	Median	4
					Mode	4
Important	4	54	38.8%	65.5%	Std. Dev.	1.1
Very Important	5	37	26.6%		Skewness	-0.77

The results indicate that the companies' customers are viewed as the third most important stakeholder group.

Question 6.9 – How important do you think the Markman companies view:

Trade Organizations as being?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	7	5.1%	15.4%	N	136
Unimportant	2	14	10.3%		Mean	3
Uncertain/ Neutral	3	51	37.5%	37.5%	Median	3
					Mode	3
Important	4	38	27.9%	47.1%	Std. Dev.	1.1
Very Important	5	26	19.1%		Skewness	-0.30

The results indicate that the trade organisations are viewed as the fourth most important stakeholder group.

5.3. Summary of Community Survey – Mean Scores Ranked Per Part

A summary of the mean scores for the community survey is contained in the tables below.

Table 5-5 – Community Ranked Mean Score Part 2a (Stakeholder Determination)

Rank	Question / Statement	Mean	Question Number
1	Markman Industrial Township companies should have an ongoing dialogue with the local communities on their environmental performance.	4.58	2.6
2	The local communities have the right to demand environmentally related information from Markman companies.	4.58	2.5
3	The companies in Markman Industrial Township affect the environment in a substantial manner.	4.44	2.1
4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman Industrial Township companies.	4.35	2.4
5	The local communities east of the Swartkops River are legitimate stakeholders in the Markman Industrial Township companies.	3.84	2.2
6	The local communities east of the Swartkops River have the power to affect the Markman Industrial Township companies.	3.61	2.3

Score: 1 = strongly disagree; 5 = strongly agree

Table 5-6 – Community Ranked Mean Score Part 2b (Community Information Needs)

Rank	Question / Statement	Mean	Question Number
1	The amount and type of chemical spills emanating from each company.	4.75	2.7.6
2	The amount and type of hazardous and non-hazardous waste generated.	4.72	2.7.7
3	The amount and type of air emissions from each company.	4.68	2.7.5
4	The amount and type of liquid effluents discharged to sewer.	4.67	2.7.4
5	Incidents of non-compliance with environmental laws and regulations.	4.61	2.7.9
6	The amount of product of each company that can be recycled.	4.18	2.7.8
7	The total environmental expenditure by type per annum.	4.15	2.7.11
8	The amount of water used per annum.	4.08	2.7.3
9	The amount of energy consumed per annum (oil, gas electricity, coal).	3.95	2.7.2
10	The amount of raw materials consumed per annum.	3.93	2.7.1
11	The significant impact of transport used for logistical purposes.	3.93	2.7.10

Score: 1 = strongly disagree; 5 = strongly agree

Table 5-7 - Community Ranked Mean Score Part 4 (Communication Method Preferences)

Rank	Question / Statement	Mean	Question Number
1	Newsletters	4.32	4.17
2	Formal Environmental Reports (including annual and sustainability reports)	4.20	4.16
3	Newspaper feature articles	4.19	4.22
4	Letters to residents	4.12	4.21
5	News releases	4.11	4.23
6	Co-operative projects with the community	4.07	4.6
7	Personal contact / interviews	4.03	4.26
8	Surveys	3.99	4.9
9	Sustainability agreements	3.98	4.7
10	Posters displayed at local points such as Supermarkets	3.98	4.19
11	Focus groups on a specific topic	3.97	4.8
12	Product labels with environmental information	3.93	4.18
13	Displays with environmental information manned by company employees at local points such as supermarkets	3.91	4.2
14	Guided tours with environmental focus	3.89	4.11
15	Radio interviews	3.89	4.13
16	Community-liaison groups	3.79	4.14
17	Advertising	3.77	4.24
18	Help desk	3.75	4.2
19	Open house / information days	3.61	4.1
20	Presentation groups	3.6	4.3
21	Websites	3.6	4.15
22	Workshops / conferences	3.48	4.12
23	Public meetings	3.47	4.25
24	Art exhibitions	2.68	4.1
25	Theatre presentations	2.64	4.5
26	Community dinners	2.49	4.4

Score: 1 = very ineffective; 5 = very effective

Table 5-8 – Community Survey – Ranked Mean Score Part 6 (Perception of the importance of company stakeholders)

Rank	Statement	Mean	Question Number
1	Shareholders, Investors	4.06	6.2
2	Banks etc. where loans are accessed	3.90	6.3
3	Customers	3.73	6.8
4	Trade companies	3.46	6.9
5	Government officials, Regulatory bodies	3.14	6.1
6	Media	2.99	6.7
7	Employees	2.90	6.6
8	Environmental lobby groups	2.34	6.5
9	People in the community	2.12	6.4

Score: 1 = totally unimportant; 5 = very important

5.4. Discussion of Community Survey Results

The results of the community study indicated the following regarding the research objectives:

Research Objective 1A – *Does the community believe the companies in the Markman Industrial Township negatively affect the natural environment in a substantial manner? And do the companies believe differently?*

This issue was addressed in Question 2.1, and 89.2% of the respondents agreed with the statement. The support for this statement is important since it lays the foundation for claims that the community is a legitimate stakeholder in the companies, if they feel their environment is being affected. Question 2.3 addressed the issue of community power and whether the community could affect the Markman Industrial Township companies.

A smaller majority (59.3%) of the respondents felt they could affect the company's activities. The mean score for Question 2.3 for those residents that have lived in the area for longer than five years is slightly higher than those that have been living in the area for less than five years (3.69 versus 3.44 respectively). This indicates that the power the respondents feel they have is not expected to be connected to length of stay. This could be an indication that an underlying increase in societal awareness on environmental and citizen rights could constitute a contributing factor.

Research Objective 1B – *Does the community believe they are legitimate stakeholders in the companies located in Markman Industrial Township?* – This issue was addressed in Part 2a (Question 2.1 – 2.6) of the survey. The results indicate that 61.4% of the respondents (Question 2.2) agree they are legitimate stakeholders in the companies in Markman Industrial Township. The results also indicate that a high percentage of respondents (93.4% - Question 2.6) believe that an ongoing dialogue should take place on environmental performance. The difference in the scores between these questions indicates that even if the respondents do not consider themselves to be legitimate stakeholders, they still wish to be informed of the Markman Industrial Township companies' environmental performance.

Part 2a (Question 2.5) determines whether the respondents believe they have the right to demand environmental information. The results show that 90.1% of the respondents agreed they could demand the information. This is consistent with their rights, as entrenched in the South African Constitution (South Africa 1996). The community also wish to be informed of the companies' environmental performance (Question 2.6) via an ongoing dialogue, irrespective of whether they see themselves as being active stakeholders or not.

Research Objective 1C – *How do the community view the companies' perceptions of the importance of the various stakeholder groups? And do the companies have a different view?* – The results of Part 6 of the community questionnaire illustrate that the community respondents perceive themselves to be the least important stakeholder to the company. The low mean score of 2.12 indicates that if the company wishes to be successful in any interaction with the community, they would need to convince the community that the company values the community and sees them as being legitimate stakeholders.

The stakeholders that are perceived as the most important are the shareholders and investors. In the context of this study the reason the community may perceive them to be the most important, is that this group would usually control the flow profits and the provision of resources.

Research Objective 1D – *Have the communities identified any symbolic and substantive legitimization strategies that the companies might have used?* – The legitimization practices with the highest mean scores (in descending order of response) that the community respondents have identified, and the percentage of respondents who identified the companies using the strategy, are:

- Avoiding, trivializing or skirting around the issue – the company offers partial information, or does not address the problem at hand (Question 5.10 - 61.4% of respondents).
- Denial and concealment – activities that are not legitimate are denied or concealed (Question 5.5 – 42.1% of respondents).

- Misrepresentation or open to misrepresentation – supplying ambiguous information that is misleading or open to misrepresentation (Question 5.9 – 37.9% of respondents).
- Offering accounts – the company offers excuses regarding its actions, so that its legitimacy is not affected (Question 5.6 – 35.9% of respondents).
- Espousing socially acceptable goals – the company promotes socially acceptable goals, while its actions are less acceptable (Question 5.4 – 27.6% of respondents).
- Ceremonial conformity – actions that are highly visible and on the surface are the “right” thing to do, without any real company changes taking place (Question 5.7 – 20.0% of respondents).
- Admission of guilt – creating an impression of honesty, but with little substantive action subsequently taking place (Question 5.8 – 16.6% of respondents).
- Altering socially institutionalized practices – the company attempts, through communication, to alter the definition society has of legitimacy, in order to suit the company’s activities (Question 5.3 – 12.4% of respondents).
- Coercive isomorphism – the company, over time, blends society’s norms and beliefs into the company structure and culture that shows the company’s desire to meet societal needs (Question 5.2 – 4.8% of respondents).
- Role performance – the company changes its activities to suit the expectations of society (Question 5.1 – 4.1% of respondents).

The above ranked strategies reflect the symbolic strategies identified in Chapter 3 by authors, such as Ashforth and Gibbs (1990); Deegan 2002; Archel, Husillos, Larrinaga and Spence (2009); and Pellegrino and Lodhia (2012).

The majority of the respondents thus feel that very few substantive actions are being taken by the Markman Industrial Township companies to improve their environmental performance, and that most actions are merely symbolic, with no real change actually taking place.

Research Objective 2A – *What environmental-performance information does the community need? And what type of information are the companies willing to provide?* – The top five information needs (by mean score) that the community requires are:

- The amount and type of chemical spills emanating from each company (Question 2.7.6).
- The amount and type of hazardous and non-hazardous waste generated (Question 2.7.7).
- The amount and type of air emissions from each company (Question 2.7.5).
- The amount and type of liquid effluents discharged to the sewer (Question 2.7.4).
- Incidents of non-compliance with environmental laws and regulations (Question 2.7.9).

The first four information needs are all related to physical pollution events of which the community wants to be informed. This is most likely because they want to know how the pollution would affect them, and what the company is doing about remediation. The fifth most important information need is related to regulatory compliance. The community may want to know how the company is responding to non-compliance with environmental law. The community may also want to know what the regulatory authorities are doing about ensuring compliance with the laws. For example: “Are the authorities monitoring regulatory compliance?”

The sixth and seventh most important information needs concern product recycling and environmental expenditure. The issue of waste generation is important to the community because there is a hazardous waste facility located nearby. The type and amount of environmental expenditure is important, as this demonstrates the financial commitment by the company.

Research Objective 2B - *What type environmental performance communication methods do the community and companies believe would be effective?* Part 3 of the survey questionnaire tested the preference between verbal and non-verbal communication. Non-verbal communication is preferred, with 75.8% of the respondents choosing this method. There could be several reasons for the preference of non-verbal communication. Firstly, written communication from a company is a record that the community can access in the future, especially if there are any disputes regarding past environmental performance.

Secondly, a non-verbal communication method may be less confrontational than a verbal method, since verbal exchanges could become emotionally charged and facts could be distorted or omitted. Thirdly, written communication from a company would afford the community member time to reflect on the information being presented. This would allow the receiver to prepare a response to the message in a more coherent manner, rather than having to “think on one’s feet” during verbal communication exchanges, such as public meetings.

The five most-favoured communication methods in descending order of preference are:

- Newsletters (mean 4.32);
- Formal environmental reports (mean 4.20);

- Newspaper feature articles (mean 4.19);
- Letters to residents (mean 4.12); and
- News releases (mean 4.11).

The above five methods are all non-verbal means of communication. The preferences indicate that the respondents place more importance on written information. Specific co-operative projects with the community are the sixth most favoured method of communication. This type of communication could see community / company partnerships being formed. It is worth noting that public participation meetings, which are usually legislated forums for communicating environmental information, are ranked the 23rd most effective method of communication.

A possible reason for this placement could be that the community might perceive that what a company says, and what they actually do, may differ; hence, this communication method is perceived as less being effective; and it could be considered “greenwashing”²⁷. This view is supported in the ranking of the legitimization practices that were identified by the respondents.

5.5. Company Survey Results – Descriptive Statistics

The results of the survey among the Markman Township companies are presented below.

²⁷ The term “greenwashing” implies a company engages only superficially in CSR activities, but widely publicises its positive CSR practices (Cherry & Sneirson 2010; Ramus & Montiel 2005).

5.5.1. Company Survey Results Part 1

Question 1.4 – Number of Employees

Category	N	Employees			Standard Deviation
		Mean	Minimum	Maximum	
Count	25	80.72	3	320	82.67
Number of respondents that omitted the question	1				

The number of company employees varies greatly, as may be seen from the above table.

Question 1.5 – Economic Sector

Category	Count	Cumulative Count	Per cent	Cumulative Per cent
Automotive Components	2	2	7.7%	7.7%
Local (unknown)	1	3	3.8%	11.5%
Industrial Automotive	1	4	3.8%	15.4%
Private	1	5	3.8%	19.2%
Building	1	6	3.8%	23.1%
Manufacturing	5	11	19.2%	42.3%
Second-Hand Motor Spares	1	12	3.8%	46.2%
Reinforcing (Steel)	1	13	3.8%	50.0%
Private Sector	1	14	3.8%	53.8%
Furniture	1	15	3.8%	57.7%
Transport	1	16	3.8%	61.5%
Meat Wholesale	1	17	3.8%	65.4%
Meat Processing (abattoir)	1	18	3.8%	69.2%
Agricultural (hides & skins and tanning)	1	19	3.8%	73.1%
Food	1	20	3.8%	76.9%
Number of respondents that omitted the question	6	26	23.1%	100.0%

The respondents were asked to state the economic sector in which they were active. This information was optional; and what appears above is merely a record of exactly what was stated on the survey form when it was collected. The data indicate that the respondents were not always willing to state their type of industry, as at least one respondent stated 'private', while the field researchers noted the respondent was in the tanning industry. The respondents' confidentiality must thus be respected, as some of the air-and-water pollution issues regarding the companies appear to be sensitive.

The consequence is that no conclusive data analysis could be conducted using industrial/economic sector types, as the sample is small, and the industries varied. The industries with the main pollution impacts are, however, the food and agricultural products industries. Further analysis was conducted using this classification, although the result should be viewed with caution for the above reasons. The further analysis is presented in Section 5.9.2 below.

Question 1.6 – Does your company have a Communication Strategy?

Category	Count	Cumulative Count	Per cent	Cumulative Per cent
No	13	13	50.0%	50.0%
Yes	9	22	34.6%	84.6%
Number of respondents that omitted the question	4	26	15.4%	100.0%

The above table indicates that 34.6% of the respondents had a communication strategy. It was not within the scope of the study to determine what the strategy components were, and whether the strategy was merely a general communication strategy, or whether it

specifically addressed environmental issues. This could be viewed as a limitation of the study.

Question 1.7 – Is your company currently certified to ISO 14001:2006?

Category	Count	Cumulative Count	Per cent	Cumulative Per cent
No	16	16	61.5%	61.5%
Yes	7	23	26.9%	88.5%
Number of respondents that omitted the question	3	26	11.5%	100.0%

Seven of the respondents indicated that they were ISO 14001:2006 certified.

5.5.2. Company Survey Results Part 2

The descriptive statistical results for Part 2 of the questionnaire are presented below, by question. A summary is provided in Section 5.6.7.

Question 2.1 – Your company could affect the environment in a substantial manner.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	5	20.0%	48.0%	N	25
Disagree	2	7	28.0%		Mean	2.6
Uncertain/ Neutral	3	5	20.0%	20.0%	Median	3
Agree	4	8	32.0%	32.0%	Mode	4
Strongly Agree	5	0	0.0%		Std. Dev.	1.2
					Skewness	-0.11

The data indicate that 30.8% of the respondent companies acknowledged that they affect the environment in a substantial manner. The low agreement to this question is perhaps an indication that the respondents do not fully understand the effect a company can have on

the environment, however small they are. It is noteworthy that two of the companies with ISO 14001:2006 certification did agree they affect the environment in a significant manner. This is most likely due to the environmental aspect and the impact identification requirement in ISO 14001:2006.

Question 2.2 – The local communities east of the Swartkops River are to be considered legitimate stakeholders in your company.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	7	26.9%	61.5%	N	26
Disagree	2	9	34.6%		Mean	2.3
Uncertain/ Neutral	3	7	26.9%	26.9%	Median	2
					Mode	2
Agree	4	2	7.7%	11.5%	Std. Dev.	1.1
Strongly Agree	5	1	3.8%		Skewness	0.65

The results indicate that only 11.5% of the respondents acknowledged that the local communities are legitimate stakeholders in the companies. This statement/question would have included all the communities in the area, including Motherwell and Wells Estate. This question is important because it lays the foundation for all subsequent interactions with the community. The starting point for an amicable relationship with the community would be one where the company recognises the community as a legitimate stakeholder in the company with all the legal rights to a healthy environment in terms of the South African Constitution (South Africa 1996).

The raw data show that of the three respondents that agreed with the statement, only one was ISO 14001:2004 certified. This indicates that at least six of the certified companies do not see the local communities as a stakeholder. This implies the companies are either

unaware of the South African legal requirements regarding their environmental duties, or simply do not see the community as being as important as the other stakeholders.

Question 2.3 – The local communities east of the Swartkops River have the power to affect your company.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	7	26.9%	61.5%	N	26
Disagree	2	9	34.6%		Mean	2.3
Uncertain/ Neutral	3	5	19.2%	19.2%	Median	2
					Mode	2
Agree	4	4	15.4%	19.2%	Std. Dev.	1.2
Strongly Agree	5	1	3.8%		Skewness	0.57

The results indicate that only 19.2% of the respondents agree with this statement. This could imply that any concerns the community may raise could be ignored or not treated seriously, as the company does not believe the community has the power to influence or change their behaviour.

Question 2.4 – The local communities east of the Swartkops River have urgent environmental issues with respect to your company.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	12	46.2%	88.5%	N	26
Disagree	2	11	42.3%		Mean	1.7
Uncertain/ Neutral	3	1	3.8%	3.8%	Median	2
					Mode	2
Agree	4	2	7.7%	7.7%	Std. Dev.	0.9
Strongly Agree	5	0	0.0%		Skewness	1.36

There are only two respondents that acknowledge that the local communities have urgent environmental issues with their company; and these are both ISO 14001 certified. The one

company indicated that it was a “private” company, while the other was in the automotive sector.

Question 2.5 – The local communities have the right to demand environmentally related information from you.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	5	19.2%	34.6%	N	26
Disagree	2	4	15.4%		Mean	3.1
Uncertain/ Neutral	3	3	11.5%	11.5%	Median	4
					Mode	4
Agree	4	11	42.3%	53.8%	Std. Dev.	1.4
Strongly Agree	5	3	11.5%		Skewness	-0.43

The data indicate that 53.8% of the respondents agree with the statement. The respondents that did not agree with the statement were possibly not aware of the legal requirements in terms of the Promotion of Access to Information Act (South Africa 200a).

Question 2.6 – Your company should have an ongoing dialogue with the local communities on the environmental performance of your company.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	6	23.1%	46.2%	N	26
Disagree	2	6	23.1%		Mean	2.6
Uncertain/ Neutral	3	7	26.9%	26.9%	Median	3
					Mode	4
Agree	4	7	26.9%	26.9%	Std. Dev.	1.1
Strongly Agree	5	0	0.0%		Skewness	-0.12

The results of this question show that the statement is not well supported, as only 26.9% of the respondents were in agreement with it. If the previous statement in Question 2.5 is read in conjunction with this statement, one could assume that the companies would support

sharing information upon request, but do not believe that an ongoing dialogue is appropriate. Information would thus only be shared when the community asked for it, and not shared pre-emptively, such as an annual environmental-performance report.

Question 2.7 – Your company should provide information to the local communities on the following issues:

The amount of raw materials consumed per annum.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	9	36.0%	76.0%	N	25
Disagree	2	10	40.0%		Mean	1.9
Uncertain/ Neutral	3	5	20.0%	20.0%	Median	2
					Mode	2
Agree	4	1	4.0%	4.0%	Std. Dev.	0.9
Strongly Agree	5	0	0.0%		Skewness	0.59

The results show that 4% of the respondents agree with this statement. The low level of support for this question is in contrast with the support for Question 2.5 where there was agreement to provide environmental information if the community demanded it. It is possible that the companies do not see the consumption of raw materials as having an environmental impact; and therefore, they do not see the necessity to share this information.

Question 2.8 – Your company should provide information to the local communities on the following:

The amount of energy consumed per annum (oil, gas, electricity, coal).

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	6	23.1%	61.5%	N	26
Disagree	2	10	38.5%		Mean	2.4
Uncertain/ Neutral	3	5	19.2%	19.2%	Median	2
					Mode	2
Agree	4	4	15.4%	19.2%	Std. Dev.	1.1
Strongly Agree	5	1	3.8%		Skewness	0.58

The results show that 19.2% of the respondents agree with this statement.

Question 2.9 – Your company should provide information to the local communities on the following:

The amount of water used per annum.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	6	23.1%	61.5%	N	26
Disagree	2	10	38.5%		Mean	2.4
Uncertain/ Neutral	3	4	15.4%	15.4%	Median	2
					Mode	2
Agree	4	5	19.2%	23.1%	Std. Dev.	1.2
Strongly Agree	5	1	3.8%		Skewness	0.52

The results show that 23.1% of the respondents that agree with this question.

Question 2.10 – Your company should provide information to the local communities on the following:

The amount and type of liquid effluents discharged into the sewer.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	3	11.5%	34.6%	N	26
Disagree	2	6	23.1%		Mean	3.1
Uncertain/ Neutral	3	4	15.4%	15.4%	Median	3.5
					Mode	4
Agree	4	11	42.3%	50.0%	Std. Dev.	1.2
Strongly Agree	5	2	7.7%		Skewness	-0.38

The responses indicate that 50% of the respondents agree to share information on the discharge of effluent into the sewer. It is possible that the respondents are aware of the impact the discharges into the sewer could have on the environment, and that this could affect the local community over time.

Question 2.11 – Your company should provide information to the local communities on the following:

The amount and type of air emissions from your company

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	4	16.7%	37.5%	N	24
Disagree	2	5	20.8%		Mean	3.0
Uncertain/ Neutral	3	4	16.7%	16.7%	Median	3
					Mode	4
Agree	4	9	37.5%	45.8%	Std. Dev.	1.3
Strongly Agree	5	2	8.3%		Skewness	-0.27

The results show that 45.8% of the respondents agree with this statement. As explained in the introduction, air pollution is the most contentious issue of all the environmental impacts. The 11 respondents that agree with the statement outweigh the approximately five

respondents in industries that generate significant air pollution. A possible reason could be that a number of respondents could themselves as “victims” of air pollution from some of the companies. At least two respondents have communicated this via comments on the survey form to the author (see Appendix 9).

Question 2.12 – Your company should provide information to the local communities on the following:

The amount and type of chemical spills emanating from your plant

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	4	16.0%	24.0%	N	25
Disagree	2	2	8.0%		Mean	3.2
Uncertain/ Neutral	3	6	24.0%	24.0%	Median	4
					Mode	4
Agree	4	10	40.0%	52.0%	Std. Dev.	1.3
Strongly Agree	5	3	12.0%		Skewness	-0.63

This statement received the highest mean score and 52% of the respondents were in agreement with the statement: The majority of the respondents could possibly believe that spills might affect the environment; and as such, this information would be of benefit to the community, which would be downstream of any spills. An evaluation of the responses showed that six of the seven ISO 14001:2004 certified companies agreed with this statement. This is probably due to these companies having a legal register, as required by ISO 14001 that would include all the legislation for the reporting of off-site environmental impacts – for example, NEMA and the National Water Act (South Africa 1998a; South Africa 1998b).

Question 2.13 – Your company should provide information to the local communities on the following:

The amount and type of hazardous and non-hazardous waste generated.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	4	15.4%	26.9%	N	26
Disagree	2	3	11.5%		Mean	3.2
Uncertain/ Neutral	3	6	23.1%	23.1%	Median	3.5
					Mode	4
Agree	4	11	42.3%	50.0%	Std. Dev.	1.2
Strongly Agree	5	2	7.7%		Skewness	-0.60

The results show that 50.0% of the respondents agree with this statement.

Question 2.14 – Your company should provide information to the local communities on the following:

The amount of your product that can be recycled

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	3	11.5%	26.9%	N	26
Disagree	2	4	15.4%		Mean	3.0
Uncertain/ Neutral	3	9	34.6%	34.6%	Median	3
					Mode	3
Agree	4	10	38.5%	38.5%	Std. Dev.	1.0
Strongly Agree	5	0	0.0%		Skewness	-0.74

Only 38.5% of respondents agree that information on the recycling of company products should be provided to the community.

Question 2.15 – Your company should provide information to the local communities on the following:

Incidents of non-compliance with environmental laws and regulations.

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	4	15.4%	26.9%	N	26
Disagree	2	3	11.5%		Mean	3.1
Uncertain/ Neutral	3	7	26.9%	26.9%	Median	3
					Mode	4
Agree	4	10	38.5%	46.2%	Std. Dev.	1.2
Strongly Agree	5	2	7.7%		Skewness	-0.53

The results for this question show that 46.2% of the respondents agree with this question. The reason that the majority of the respondents do not agree, or are undecided, on this issue could be that this type of information is sensitive and could negatively affect the company's image. This could ultimately affect profits through loss of sales, legal fines and suchlike; and companies, therefore, would not want this information to become public. The consequence of this information being made public could possibly result in the company having to engage in symbolic legitimization strategies, such as offering accounts or admitting guilt – but making no substantive changes (Ashforth & Gibbs 1990).

Question 2.16 – Your company should provide information to the local communities on the following:

The significant impact of transport used for logistical purposes

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	5	19.2%	53.8%	N	26
Disagree	2	9	34.6%		Mean	2.4
Uncertain/ Neutral	3	8	30.8%	30.8%	Median	2
					Mode	2
Agree	4	4	15.4%	15.4%	Std. Dev.	1.0
Strongly Agree	5	0	0.0%		Skewness	0.10

The results show that 15.4% of the respondents agree with this statement.

Question 2.17 – Your company should provide information to the local communities on the following issue:

The total environmental expenditure by type per annum

Category	Score	Count	% Respondents	Aggregate % Agree/Disagree	Statistic	Result
Strongly Disagree	1	5	19.2%	50.0%	N	26
Disagree	2	8	30.8%		Mean	2.5
Uncertain/ Neutral	3	10	38.5%	38.5%	Median	2.5
					Mode	3
Agree	4	2	7.7%	11.5%	Std. Dev.	1.0
Strongly Agree	5	1	3.8%		Skewness	0.35

The results show that 11.5% of the respondents agree with this statement.

5.5.3. Company Survey Results Part 3

Question 3 – Which strategy do you think is best for communicating with communities (verbal or non-verbal)?

Category	Count	%
Verbal communication (e.g. regular public meetings)	5	20.8%
Non-verbal communication (e.g. regular newsletters)	19	79.2%
Number of Respondents	24	

The majority of respondents (79.2%) prefer non-verbal communication. This is higher than the community preference for non-verbal communication (75.8%), but it is not significantly

different. The important conclusion is that both the community and the companies prefer non-verbal communication methods.

5.5.4. Company Survey Results Part 4

Question 4.1- How effective would it be to promote communication with a community by using Art Exhibitions?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	6	23.1%	65.4%	N	26
Ineffective	2	11	42.3%		Mean	2.2
Uncertain/ Neutral	3	6	23.1%	23.1%	Median	2
					Mode	2
Effective	4	3	11.5%	11.5%	Std. Dev.	1.0
Very Effective	5	0	0.0%		Skewness	0.40

The results show that 11.5% of the respondents agree that this communication method would be effective.

Question 4.2 – How effective would it be to promote communication with a community by using a help desk?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	3	11.5%	34.6%	N	26
Ineffective	2	6	23.1%		Mean	3.0
Uncertain/ Neutral	3	7	26.9%	26.9%	Median	3
					Mode	4
Effective	4	9	34.6%	38.5%	Std. Dev.	1.1
Very Effective	5	1	3.8%		Skewness	-0.30

The results show that 38.5% of the respondents agree that this communication method would be effective.

Question 4.3 – How effective would it be to promote communication with a community by using presentation groups?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	7.7%	23.1%	N	26
Ineffective	2	4	15.4%		Mean	3.3
Uncertain/ Neutral	3	8	30.8%	30.8%	Median	3
Effective	4	9	34.6%	46.2%	Mode	4
Very Effective	5	3	11.5%		Std. Dev.	1.1
					Skewness	-0.39

The results show that 46.2% of the respondents agree that this communication method would be effective.

Question 4.4 – How effective would it be to promote communication with a community by using community dinners?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	6	23.1%	42.3%	N	26
Ineffective	2	5	19.2%		Mean	2.7
Uncertain/ Neutral	3	7	26.9%	26.9%	Median	3
Effective	4	8	30.8%	30.8%	Mode	4
Very Effective	5	0	0.0%		Std. Dev.	1.2
					Skewness	-0.24

The results show that 30.8% of the respondents agree that this communication method would be effective.

Question 4.5 – How effective would it be to promote communication with a community by using theatre presentations?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	5	19.2%	42.3%	N	26
Ineffective	2	6	23.1%		Mean	2.7
Uncertain/ Neutral	3	7	26.9%	26.9%	Median	3
Effective	4	8	30.8%	30.8%	Mode	4
Very Effective	5	0	0.0%		Std. Dev.	1.1
					Skewness	-0.25

The results show that 30.8% of the respondents agree that this communication method would be effective.

Question 4.6 – How effective would it be to promote communication with a community by using co-operative projects with the community?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	0	0.0%	3.8%	N	26
Ineffective	2	1	3.8%		Mean	3.6
Uncertain/ Neutral	3	9	34.6%	34.6%	Median	4
Effective	4	15	57.7%	61.5%	Mode	4
Very Effective	5	1	3.8%		Std. Dev.	0.6
					Skewness	-0.47

Co-operative projects, as a method of communication, has the highest mean score; and 61.5% of the respondents agree that co-operative projects with the community would be effective in conveying environmental information. There was a higher number of community respondents (84%) that agreed this method would be an effective means of communication.

Question 4.7- How effective would it be to promote communication with a community by using sustainability agreements?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	1	3.8%	3.8%	N	26
Ineffective	2	0	0.0%		Mean	3.3
Uncertain/ Neutral	3	16	61.5%	61.5%	Median	3
Effective	4	9	34.6%	34.6%	Mode	3
Very Effective	5	0	0.0%		Std. Dev.	0.7
					Skewness	-1.24

The results indicate that 61.5% of the respondents were uncertain/neutral on this question. This could possibly mean that the respondents did not fully understand what a sustainability agreement is. As many as 34.6% of the respondents agreed that the method would be effective.

Question 4.8 – How effective would it be to promote communication with a community by using focus groups on a specific topic?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	0	0.0%	7.7%	N	26
Ineffective	2	2	7.7%		Mean	3.5
Uncertain/ Neutral	3	11	42.3%	42.3%	Median	4
Effective	4	12	46.2%	50.0%	Mode	4
Very Effective	5	1	3.8%		Std. Dev.	0.7
					Skewness	-0.22

The results show that 50% of the respondents agree that this communication method would be effective.

Question 4.9 – How effective would it be to promote communication with a community by using surveys?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	1	3.8%	19.2%	N	26
Ineffective	2	4	15.4%		Mean	3.4
Uncertain/ Neutral	3	7	26.9%	26.9%	Median	4
					Mode	4
Effective	4	12	46.2%	53.8%	Std. Dev.	1.0
Very Effective	5	2	7.7%		Skewness	-0.61

The results show that 53.8% of the respondents agree that this communication method would be effective.

Question 4.10 – How effective would it be to promote communication with a community by using open-house/information days?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	1	3.8%	15.4%	N	26
Ineffective	2	3	11.5%		Mean	3.2
Uncertain/ Neutral	3	11	42.3%	42.3%	Median	3
					Mode	3
Effective	4	11	42.3%	42.3%	Std. Dev.	0.8
Very Effective	5	0	0.0%		Skewness	-0.95

The results show that 42.3% of the respondents agree that this communication method would be effective.

Question 4.11 – How effective would it be to promote communication with a community by using guided tours with an environmental focus?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	1	3.8%	19.2%	N	26
Ineffective	2	4	15.4%		Mean	3.2
Uncertain/ Neutral	3	10	38.5%	38.5%	Median	3
					Mode	3
Effective	4	10	38.5%	42.3%	Std. Dev.	0.9
Very Effective	5	1	3.8%		Skewness	-0.50

The results show that 42.3% of the respondents agree that this communication method would be effective.

Question 4.12 – How effective would it be to promote communication with a community by using workshops/conferences?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	1	4.0%	20.0%	N	25
Ineffective	2	4	16.0%		Mean	3.2
Uncertain/ Neutral	3	11	44.0%	44.0%	Median	3
					Mode	3
Effective	4	7	28.0%	36.0%	Std. Dev.	1.0
Very Effective	5	2	8.0%		Skewness	-0.12

The results show that 36.0% of the respondents agree that this communication method would be effective.

Question 4.13 – How effective would it be to promote communication with a community by using radio interviews?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	0	0.0%	20.0%	N	25
Ineffective	2	5	20.0%		Mean	3.3
Uncertain/ Neutral	3	8	32.0%	32.0%	Median	3
					Mode	4
Effective	4	11	44.0%	48.0%	Std. Dev.	0.9
Very Effective	5	1	4.0%		Skewness	-0.26

Although only 48% of the respondents agree that this method would be an effective form of communication, the mean score was ranked sixth out of 26 methods of communication. Radio interviews could thus be useful under certain circumstances, such as occasions when a wider audience needs to be reached in a short period of time.

Question 4.14 – How effective would it be to promote communication with a community by using community-liaison groups?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	1	4.0%	20.0%	N	25
Ineffective	2	4	16.0%		Mean	3.3
Uncertain/ Neutral	3	6	24.0%	24.0%	Median	4
					Mode	4
Effective	4	14	56.0%	56.0%	Std. Dev.	0.9
Very Effective	5	0	0.0%		Skewness	-1.09

The results show that 56% of the respondents agree that this communication method would be effective.

Question 4.15 – How effective would it be to promote communication with a community by using websites?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	4	16.0%	36.0%	N	25
Ineffective	2	5	20.0%		Mean	3.0
Uncertain/ Neutral	3	5	20.0%	20.0%	Median	3
Effective	4	9	36.0%	44.0%	Mode	4
Very Effective	5	2	8.0%		Std. Dev.	1.3
					Skewness	-0.27

The results show that 44% of the respondents agree that this communication method would be effective.

Question 4.16 – How effective would it be to promote communication with a community by using formal Environmental Reports?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	1	3.8%	38.5%	N	26
Ineffective	2	9	34.6%		Mean	2.9
Uncertain/ Neutral	3	8	30.8%	30.8%	Median	3
Effective	4	8	30.8%	30.8%	Mode	2
Very Effective	5	0	0.0%		Std. Dev.	0.9
					Skewness	-0.10

The results show that 30.8% of the respondents agree that this communication method would be effective.

Question 4.17 – How effective would it be to promote communication with a community by using newsletters?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	0	0.0%	15.4%	N	26
Ineffective	2	4	15.4%		Mean	3.5
Uncertain/ Neutral	3	5	19.2%	19.2%	Median	4
					Mode	4
Effective	4	16	61.5%	65.4%	Std. Dev.	0.8
Very Effective	5	1	3.8%		Skewness	-0.86

The results show that 65.4% of the respondents agree that this communication method would be effective.

Question 4.18 – How effective would it be to promote communication with a community by using product labels with environmental information?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	1	3.8%	34.6%	N	26
Ineffective	2	8	30.8%		Mean	2.9
Uncertain/ Neutral	3	9	34.6%	34.6%	Median	3
					Mode	3
Effective	4	8	30.8%	30.8%	Std. Dev.	0.9
Very Effective	5	0	0.0%		Skewness	-0.21

The results show that 30.8% of the respondents agree that this communication method would be effective.

Question 4.19 – How effective would it be to promote communication with a community by using posters displayed at local points, such as supermarkets?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	3	11.5%	23.1%	N	26
Ineffective	2	3	11.5%		Mean	3.1
Uncertain/ Neutral	3	10	38.5%	38.5%	Median	3
					Mode	3
Effective	4	9	34.6%	38.5%	Std. Dev.	1.1
Very Effective	5	1	3.8%		Skewness	-0.61

The results show that 38.5% of the respondents agree that this communication method would be effective.

Question 4.20 – How effective would it be to promote communication with a community by using displays with environmental information manned by company employees at local points, such as supermarkets?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	3	12.0%	44.0%	N	25
Ineffective	2	8	32.0%		Mean	2.8
Uncertain/ Neutral	3	4	16.0%	16.0%	Median	3
					Mode	4
Effective	4	10	40.0%	40.0%	Std. Dev.	1.1
Very Effective	5	0	0.0%		Skewness	-0.26

The results show that 40% of the respondents agree that this communication method would be effective.

Question 4.21 – How effective would it be to promote communication with a community by using letters to residents?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	7.7%	23.1%	N	26
Ineffective	2	4	15.4%		Mean	3.3
Uncertain/ Neutral	3	6	23.1%	23.1%	Median	4
					Mode	4
Effective	4	13	50.0%	53.8%	Std. Dev.	1.0
Very Effective	5	1	3.8%		Skewness	-0.82

The results show that 53.8% of the respondents agree that this communication method would be effective.

Question 4.22 – How effective would it be to promote communication with a community by using newspaper feature articles?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	7.7%	23.1%	N	26
Ineffective	2	4	15.4%		Mean	3.1
Uncertain/ Neutral	3	9	34.6%	34.6%	Median	3
					Mode	4
Effective	4	11	42.3%	42.3%	Std. Dev.	1.0
Very Effective	5	0	0.0%		Skewness	-0.85

The results show that 42.3% of the respondents agree that this communication method would be effective.

Question 4.23 – How effective would it be to promote communication with a community by using news releases?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	7.7%	19.2%	N	26
Ineffective	2	3	11.5%		Mean	3.2
Uncertain/ Neutral	3	10	38.5%	38.5%	Median	3
					Mode	4
Effective	4	11	42.3%	42.3%	Std. Dev.	0.9
Very Effective	5	0	0.0%		Skewness	-0.98

The results show that 42.3% of the respondents agree that this communication method would be effective.

Question 4.24 – How effective would it be to promote communication with a community by using advertising?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	1	3.8%	19.2%	N	26
Ineffective	2	4	15.4%		Mean	3.4
Uncertain/ Neutral	3	6	23.1%	23.1%	Median	4
					Mode	4
Effective	4	14	53.8%	57.7%	Std. Dev.	0.9
Very Effective	5	1	3.8%		Skewness	-0.89

The results show that 57.7% of the respondents agree that this communication method would be effective.

Question 4.25 – How effective would it be to promote communication with a community by using public meetings?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	7.7%	23.1%	N	26
Ineffective	2	4	15.4%		Mean	3.0
Uncertain/ Neutral	3	13	50.0%	50.0%	Median	3
					Mode	3
Effective	4	7	26.9%	26.9%	Std. Dev.	0.9
Very Effective	5	0	0.0%		Skewness	-0.71

This method of communication is ranked 19th out of 26 methods based on the mean score. The results show that only 26.9% of the respondents agreed this communication method would be effective. There could possibly be for several reasons for this; firstly, the fear that company officials might be publicly embarrassed by their company's environmental performance. Secondly, those public meetings where contentious issues, such as the impact of pollution are discussed could be difficult to control – regardless of whether the company has facts to prove otherwise.²⁸

²⁸ An example of this is that one of the field workers for this study had first-hand experience in contentious public meetings on the impact of environmental noise from wind farms.

Question 4.26 – How effective would it be to promote communication with a community by using personal contact/interviews?

Category	Score	Count	% Respondents	Aggregate % Ineffective / Effective	Statistic	Result
Very Ineffective	1	2	7.7%	19.2%	N	26
Ineffective	2	3	11.5%		Mean	3.3
Uncertain/ Neutral	3	9	34.6%	34.6%	Median	3
					Mode	4
Effective	4	9	34.6%	46.2%	Std. Dev.	1.1
Very Effective	5	3	11.5%		Skewness	-0.47

The results show that 46.2% of the respondents agree that this communication method would be effective.

5.5.5. Company Survey Results Part 5

Question 5.1 – How important do you think the following stakeholder is to your company: Government officials, Regulatory bodies?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	0	0.0%	12.5%	N	24
Unimportant	2	3	12.5%		Mean	3
Uncertain/ Neutral	3	7	29.2%	29.2%	Median	4
					Mode	4
Important	4	12	50.0%	58.3%	Std. Dev.	1.1
Very Important	5	2	8.3%		Skewness	-1.34

The respondents indicated that 58.3% agreed that the government and the regulatory authorities are important stakeholders. The mean score is ranked fourth out of nine identified stakeholders.

Question 5.2 – How important do you think the following stakeholder is to your company:

Shareholders, Investors?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	4	16.0%	16.0%	N	25
Unimportant	2	0	0.0%		Mean	4
Uncertain/ Neutral	3	4	16.0%	16.0%	Median	4
					Mode	5
Important	4	6	24.0%	68.0%	Std. Dev.	1.6
Very Important	5	11	44.0%		Skewness	-1.04

The results show that 68% of the respondents agree that the shareholders and investors are important stakeholders.

Question 5.3 – How important do you think the following stakeholder is to your company:

Banks etc. – where loans can be accessed?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	4	15.4%	23.1%	N	26
Unimportant	2	2	7.7%		Mean	3
Uncertain/ Neutral	3	6	23.1%	23.1%	Median	4
					Mode	4
Important	4	8	30.8%	53.8%	Std. Dev.	1.4
Very Important	5	6	23.1%		Skewness	-0.57

Banks and other loan institutions are rated as important stakeholders by 53.8% of the respondents, and are ranked seventh.

Question 5.4 – How important do you think the following stakeholder is to your company:

People in the community?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	0	0.0%	12.0%	N	25
Unimportant	2	3	12.0%		Mean	3
Uncertain/ Neutral	3	10	40.0%	40.0%	Median	3
					Mode	3
Important	4	8	32.0%	48.0%	Std. Dev.	1.1
Very Important	5	4	16.0%		Skewness	-0.85

The results indicate that 48% of the respondents agree that the community is an important or very important stakeholder. The community survey indicated that only 13.7% of the respondents thought the company viewed them as important. There thus appears to be a difference in the perception that the community have of their importance to the companies in Markman Industrial Township. This could assist in explaining the gap in expectations between the company and the community, as the community may see the companies practising “greenwashing”, as was previously explained.

Question 5.5 – How important do you think the following stakeholder is to your company:

Environmental lobby groups?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	2	8.0%	24.0%	N	25
Unimportant	2	4	16.0%		Mean	3
Uncertain/ Neutral	3	12	48.0%	48.0%	Median	3
					Mode	3
Important	4	6	24.0%	28.0%	Std. Dev.	1.1
Very Important	5	1	4.0%		Skewness	-0.71

The results show that only 28% of the respondents agree that environmental lobby groups are important stakeholders; and they are ranked the lowest. This perception could influence any interactions with a lobby group if they are involved in an issue on behalf of the community, as their company may not consider the lobby group's activities as being important.

*Question 5.6 – How important do you think the following stakeholder is to your company:
Employees?*

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	1	3.8%	3.8%	N	26
Unimportant	2	0	0.0%		Mean	4
Uncertain/ Neutral	3	2	7.7%	7.7%	Median	5
					Mode	5
Important	4	10	38.5%	88.5%	Std. Dev.	0.9
Very Important	5	13	50.0%		Skewness	-1.99

The companies' employees are deemed to be important stakeholders by 88.5% of the respondents. These employees were ranked second on mean scores.

*Question 5.7 – How important do you think the following stakeholder is to your company:
The media?*

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	2	8.0%	28.0%	N	25
Unimportant	2	5	20.0%		Mean	3
Uncertain/ Neutral	3	8	32.0%	32.0%	Median	3
					Mode	4
Important	4	10	40.0%	40.0%	Std. Dev.	1.1
Very Important	5	0	0.0%		Skewness	-0.92

The media were rated important by only 40% of the respondents. The media are ranked as the eighth most important stakeholder, based on the mean score.

Question 5.8 – How important do you think the following stakeholder is to your company:

Customers?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	0	0.0%	0.0%	N	25
Unimportant	2	0	0.0%		Mean	4
Uncertain/ Neutral	3	1	4.0%	4.0%	Median	5
					Mode	5
Important	4	7	28.0%	96.0%	Std. Dev.	1.1
Very Important	5	17	68.0%		Skewness	-3.21

The customers are ranked the most important stakeholder to the company. The high agreement of 96% is most likely due to the company viewing the customers as being vital for their economic survival, and as such rated them as being very important.

Question 5.9 – How important do you think the following stakeholder is to your company:

Trade Organizations?

Category	Score	Count	% Respondents	Aggregate % Unimportant/ Important	Statistic	Result
Totally unimportant	1	2	7.7%	15.4%	N	26
Unimportant	2	2	7.7%		Mean	4
Uncertain/ Neutral	3	10	38.5%	38.5%	Median	3
					Mode	3
Important	4	5	19.2%	46.2%	Std. Dev.	1.2
Very Important	5	7	26.9%		Skewness	-0.37

The respondents indicated that 46.2% agreed that trade organisations were important stakeholders. Trade organisations are ranked seventh out of nine stakeholders.

A summary of the results of Part 5 of the survey are contained in Table 5-12; and these will be discussed in more detail in Section 5.5 below.

5.5.6. Company Survey Results Part 6

In this part of the questionnaire, the respondents were asked whether they had implemented any substantive measures to decrease the impact of environmental pollution. The respondents were asked to indicate whether various types of pollution abatement or remediation methods had been implemented within the last two years, as well as prior to the last two years. The respondents may thus have implemented air pollution control equipment prior to, or within, the last two years. The answer would thus be presented in the tables below as a “Yes – Yes”. The findings are presented below.

Question 6.1 – Has your company introduced any of the following environmental improvements, in order to decrease environmental impacts, or to reduce pollution levels?

Air pollution control equipment?

Category	Count	Percent
Within the last two years (No) and Prior to 2004 (No)	6	23.1%
Within the last two years (Yes) and Prior to 2004 (No)	3	11.5%
Within the last two years (No) and Prior to 2004 (Yes)	1	3.8%
Within the last two years (Yes) and Prior to 2004 (Yes)	1	3.8%
Not Applicable	13	50.0%
Number of respondents that omitted the question	2	7.7%

The results indicate that five respondents had implemented air pollution control measures (two prior to 2004 and four within the last two years – one respondent had implemented these measures in both periods).

Question 6.2 – Has your company introduced any of the following environmental improvements, in order to decrease environmental impacts, or to reduce pollution levels:

Effluent treatment and control?

Category	Count	Percent
Within the last two years (No) and Prior to 2004 (No)	4	15.4%
Within the last two years (Yes) and Prior to 2004 (No)	6	23.1%
Within the last two years (No) and Prior to 2004 (Yes)	2	7.7%
Within the last two years (Yes) and Prior to 2004 (Yes)	1	3.8%
Not Applicable	12	46.2%
Number of respondents that omitted the question	1	3.8%

The results indicate that nine respondents had implemented effluent control measures (three prior to 2004 and seven within the last two years – one respondent had implemented measures in both periods).

Question 6.3 – Has your company introduced any of the following environmental improvements, in order to decrease environmental impacts, or to reduce pollution levels:

New production technologies that prevent or reduce pollution?

Category	Count	Percent
Within the last two years (No) and Prior to 2004 (No)	5	19.2%
Within the last two years (Yes) and Prior to 2004 (No)	5	19.2%
Within the last two years (No) and Prior to 2004 (Yes)	1	3.8%
Within the last two years (Yes) and Prior to 2004 (Yes)	1	3.8%
Not Applicable	13	50.0%
Number of respondents that omitted the question	1	3.8%

The results indicate that seven respondents had implemented new production technologies to decrease pollution (two prior to 2004 and six within the last two years – one respondent had implemented such measures in both periods).

Question 6.4 – Has your company introduced any of the following environmental improvements, in order to decrease environmental impacts, or to reduce pollution levels:
Recycling or reuse of materials?

Category	Count	Percent
Within the last two years (No) and Prior to 2004 (No)	4	15.4%
Within the last two years (Yes) and Prior to 2004 (No)	6	23.1%
Within the last two years (No) and Prior to 2004 (Yes)	6	23.1%
Within the last two years (Yes) and Prior to 2004 (Yes)	2	7.7%
Not Applicable	7	26.9%
Number of respondents that omitted the question	1	3.8%

The results indicate that 14 respondents had implemented recycling and reuse control measures (eight prior to 2004 and eight within the last two years – two respondents had implemented these measures in both periods).

Question 6.5 – Has your company introduced any of the following environmental improvements, in order to decrease environmental impacts, or to reduce pollution levels?

Waste separation to ensure that hazardous waste is collected?

Category	Count	Percent
Within the last two years (No) and Prior to 2004 (No)	1	3.8%
Within the last two years (Yes) and Prior to 2004 (No)	7	26.9%
Within the last two years (No) and Prior to 2004 (Yes)	3	11.5%
Within the last two years (Yes) and Prior to 2004 (Yes)	2	7.7%
Not Applicable	12	46.2%
Number of respondents that omitted the question	1	3.8%

The results indicate that 12 respondents had implemented hazardous waste control practices (five prior to 2004 and nine within the last two years – two respondents had implemented such measures in both periods).

Question 6.6 – Has your company introduced any of the following environmental improvements, in order to decrease environmental impacts, or to reduce pollution levels:

Substitution of less hazardous substances used in the company?

Category	Count	Percent
Within the last two years (No) and Prior to 2004 (No)	4	15.4%
Within the last two years (Yes) and Prior to 2004 (No)	4	15.4%
Within the last two years (No) and Prior to 2004 (Yes)	1	3.8%
Within the last two years (Yes) and Prior to 2004 (Yes)	0	0.0%
Not Applicable	16	61.5%
Number of respondents that omitted the question	1	3.8%

The results indicate that five respondents had implemented substitution control measures (one prior to 2004 and four within the last two years).

Question 6.7 – Has your company introduced any of the following environmental improvements, in order to decrease environmental impacts, or to reduce pollution levels:

Engineering projects to reduce possible pollution, such as bund walls around tanks?

Category	Count	Per cent
Within the last two years (No) and Prior to 2004 (No)	2	7.7%
Within the last two years (Yes) and Prior to 2004 (No)	7	26.9%
Within the last two years (No) and Prior to 2004 (Yes)	3	11.5%
Within the last two years (Yes) and Prior to 2004 (Yes)	1	3.8%
Not Applicable	12	46.2%
Number of respondents that omitted the question	1	3.8%

The results indicate that 12 respondents had implemented engineering control measures. (Four prior to 2004 and eight within the last two years – one respondent had implemented such measures in both periods).

Question 6.8 – Has your company introduced any of the following environmental improvements, in order to decrease environmental impacts, or to reduce pollution levels: Remediation of past pollution problems (spills, soil contamination from storage of chemicals etc.)?

Category	Count	Percent
Within the last two years (No) and Prior to 2004 (No)	2	7.7%
Within the last two years (Yes) and Prior to 2004 (No)	2	7.7%
Within the last two years (No) and Prior to 2004 (Yes)	0	0.0%
Within the last two years (Yes) and Prior to 2004 (Yes)	1	3.8%
Not Applicable	20	76.9%
Number of respondents that omitted the question	1	3.8%

The results indicate that three respondents had implemented remediation measures to address past pollution. (One prior to 2004 and three within the last two years – one respondent had implemented these measures in both periods).

In summary, the data in Section 6 of the questionnaire show that the companies had implemented measures to reduce their environmental impact. These measures could thus be seen as substantive legitimization measures, as described by Ashforth and Gibbs (1990).

5.6. Summary of Company Survey – Mean Scores Ranked Per Part

The tables that follow rank the mean scores for each question; and they provide a summary of the companies surveyed.

Table 5-9 – Company Ranked Mean Score Part 2a (Stakeholder Theory)

Rank	Question / Statement	Mean	% Aggregate Agreement
1	The local communities have the right to demand environmentally related information from you.	3.12	53.8%
2	Your organisation can affect the environment in a substantial manner.	2.64	32.0%
3	Your organisations should have a continuing dialogue with the local communities on environmental performance at your organization.	2.58	26.9%
4	The local communities east of the Swartkops River have the power to affect your organization.	2.35	19.2%
5	The local communities east of the Swartkops River are to be considered legitimate stakeholders in your organization.	2.27	11.5%
6	The local communities east of the Swartkops River have urgent environmental issues with respect to your organization.	1.73	7.7%

Table 5-10 - Company Ranked Mean Score Part 2b (Community Information Needs)

Rank	Question / Statement	Mean	% Aggregate Agreement
1	The amount and type of chemical spills emanating from your plant.	3.24	52.0%
2	The amount and type of hazardous and non-hazardous waste generated.	3.15	50.0%
3	The amount and type of liquid effluents discharged to sewer.	3.12	50.0%
3	Incidents of non-compliance with environmental laws and regulations.	3.12	46.2%
5	The amount and type of air emissions from your organization.	3.00	45.8%

Rank	Question / Statement	Mean	% Aggregate Agreement
5	The amount of your product that can be recycled.	3.00	38.5%
7	The total environmental expenditure by type per annum.	2.46	11.5%
8	The amount of water used per annum.	2.42	23.1%
8	The significant impact of transport used for logistical purposes.	2.42	15.4%
10	The amount of energy consumed per annum (oil, gas electricity, coal).	2.38	19.2%
11	The amount of raw materials consumed per annum.	1.92	4.0%

Table 5-11 - Company Ranked Mean Score Part 4 (Communication Method Preferences)

Rank	Question / Statement	Mean	% Aggregate Agreement
1	Co-operative projects with the community	3.62	61.5%
2	Newsletters	3.54	65.4%
3	Focus groups on a specific topic	3.46	50.0%
4	Advertising	3.38	57.7%
4	Surveys	3.38	53.8%
6	Community liaison groups	3.32	56.0%
6	Radio interviews	3.32	48.0%
8	Personal contact / interviews	3.31	46.2%
9	Letters to residents	3.27	53.8%
9	Presentation groups	3.27	46.2%
9	Sustainability agreements	3.27	34.6%
12	Open-house / information days	3.23	42.3%
13	Guided tours with environmental focus	3.23	42.3%
14	Workshops / conferences	3.20	36.0%

Rank	Question / Statement	Mean	% Aggregate Agreement
15	News releases	3.15	42.3%
16	Newspaper-feature articles	3.12	42.3%
17	Posters displayed at local points, such as Supermarkets	3.08	38.5%
18	Websites	3.00	44.0%
19	Help desk	2.96	38.5%
19	Public meetings	2.96	26.9%
21	Product labels with environmental information	2.92	30.8%
22	Formal Environmental Reports	2.88	30.8%
23	Displays with environmental information manned by organisation's employees at local points, such as Supermarkets	2.84	40.0%
24	Theatre presentations	2.69	30.8%
25	Community dinners	2.65	30.8%
26	Art exhibitions	2.23	11.5%

Table 5-12 - Company Ranked Mean Score Part 5 (Stakeholder Perception)

Rank	Statement	Mean	% Aggregate Agreement
1	Customers	4.46	96.0%
2	Employees	4.31	88.5%
3	Shareholders, Investors	3.65	68.0%
4	Trade organizations	3.50	46.2%
5	Government officials, Regulatory bodies	3.40	58.3%
6	Banks etc. where loans are accessed	3.38	53.8%
7	People in the community	3.38	48.0%
8	Media	2.92	40.0%
9	Environmental lobby groups	2.88	28.0%

5.7. Discussion of the Company Survey Results

The results of the companies' field surveys determined the following relating to the research objectives:

Research Objective 1A – *Do the Markman Township companies perceive that they can affect the environment in a substantial manner?* – This issue was addressed in Question 2.1; and only 30.8% of the company's respondents agreed with the statement. The support for this statement is important since it would most likely affect interactions with the community. If the companies do not believe they can affect the environment, then any claims by the community that they do would probably result in a dispute. The results for this question must, however, be interpreted in conjunction with a later test, as described in Section 6.9.3, where company size was tested. Eight of the larger companies (50 or more employees) did agree with the statement.

Question 2.3 addressed the issue of community power, and whether they could affect the Markman Township companies. Almost a fifth (19.2%) of the companies' respondents felt they could be affected by the actions of the community.

Research Objective 1B – *Does the company think the community is a legitimate stakeholder in the companies located in Markman Township? And do the companies believe differently?* – This issue was addressed in Part 2a (Question 2.1 – 2.6) of the survey. The results indicate that only 11.5% of the respondents agreed that the communities east of the Swartkops River are legitimate stakeholders (Question 2.2). This is a key issue when determining whether an expectations gap would exist between the community and the company. The majority of company respondents also indicated that they do not believe in the need for an on-going dialogue with the community (73.1% do not agree or were undecided).

The highest mean score in Part 2a involves the community's right to demand environmental information (Question 2.5 – mean 3.12). This indicates that the companies might share information on an *ad hoc* basis, but only 53.8% of the company's respondents agreed with this statement, which indicates low overall support.

Research Objective 1C – *How does the company view the importance of various stakeholders?* – The results of Part 5 of the questionnaire indicate that the companies' customers are the most important stakeholders, followed by the employees, and then the shareholders. The government is fourth and the community seventh. Environmental lobby groups are ranked last. The ranking of customers as first is understandable, since without customers, the economic future of the company would be threatened.

Research Objective 1D – *Have the Markman Township companies implemented any measures to reduce pollution (Questionnaire – Part 6)?*

The results indicate that a number of the respondents had implemented practical measures to reduce the effects of pollution. It must, however, be noted that not all industries in this area would require pollution-abatement equipment or processes – due to the nature of their operation. The only inference that can be made is that substantive actions have been taken by some of the companies' respondents to address pollution issues.

Research Objective 2A – *With what type of environmental information should the companies provide the community? And what types of information are the companies willing to provide?* – The top five information needs (by mean score and in descending order) that the respondents indicated were:

- The amount and type of chemical spills emanating from each company (Question 2.12 – Mean 3.24; and the community ranked this issue first).

- The amount and type of hazardous and non-hazardous waste generated (Question 2.13- Mean 3.15; and the community ranked this question second).
- The amount and type of liquid effluents discharged into the sewer (Question 2.10 – Mean 3.12; and the community ranked this question fourth).
- Incidents of non-compliance with environmental laws and regulations (Question 2.15 – Mean 3.12; and the community ranked this question fifth).
- The amount and type of air emissions from each company (Question 2.11 – Mean 3.0; and the community ranked this question third).

The above information needs are ranked the top five issues for the community, but in a different order. The community ranked air pollution information third²⁹, whereas the companies ranked it fifth. The average of the mean scores (top five) is somewhat lower for the company, at 3.13 versus 4.68 for the top-five community mean scores on the same questions. This result possibly shows that the support by the companies to *provide* the information is lower than the *demand* for such information by the community. This difference could contribute to an expectations gap between the company and the community.

Research Objective 2B – What communication methods do the companies prefer? -

Part 3 of the survey questionnaire tested the preference between verbal and non-verbal communication. Non-verbal communication is preferred, with 73.1% of the respondents choosing this method. The reasons for this could be as follows:

- Written communication from a company could be less demanding on the company's resources.

²⁹ It is not known whether there were any air-pollution events at the time of the survey that could have influenced this result.

- The non-verbal communication method could be viewed as less confrontational than a verbal method.

The five most favoured communication methods, in descending order of preference, based on mean score, are (Part 4 of the questionnaire):

- Co-operative projects with the community;
- Newsletters;
- Focus groups on a specific topic;
- Surveys; and
- Advertising.

The preferences indicate that the respondents place more importance on recorded information or information that is not shared personally. Public participation meetings are ranked 19th, which is higher than the community ranked this method (23rd).

5.8. Chapter Summary

In this Chapter, the main results from the field survey were presented. This included the community and company survey. The results indicated that 80.4% of the residents owned their property, and that the average duration of residence in the area was 13 years. The results showed that 89% of the residents believe the Markman Industrial Township companies affect the environment negatively. Only 30.8% of the company respondents agreed with the residents on this matter. The results also indicated that 61.4% of the community respondents agreed they were stakeholders in the Markman Industrial Township companies, while only 11.5% of the companies' respondents agreed on this issue.

The companies believe that the community is the seventh most important stakeholder (out of nine possible stakeholders). The community, however, believe the companies view them as the least important stakeholder. The majority of community respondents believe that very few feel that any substantive actions are being taken by the Markman Industrial Township companies to improve their environmental performance, and that most of these actions are merely symbolic, with no real change actually taking place. The companies' respondents identified the same types of environmental-performance information that the community require, and both groups expressed a preference for verbal communication methods. In Chapter 6, the data will be analysed to determine whether there are any statistically significant differences between the company and community's responses.

CHAPTER 6 ANALYSIS OF THE RESULTS

6.1. Introduction

In this chapter the test to determine whether there are any statistically significant differences between the two respondent groups are explained and presented. A non-response bias test was applied, to determine whether the respondents who failed to take part in the surveys would have responded differently to those that did. In order to determine whether there are any intra-group differences in the responses, tests were conducted on the following community groups:

- Home-owners;
- Different groups of resident duration; and
- Different language groups.

The same tests were conducted on the following company respondent groups:

- ISO 14001 certified companies;
- Industry type; and
- Size of company.

The results of the statistical tests are summarised and the results presented. Finally, a summary of the findings in relation to the research objectives is presented.

6.2. Description of the Statistical Tests

A number of tests were conducted to determine whether there were any statistically significant differences between the responses of the community and companies'

respondents. According to Wegner (1993: 248), "the chi-square statistic tests the null hypothesis by comparing a set of observed frequencies, which are based on sample findings, to a set of expected frequencies, which describe the null situation." The non-parametric equivalent of the chi-square test is the Kruskal-Wallis One-Way ANOVA test and the Mann-Whitney U test (Diamantopoulos & Schlegelmilch 2000). A further statistic that was computed was the p-value. This value is a measure of the strength of either accepting or rejecting the null hypothesis. A p-value above 0.05 indicates that if the calculated χ^2 statistic falls in the area of acceptance, the null hypothesis should usually be accepted.

Multiple groups were tested by using a Kruskal-Wallis One-Way ANOVA test. If a statistically significant difference was detected between the groups, a Mann-Whitney U test was performed to determine within which group the difference lay. Intra-group responses were also tested by using a Mann-Whitney U test, to see whether the respondents' characteristics could have produced different results, which were also statistically significant.

The results of the Kruskal-Wallis and Mann-Whitney U tests are contained in the subsections below. These are only for those survey questions that were common to both respondent groups. The question numbers that are reflected below are based on the community questionnaire, as the community and company questionnaire used different question numbers due to the questionnaires differing in two parts (see Table 4-1 in Section 4.3 for the differences). The question content and intention were the same, but were grammatically changed to suit the community or company respondent questionnaire.

6.3. Inter-Group Differences – Community vs Company Responses

The difference in the response for each question was tested using the Man-Whitney U test.

These responses are contained in Table 6-1 below.

Table 6-1 – Community Response versus Company Response (Part 2A)

		Community Survey				Company Survey					
#	Statement	Mean	Std Dev	Median	IQR	Mean	Std Dev	Median	IQR	Mann Whitney U	p-value (1-tailed)
Part 2 A – Rate the following statements as follows: 1=Strongly Disagree; 2= Disagree; 3 =Uncertain / Neutral; 4=Agree; 5=Strongly Agree											
2.1	The organisations in Markman affect the environment in a substantial manner.	4.44	0.70	5	1.0	2.64	1.15	3	2.0	374.0	0.00
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	3.84	0.98	4	2.0	2.27	1.08	2	1.8	570.5	0.00
2.3	The local communities east of the Swartkops River have the power to affect the Markman organizations.	3.61	1.09	4	1.0	2.35	1.16	2	1.8	840.0	0.00
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	4.35	0.80	5	1.0	1.73	0.87	2	1.0	132.0	0.00
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	4.57	0.77	5	1.0	3.12	1.37	4	2.0	665.0	0.00
2.6	Markman organisations should have an ongoing dialogue with the local communities on their environmental performance.	4.58	0.72	5	1.0	2.58	1.14	3	1.8	270.0	0.00

IQR = Inter-Quartile Range Std Dev = Standard Deviation

Questions 2.1 to 2.6 relate to Stakeholder and Legitimacy Theories; and the data in Table 6-1 indicate that there was a statistically significant difference in the responses between the community and the company respondents on all six statements (p -values <0.05). The questions that were tested in Part 2a are at the core of this study, because if the responses contain any statistically significant differences, an expectations gap between the two groups would be likely. An important question in Part 2a is Question 2.2. This question asked the respondents to indicate whether they thought the community was a legitimate stakeholder in the company. The data indicate that the majority of the community respondents believe they are a legitimate stakeholder in the companies (Mean 3.84; Median 4 and percentage in agreement 61.4%), whereas the majority of the companies disagree with this view (Mean 2.27; Median 2 and percentage in agreement 11.5%).

Furthermore, the results of Question 2.1 indicate that the community has a different perception on how the companies affect the environment (Community Mean 4.4, Median 5 & Companies Mean 2.64 and Median 3). This has implications for the results in Question 2.4, which determined whether the community has any urgent environmental issues with the companies. If the majority of companies do not think that they affect the environment, they would probably not believe that there are any urgent environmental issues for which they are responsible, and that they could mitigate such issues.

This view is supported by the results of Question 2.4 (Community Mean 4.34, Median 5 & Companies Mean 1.73 and Median 2). Taking this argument further, the need for a continuing dialogue, from a company viewpoint, should not be necessary, as the majority of the companies do not believe there are any urgent environmental issues. This is juxtaposed by the results from Question 2.6, which indicate that the majority of the community believe a

dialogue is required, whereas the majority of the companies do not agree on this issue (Community Mean 4.58, Median 5 and Companies Mean 2.58 and Median 3). Part 2-B of the survey results is presented in Table 6-2 below.

Table 6-2 - Community Response versus Company Response (Part 2B)

		Community Survey				Company Survey					
#	Statement	Mean	Std Dev	Median	IQR	Mean	Std Dev	Median	IQR	Mann Whitney U	p-value (1-tailed)
Part 2 B – Markman companies should provide information to the local community about the following: 1= Strongly Disagree; 2= Disagree; 3 =Uncertain / Neutral; 4=Agree; 5=Strongly Agree											
2.7.1	The amount of raw materials consumed per annum.	3.93	1.01	4	2.0	1.92	0.86	2	1.0	315.0	0.00
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	3.95	0.93	4	2.0	2.38	1.13	2	1.0	612.5	0.00
2.7.3	The amount of water used per annum.	4.08	0.90	4	1.0	2.42	1.17	2	1.0	575.0	0.00
2.7.4	The amount and type of liquid effluents discharged to sewer.	4.67	0.67	5	0.8	3.12	1.21	3.5	2.0	476.5	0.00
2.7.5	The amount and type of air emissions from your organization.	4.68	0.67	5	0.0	3.00	1.29	3	2.0	421.0	0.00
2.7.6	The amount and type of chemical spills emanating from your plant	4.75	0.64	5	0.0	3.24	1.27	4	1.0	471.5	0.00
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	4.72	0.63	5	0.0	3.15	1.22	3.5	1.8	435.0	0.00
2.7.8	The amount of your product that can be recycled.	4.18	0.73	4	1.0	3.00	1.02	3	1.8	708.5	0.00
2.7.9	Incidents of non-compliance with environmental laws and regulations.	4.61	0.67	5	1.0	3.12	1.21	3	1.8	504.5	0.00
2.7.10	The significant impact of transport used for logistical purposes.	3.93	0.81	4	1.0	2.42	0.99	2	1.0	507.5	0.00
2.7.11	The total environmental expenditure by type per annum.	4.15	0.86	4	1.0	2.46	1.03	2.5	1.0	452.5	0.00

IQR = Inter-Quartile Range Std Dev = Standard Deviation

In Part 2b of the questionnaire, the respondents were asked what type of environmental-performance information was needed by the community. There was a statistically significant difference in response between the community and the company to all eleven types of information presented. The majority of the community respondents indicated that they wanted access to all the information types offered in the questionnaire. The majority of the company respondents only wanted to share information on spills (Question 2.7.6 – 52% in agreement).

The company respondents were split on two questions regarding the provision of information (Questions 2.7.4 and 2.7.7). This information must, however, be read in conjunction with the test on the ISO 14001 certified companies, who agreed with the community on Questions 2.7.4 – the amount of effluent discharged into the sewer; 2.7.5 – the amount and type of air emissions; 2.7.6 – the amount and type of chemical spills and 2.7.7 – the amount and type of hazardous waste.

In order for the ISO 14001 certified companies to gain certification, they would have to record all their environmental impacts and have implemented controls to mitigate these impacts (ISO14001:2004). This could have influenced the company response to these questions. Overall, the result of Part 2b suggests that there would be an expectations gap between the information the community requires, and the type of information the companies are willing to disclose.

Table 6-3 - Community Response versus Company Response (Part 3)

		Community Survey				Company Survey					
#	Statement	Mean	Std Dev	Median	IQR	Mean	Std Dev	Median	IQR	Mann Whitney U	p-value (2-tailed)
Part 3 – Choose one strategy which you think is best for communicating with the community. Verbal Communication (e.g. regular public meetings) or Non-verbal Communication (e.g. regular newsletters) 1= Non-Verbal; 0 = Verbal											
3.1	Preference for Verbal Communication	0.24	0.43	0	0.0	0.21	0.41	0	0.0	1728.5	0.72

IQR = Inter-Quartile Range Std Dev = Standard Deviation

There was no statistically significant difference between the community and the companies' preference for a communication strategy. The groups both prefer a non-verbal communication strategy.

Table 6-4 - Community Response versus Company Response (Part 4)

		Community Survey				Company Survey					
#	Statement	Mean	Std Dev	Median	IQR	Mean	Std Dev	Median	IQR	Mann Whitney U	p-value (2-tailed)
Part 4 - Rate each method listed below according to how effective it will be to promote communication with a community. 1= Totally Ineffective; 2= Ineffective; 3 = Neutral; 4=Effective; 5=Very Effective											
4.1	Art exhibitions	2.68	1.09	3	1.0	2.23	0.95	2	1.0	1466.5	0.04
4.2	Help desk	3.75	1.02	4	1.0	2.96	1.11	3	2.0	1173.0	0.00
4.3	Presentation groups	3.60	0.91	4	1.0	3.27	1.12	3	1.0	1602.0	0.15
4.4	Community dinners	2.49	0.99	2.5	1.0	2.65	1.16	3	2.0	1736.0	0.41
4.5	Theatre presentations	2.64	1.04	3	1.0	2.69	1.12	3	2.0	1816.5	0.72
4.6	Co-operative projects with the community	4.07	0.81	4	1.0	3.62	0.64	4	1.0	1255.0	0.00
4.7	Sustainability agreements	3.98	0.90	4	2.0	3.27	0.67	3	1.0	1007.0	0.00
4.8	Focus groups on a specific topic	3.97	0.91	4	2.0	3.46	0.71	3.5	1.0	1264.5	0.00

#	Statement	Community Survey				Company Survey				Mann Whitney U	p-value (2-tailed)
		Mean	Std Dev	Median	IQR	Mean	Std Dev	Median	IQR		
4.9	Surveys	3.99	0.85	4	1.0	3.38	0.98	4	1.0	1253.0	0.00
4.10	Open house / information days	3.61	0.90	4	1.0	3.23	0.82	3	1.0	1452.5	0.04
4.11	Guided tours with environmental focus	3.89	0.90	4	0.0	3.23	0.91	3	1.0	1158.5	0.00
4.12	Workshops / conferences	3.48	0.93	4	1.0	3.20	0.96	3	1.0	1526.0	0.15
4.13	Radio interviews	3.89	0.89	4	1.0	3.32	0.85	3	1.0	1209.5	0.00
4.14	Community liaison groups	3.79	0.80	4	1.0	3.32	0.90	4	1.0	1350.5	0.02
4.15	Websites	3.60	1.03	4	1.0	3.00	1.26	3	2.0	1377.0	0.03
4.16	Formal Environmental Reports	4.20	0.84	4	1.0	2.88	0.91	3	2.0	596.0	0.00
4.17	Newsletters	4.32	0.75	4	1.0	3.54	0.81	4	1.0	954.0	0.00
4.18	Product labels with environmental information	3.93	0.96	4	2.0	2.92	0.89	3	2.0	876.0	0.00
4.19	Posters displayed at local points such as Supermarkets	3.98	0.94	4	2.0	3.08	1.06	3	1.0	1032.5	0.00

#	Statement	Community Survey				Company Survey				Mann Whitney U	p-value (2-tailed)
		Mean	Std Dev	Median	IQR	Mean	Std Dev	Median	IQR		
4.20	Displays with environmental information manned by organisation employees at local points such as Supermarkets	3.91	0.94	4	2.0	2.84	1.11	3	2.0	905.0	0.00
4.21	Letters to residents	4.12	0.85	4	1.0	3.27	1.04	4	1.0	1039.0	0.00
4.22	Newspaper feature articles	4.19	0.74	4	1.0	3.12	0.95	3	1.0	734.5	0.00
4.23	News releases	4.11	0.75	4	1.0	3.15	0.92	3	1.0	851.0	0.00
4.24	Advertising	3.77	0.90	4	1.0	3.38	0.94	4	1.0	1526.5	0.07
4.25	Public meetings	3.47	1.01	4	1.0	2.96	0.87	3	0.8	1374.5	0.01
4.26	Personal contact / interviews	3.48	1.08	3.5	1.0	3.31	1.09	3	1.0	1773.0	0.51

IQR = Inter-Quartile Range Std Dev = Standard Deviation

Part 4 of the questionnaire tested the various methods of communicating environmental information. There were statistically significant differences on 20 out of the 26 methods contained in ISO14063 between the two respondent groups. The majority of the community respondents did not agree that three methods of communication would be effective, namely: art exhibitions, community dinners, and theatre presentations. The majority of the company respondents indicated that 19 of the methods would be ineffective. The seven methods the company respondents did agree would be effective are: co-operative projects with the community, focus groups, surveys, community-liaison groups, newsletters, letters to residents, and advertising.

The data analysis indicates that of these seven methods, there was only a statistically significant difference on the use of advertising (p value = 0.07) as a method of communication. However, the majority of both groups did agree that advertising was an effective method of communication (community – 65.5% agreement and companies – 57.7% agreement).

Table 6-5 - Community Response versus Company Response (Part 6)

		Community Survey				Company Survey					
#	Statement	Mean	Std Dev	Median	IQR	Mean	Std Dev	Median	IQR	Mann Whitney U	p-value (1-tailed)
Part 6: How <u>important</u> do you think the Markman Organisations view each stakeholder listed below (Remember, this is how the Markman Organisations view each stakeholder)											
1= Totally Unimportant; 2= Unimportant; 3 = Neutral; 4=Important; 5=Very Important											
6.1	Government officials, Regulatory bodies	3.14	1.16	3	2.0	3.40	1.08	4	1.0	1333.5	0.048
6.2	Shareholders, Investors	4.06	1.13	4	1.8	3.65	1.60	4	2.0	1605.0	0.278
6.3	Banks etc. where loans are accessed	3.90	1.10	4	2.0	3.38	1.36	4	1.0	1408.0	0.039
6.4	People in the community	2.12	1.15	2	2.0	3.38	1.13	3	1.0	628.5	0.000
6.5	Environmental lobby groups	2.34	1.12	2	1.8	2.88	1.11	3	1.5	1086.0	0.001
6.6	Employees	2.90	0.91	3	1.0	4.31	0.93	4.5	1.0	472.0	0.000
6.7	Media	2.99	1.02	3	2.0	2.92	1.13	3	2.0	1642.0	0.366
6.8	Customers	3.73	1.11	4	2.0	4.46	1.07	5	1.0	867.5	0.000
6.9	Trade organizations	3.46	1.07	3	1.0	3.50	1.21	3	1.8	1720.0	0.410
IQR	=	Inter-Quartile Range			Std	Dev	=	Standard Deviation			

In Part 6 of the questionnaire, the relative importance of various stakeholders was tested. There were statistically significant differences on six of the nine stakeholders, namely government officials and regulatory bodies, banks and other lending institutions; people in the community; environmental lobby groups; employees and customers.

The data indicate that less than half of the company respondents viewed the following stakeholders as important: the community (48%), environmental lobby groups (28%), the media (40%), and trade companies (46%). The community comprise one of the “legitimacy-conferring “publics”. The implication of the companies not viewing the community as an important stakeholder (from a community perspective), is that a legitimacy gap could occur. Furthermore, the majority of the community are of the opinion that the companies view the community as being the least important stakeholder (Mean 2.12 in Table 5-8).

6.4. Intra-group Differences – Community Respondents

6.4.1. Ownership of Dwelling

A test was conducted to determine whether the home owners would have responded differently to respondents that were renting their homes. The rationale is that owners may have a greater vested interest in their investment, and that they would like to see their investments protected, and the values thereof grow. A further reason is that non-homeowners may be more transient in the area than home owners, who may thus be exposed to pollution issues over a longer period. There were 22 respondents who did not own their homes.

Table 6-6 – Kruskal-Wallis Test - Community - Ownership of Dwelling

		Home Owners vs Non-Home Owners			
#	Statement	Kruskal-Wallis Test Statistic	Mean Home Owners	Mean Non-Home Owners	Asymptotic Significant p-value (2-tailed)
Part 2a - Rate the following statements					
2.1	The organisations in Markman affect the environment in a substantial manner.	3.184	4.1	4.5	0.074
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	0.499	3.7	3.8	0.480
2.3	The local communities east of the Swartkops River have the power to affect the Markman organizations.	0.368	3.6	3.6	0.544
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	7.759	3.9	4.4	0.005
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	3.550	4.3	4.6	0.060
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	2.238	4.3	4.6	0.135
Part 2b - Markman Companies should provide information to the community about the following:					
2.7.1	The amount of raw materials consumed per annum.	0.315	3.7	3.9	0.575
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	0.437	4.0	3.9	0.509
2.7.3	The amount of water used per annum.	3.405	4.4	4.0	0.065

		Home Owners vs Non-Home Owners			
#	Statement	Kruskal-Wallis Test Statistic	Mean Home Owners	Mean Non-Home Owners	Asymptotic Significant p-value (2-tailed)
2.7.4	The amount and type of liquid effluents discharged to sewer.	0.697	4.5	4.7	0.404
2.7.5	The amount and type of air emissions from your organization.	5.256	4.4	4.7	0.022
2.7.6	The amount and type of chemical spills emanating from your plant	1.770	4.5	4.8	0.183
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	0.326	4.7	4.7	0.568
2.7.8	The amount of your product that can be recycled.	0.747	4.3	4.2	0.387
2.7.9	Incidents of non-compliance with environmental laws and regulations.	3.233	4.4	4.6	0.072
2.7.10	The significant impact of transport used for logistical purposes.	0.435	4.0	3.9	0.509
2.7.11	The total environmental expenditure by type per annum.	0.018	4.1	4.1	0.894
Part 3 - Preference for Verbal or Non-Verbal Communication					
3.1	Verbal Communication Preference (0=preferred)	1.138	0.3	0.2	0.286
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community					
4.1	Art exhibitions	0.002	2.7	2.7	0.966
4.2	Help desk	0.354	3.7	3.8	0.552
4.3	Presentation groups	0.448	3.7	3.6	0.503
4.4	Community dinners	7.675	3.0	2.4	0.006
4.5	Theatre presentations	5.553	3.1	2.5	0.018
4.6	Co-operative projects with the community	0.150	4.1	4.1	0.698
4.7	Sustainability agreements	0.207	4.0	4.0	0.649
4.8	Focus groups on a specific topic	0.065	4.0	4.0	0.799
4.9	Surveys	4.073	3.8	4.1	0.044
4.10	Open house / information days	0.985	3.8	3.6	0.321
4.11	Guided tours with environmental focus	0.488	3.9	3.9	0.485

		Home Owners vs Non-Home Owners			
#	Statement	Kruskal-Wallis Test Statistic	Mean Home Owners	Mean Non-Home Owners	Asymptotic Significant p-value (2-tailed)
4.12	Workshops / conferences	2.476	3.7	3.4	0.116
4.13	Radio interviews	1.232	4.0	3.9	0.267
4.14	Community liaison groups	0.726	3.6	3.8	0.394
4.15	Websites	1.097	3.4	3.7	0.295
4.16	Formal Environmental Reports	5.345	3.8	4.3	0.021
4.17	Newsletters	0.235	4.2	4.3	0.628
4.18	Product labels with environmental information	0.044	4.0	3.9	0.834
4.19	Posters displayed at local points such as Supermarkets	0.114	4.0	4.0	0.735
4.20	Displays with environmental information manned by organization employees at local points such as Supermarkets	0.006	3.9	3.9	0.940
4.21	Letters to residents	4.697	3.8	4.2	0.030
4.22	Newspaper feature articles	1.233	4.1	4.2	0.267
4.23	News releases	4.359	3.8	4.2	0.037
4.24	Advertising	0.240	3.9	3.8	0.624
4.25	Public meetings	0.039	3.5	3.5	0.844
4.26	Personal contact / interviews	0.105	3.4	3.5	0.746
Part 5 - Below are strategies that Markman companies might have used. Have you noted any evidence of these strategies?					
5.1	Markman organisations have changed their activities to suit society.	1.612	0.1	0.0	0.204
5.2	Markman organisations have implemented changes that are substantive and positive to blend in with society's norms and beliefs.	4.394	0.1	0.0	0.036
5.3	Markman organisations have through communication, altered their definition of societal legitimacy to suit their own needs.	0.168	0.1	0.1	0.682
5.4	The Markman organisations advocate socially acceptable goals while their actions are less acceptable	0.988	0.2	0.3	0.320
5.5	Markman organisations have denied or concealed activities that are not legitimate.	1.748	0.3	0.4	0.186

		Home Owners vs Non-Home Owners			
#	Statement	Kruskal-Wallis Test Statistic	Mean Home Owners	Mean Non-Home Owners	Asymptotic Significant p-value (2-tailed)
5.6	Markman organisations offer public excuses about some of their actions.	0.119	0.3	0.4	0.730
5.7	Markman organisations make highly visible "right thing to do" actions without real organisational change taking place.	5.470	0.4	0.2	0.019
5.8	Markman organisations admit guilt when their actions affect others, but do little else.	0.736	0.2	0.2	0.391
5.9	Markman organisations supply ambiguous or misleading information regarding their activities that is open to misinterpretation.	0.000	0.4	0.4	0.997
5.10	Markman organisations offer trivial or partial information and do not address environmental problems.	0.233	0.6	0.6	0.630
Part 6 - How important do you think the Markman companies view each stakeholder listed below - (Remember, this is how the Markman Organisations view each stakeholder)?					
6.1	Government officials, Regulatory bodies	0.637	3.3	3.1	0.425
6.2	Shareholders, Investors	1.000	3.8	4.1	0.317
6.3	Banks etc. where loans are accessed	0.839	3.6	3.9	0.360
6.4	People in the community	3.694	2.7	2.0	0.055
6.5	Environmental lobby groups	0.772	2.6	2.3	0.379
6.6	Employees	2.397	3.2	2.9	0.122
6.7	Media	1.663	3.2	3.0	0.197
6.8	Customers	0.060	3.6	3.7	0.807
6.9	Trade organizations	5.475	3.9	3.4	0.019
Number of Significantly Different Results					11

The results indicate that there was a statistically significant difference in the response to 11 questions. The data relating to the questions, where the p-value is less than 0.05, are presented in more detail in Table 6-7 below.

Table 6-7 - Ownership of Dwelling (% Agreement per Response & p-Value<0.05)

		Non- Homeowners			Home Owners		
Number	Statement	Aggregate % Disagree / Ineffective / Unimportant / Not Evident	Neutral / Undecided	Aggregate % Agree / Effective / Important/ Evident	Aggregate % Disagree / Ineffective / Unimportant / Not Evident	Neutral / Undecided	Aggregate % Agree / Effective / Important/ Evident
Part 2a - Rate the following statements							
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman companies	4.5%	27.3%	68.2%	0.8%	10.1%	89.1%
Part 2 B – Markman companies should provide information to the local community about the following:							
2.7.5	Markman companies should provide information to the local community about the amount and type of air emissions from each company	0.0%	22.7%	77.3%	1.7%	2.5%	95.9%
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community							
4.4	How effective will it be to promote communication with a community using: Community dinners?	23.8%	42.9%	33.3%	55.8%	35.0%	9.2%
4.5	How effective would it be to promote communication with a community using: Theatre presentations?	28.6%	23.8%	47.6%	47.5%	38.1%	14.4%
4.9	How effective would it be to promote communication with a community using: Surveys?	4.8%	23.8%	71.4%	5.0%	10.8%	84.2%
4.16	How effective would it be to promote communication with	13.6%	22.7%	63.6%	2.6%	10.3%	87.2%

Number	Statement	Non- Homeowners			Home Owners		
		Aggregate % Disagree / Ineffective / Unimportant / Not Evident	Neutral / Undecided	Aggregate % Agree / Effective / Important/ Evident	Aggregate % Disagree / Ineffective / Unimportant / Not Evident	Neutral / Undecided	Aggregate % Agree / Effective / Important/ Evident
	a community using: Formal Environmental Reports?						
4.21	How effective would it be to promote communication with a community using: Letters to residents?	9.1%	18.2%	72.7%	3.3%	14.2%	82.5%
4.23	How effective would it be to promote communication with a community using: News releases?	4.8%	23.8%	71.4%	1.7%	13.3%	85.0%
Part 5 - How important do you think the stakeholders are that are listed below							
5.2	Markman companies have implemented changes that are substantive and positive to blend in with society's norms and beliefs	85.7%	-	14.3%	96.6%	-	3.4%
5.7	Markman companies make highly visible "right thing to do" actions without real company change taking place	61.9%	-	38.1%	83.9%	-	16.1%
Part 6: How <u>important</u> do you think the Markman Organisations view each stakeholder listed below?							
6.9	How important do you think the Markman companies view: Trade organizations?	10.0%	15.0%	75.0%	17.1%	42.3%	40.5%

Table 6-7 above indicates the percentage aggregate “agreement”³⁰ response per group. The results indicate that even though there were differences in the levels of response, the majority of the two respondent groups had similar “agree” or “disagree” aggregate responses on all questions, except Question 6.9. The question relates to how important the community perceives trade organisations as being to the companies. The results indicate that 75% of non-homeowners agreed that the trade organisations are important for the companies, whereas only 40.5% of the homeowners agreed with this statement.

In order to determine a possible cause for the difference in this question, the author re-examined the raw data. The other possible variables (that were measured), that could have influenced the result, are the language spoken by the non-homeowner respondents and their duration of residence in the community. These two variables are evenly spread among the respondents. The reason for the differences in the responses to Question 6.9 could not be determined.

In summary, it would not appear from the data that the overall responses were different for the homeowners and the non-homeowners.

6.4.2. Community – Duration of Residence

The difference in the duration of residence was tested to determine if residents that had stayed in the area for longer responded differently. The reason for this is that they may have

³⁰To aid brevity, when discussing the results in Chapter 6, the term “agree” will include those questions where the required response to the statement was to rate it as “effective / ineffective”, “important / unimportant” or “evident / not evident”, as the method of scoring is the same.

been exposed to potential pollution problems over a longer period. The duration of residence is widespread, with the shortest duration being two months, and the longest being 50 years and 8 months. In order to make the comparison meaningful, the residents were divided into three groupings, namely:

- Panel A - Duration of residence less than 12 months and longer than 12 months
- Panel B - Duration of residence less than 24 months and longer than 24 months
- Panel C - Duration of residence less than 60 months and longer than 60 months

These groupings enabled the data to be analysed to determine whether the duration of residence in the area would have resulted in a statistically significant difference in the response to the survey questionnaire. The Kruskal-Wallis One-Way ANOVA test was conducted on all the groups, and the Mann-Whitney U test on the individual groups. The results of the tests are contained in Table 6-8 and Table 6-9.

Table 6-8 - Community Duration of Residence (All Groups & Panel A)

		Residence Duration All Groups		Panel A Residence <12 months vs >12 months Duration			
#	Statement	Kruskal- Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann- Whitney U Test Statistic	Mean Residents <12 months duration	Mean Residents >12 months duration	Asymptotic Significant p-value (2-tailed)
Part 2a - Rate the following statements							
2.1	The organisations in Markman affect the environment in a substantial manner.	1.021	0.600	497.0	4.2	4.5	0.356
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	1.142	0.565	419.5	4.0	3.8	0.337
2.3	The local communities east of the Swartkops River have the power to affect the Markman organizations.	5.722	0.057	567.0	3.6	3.6	0.904
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	4.797	0.091	486.0	3.9	4.4	0.314
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	0.306	0.858	555.0	4.2	4.6	0.587

		Residence Duration All Groups		Panel A Residence <12 months vs >12 months Duration			
#	Statement	Kruskal-Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Mean Residents <12 months duration	Mean Residents >12 months duration	Asymptotic Significant p-value (2-tailed)
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	4.221	0.121	430.5	4.0	4.6	0.074
Part 2b - Markman Companies should provide information to the community about the following:							
2.7.1	The amount of raw materials consumed per annum.	0.330	0.848	552.0	3.8	4.0	0.655
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	1.323	0.516	487.5	4.1	3.9	0.310
2.7.3	The amount of water used per annum.	0.552	0.759	528.5	4.1	4.1	0.534
2.7.4	The amount and type of liquid effluents discharged to sewer.	4.670	0.097	410.0	4.1	4.7	0.036
2.7.5	The amount and type of air emissions from your organization.	16.288	0.000	246.5	3.8	4.7	0.000
2.7.6	The amount and type of chemical spills emanating from your plant	5.856	0.053	417.0	4.1	4.8	0.019
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	5.134	0.077	367.5	4.1	4.8	0.034
2.7.8	The amount of your product that can be recycled.	2.375	0.305	479.5	3.8	4.2	0.289

		Residence Duration All Groups		Panel A Residence <12 months vs >12 months Duration			
#	Statement	Kruskal-Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Mean Residents <12 months duration	Mean Residents >12 months duration	Asymptotic Significant p-value (2-tailed)
2.7.9	incidents of non-compliance with environmental laws and regulations.	9.572	0.008	346.5	3.9	4.7	0.010
2.7.10	The significant impact of transport used for logistical purposes.	1.295	0.523	543.5	3.7	3.9	0.645
2.7.11	The total environmental expenditure by type per annum.	1.102	0.576	509.5	3.8	4.2	0.426
Part 3 - Preference for Verbal or Non-Verbal Communication							
3.1	Verbal Communication Preference (0=preferred)	0.698	0.705	583.0	0.2	0.2	0.862
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community							
4.1	Art exhibitions	0.725	0.696	596.0	2.5	2.7	0.595
4.2	Help desk	1.141	0.565	530.0	3.4	3.8	0.288
4.3	Presentation groups	2.880	0.237	464.0	3.2	3.6	0.100
4.4	Community dinners	4.842	0.089	400.5	3.2	2.5	0.033
4.5	Theatre presentations	2.960	0.228	531.0	3.0	2.6	0.334

		Residence Duration All Groups		Panel A Residence <12 months vs >12 months Duration			
#	Statement	Kruskal-Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Mean Residents <12 months duration	Mean Residents >12 months duration	Asymptotic Significant p-value (2-tailed)
4.6	Co-operative projects with the community	1.232	0.540	569.0	3.9	4.1	0.394
4.7	Sustainability agreements	3.705	0.157	475.5	3.6	4.0	0.133
4.8	Focus groups on a specific topic	2.126	0.345	646.0	4.0	4.0	0.873
4.9	Surveys	9.859	0.007	389.5	3.4	4.1	0.016
4.10	Open house / information days	7.917	0.019	393.5	2.9	3.7	0.025
4.11	Guided tours with environmental focus	1.380	0.502	590.0	3.5	3.9	0.542
4.12	Workshops / conferences	1.564	0.458	565.5	3.6	3.5	0.470
4.13	Radio interviews	1.050	0.592	549.0	3.5	3.9	0.323
4.14	Community liaison groups	4.949	0.084	366.5	3.0	3.8	0.036
4.15	Websites	1.597	0.450	513.5	3.8	3.6	0.223
4.16	Formal Environmental Reports	0.616	0.735	560.5	3.9	4.2	0.433
4.17	Newsletters	0.183	0.913	654.5	4.2	4.3	0.927
4.18	Product labels with environmental information	2.763	0.251	618.5	3.8	3.9	0.787
4.19	Posters displayed at local points such as Supermarkets	0.809	0.667	662.0	3.8	4.0	0.980

		Residence Duration All Groups		Panel A Residence <12 months vs >12 months Duration			
#	Statement	Kruskal-Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Mean Residents <12 months duration	Mean Residents >12 months duration	Asymptotic Significant p-value (2-tailed)
4.20	Displays with environmental information manned by organization employees at local points such as Supermarkets	0.035	0.983	634.0	3.9	3.9	0.858
4.21	Letters to residents	2.990	0.224	608.5	3.9	4.1	0.657
4.22	Newspaper feature articles	4.917	0.086	644.5	4.0	4.2	0.890
4.23	News releases	2.046	0.359	561.5	3.8	4.1	0.408
4.24	Advertising	0.103	0.950	641.0	3.6	3.8	0.904
4.25	Public meetings	6.182	0.045	464.0	2.9	3.5	0.108
4.26	Personal contact / interviews	0.568	0.753	567.5	3.3	3.5	0.465
Part 5 - Below are strategies that Markman companies may have used. Have you noted any evidence of these strategies							
5.1	Markman organisations have changed their activities to suit society.	8.885	0.012	476.5	0.2	0.0	0.006
5.2	Markman organisations have implemented changes that are substantive and positive to blend in with society's norms and beliefs.	2.740	0.254	546.5	0.1	0.0	0.298

#	Statement	Residence Duration All Groups		Panel A Residence <12 months vs >12 months Duration			
		Kruskal- Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann- Whitney U Test Statistic	Mean Residents <12 months duration	Mean Residents >12 months duration	Asymptotic Significant p-value (2-tailed)
5.3	Markman organisations have through communication, altered their definition of societal legitimacy to suit their own needs.	3.723	0.155	578.5	0.1	0.1	0.872
5.4	The Markman organisations advocate socially acceptable goals while their actions are less acceptable	3.520	0.172	479.5	0.1	0.3	0.232
5.5	Markman organisations have denied or concealed activities that are not legitimate.	8.999	0.011	579.5	0.4	0.4	0.921
5.6	Markman organisations offer public excuses about some of their actions.	4.125	0.127	539.0	0.4	0.4	0.607
5.7	Markman organisations make highly visible “right thing to do” actions without real organisational change taking place.	1.508	0.470	580.0	0.2	0.2	0.908
5.8	Markman organisations admit guilt when their actions affect others, but do little else.	1.206	0.547	557.5	0.2	0.2	0.677
5.9	Markman organisations supply ambiguous or misleading information regarding their activities that is open to misinterpretation.	0.510	0.775	556.5	0.3	0.4	0.739
5.10	Markman organisations offer trivial or partial information and do not address environmental problems.	2.898	0.235	548.0	0.6	0.6	0.675

		Residence Duration All Groups		Panel A Residence <12 months vs >12 months Duration			
#	Statement	Kruskal-Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Mean Residents <12 months duration	Mean Residents >12 months duration	Asymptotic Significant p-value (2-tailed)
Part 6 - How important do you think the Markman companies view each stakeholder listed below							
6.1	Government officials, Regulatory bodies	3.724	0.155	421.5	2.8	3.1	0.425
6.2	Shareholders, Investors	3.000	0.223	346.0	3.3	4.1	0.126
6.3	Banks etc. where loans are accessed	1.229	0.541	412.0	3.4	3.9	0.420
6.4	People in the community	8.072	0.018	275.5	1.4	2.1	0.025
6.5	Environmental lobby groups	4.837	0.089	333.5	1.8	2.3	0.106
6.6	Employees	1.831	0.400	413.0	2.6	2.9	0.430
6.7	Media	2.366	0.306	302.5	2.4	3.0	0.161
6.8	Customers	6.724	0.035	255.5	2.6	3.8	0.015
6.9	Trade organizations	2.535	0.281	420.0	3.0	3.5	0.470
		Number of Statistically Significant Different Responses	9	Number of Statistically Significant Different Responses			12

Table 6-9 - Community Duration of Residence (Panel B & C)

		Panel B Residence <24 months vs >24 months Duration				Panel C Residence <60 months vs >60 months Duration			
#	Statement	Mann-Whitney U Test Statistic	Mean Residents <24 months duration	Mean Residents >24 months duration	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Mean Residents <60 months duration	Mean Residents >60 months duration	Asymptotic Significant p-value (2-tailed)
Part 2a - Rate the following statements									
2.1	The organisations in Markman affect the environment in a substantial manner.	1410.0	4.4	4.5	0.808	2186.5	4.4	4.5	0.485
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	1238.5	3.7	3.9	0.445	2190.0	3.8	3.8	0.895
2.3	The local communities east of the Swartkops River have the power to affect the Markman organizations.	1272.5	3.4	3.6	0.421	1753.5	3.3	3.7	0.027
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	1046.0	4.0	4.4	0.016	1871.0	4.2	4.5	0.030

#	Statement	Panel B Residence <24 months vs >24 months Duration				Panel C Residence <60 months vs >60 months Duration			
		Mann-Whitney U Test Statistic	Mean Residents <24 months duration	Mean Residents >24 months duration	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Mean Residents <60 months duration	Mean Residents >60 months duration	Asymptotic Significant p-value (2-tailed)
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	1376.0	4.3	4.6	0.461	2395.0	4.5	4.6	0.932
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	1160.5	4.2	4.7	0.035	2103.5	4.4	4.7	0.119
Part 2b - Markman Companies should provide information to the community on the following:									
2.7.1	The amount of raw materials consumed per annum.	1203.5	3.6	4.0	0.129	2273.5	3.9	4.0	0.624
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	1379.0	3.8	4.0	0.589	2348.0	3.9	4.0	0.870
2.7.3	The amount of water used per annum.	1370.5	3.9	4.1	0.601	2208.0	4.1	4.1	0.553
2.7.4	The amount and type of liquid effluents discharged to sewer.	1338.0	4.4	4.7	0.341	2344.0	4.6	4.7	0.823
2.7.5	The amount and type of air emissions from your organization.	1083.5	4.3	4.8	0.005	2172.0	4.6	4.7	0.226
2.7.6	The amount and type of chemical spills emanating from your plant	1124.0	4.4	4.8	0.005	2169.0	4.6	4.8	0.172

#	Statement	Panel B Residence <24 months vs >24 months Duration				Panel C Residence <60 months vs >60 months Duration			
		Mann-Whitney U Test Statistic	Mean Residents <24 months duration	Mean Residents >24 months duration	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Mean Residents <60 months duration	Mean Residents >60 months duration	Asymptotic Significant p-value (2-tailed)
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	1105.0	4.4	4.8	0.016	2102.5	4.6	4.8	0.152
2.7.8	The amount of your product that can be recycled.	1360.0	4.0	4.2	0.594	2183.0	4.2	4.2	0.486
2.7.9	Incidents of non-compliance with environmental laws and regulations.	1047.0	4.2	4.7	0.007	1859.0	4.4	4.7	0.013
2.7.10	The significant impact of transport used for logistical purposes.	1382.5	3.9	3.9	0.694	2152.5	4.0	3.9	0.409
2.7.11	The total environmental expenditure by type per annum.	1201.0	3.8	4.2	0.135	2275.0	4.1	4.2	0.707
Part 3 - Preference for Verbal or Non-Verbal Communication									
3.1	Verbal Communication Preference (0=preferred)	1403.0	0.3	0.2	0.669	2212.0	0.2	0.3	0.408
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community									
4.1	Art exhibitions	1457.0	2.7	2.7	0.779	2276.5	2.7	2.7	0.663
4.2	Help desk	1382.0	3.6	3.8	0.525	2268.5	3.7	3.8	0.775
4.3	Presentation groups	1335.0	3.5	3.6	0.361	2100.5	3.5	3.7	0.328
4.4	Community dinners	1080.5	2.9	2.4	0.021	2068.5	2.6	2.4	0.214

#	Statement	Panel B Residence <24 months vs >24 months Duration				Panel C Residence <60 months vs >60 months Duration			
		Mann-Whitney U Test Statistic	Mean Residents <24 months duration	Mean Residents >24 months duration	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Mean Residents <60 months duration	Mean Residents >60 months duration	Asymptotic Significant p-value (2-tailed)
4.5	Theatre presentations	1217.5	3.0	2.6	0.158	1908.0	2.9	2.5	0.094
4.6	Co-operative projects with the community	1465.5	4.0	4.1	0.744	2196.5	4.0	4.1	0.334
4.7	Sustainability agreements	1311.5	3.9	4.0	0.466	2161.5	4.0	3.9	0.562
4.8	Focus groups on a specific topic	1405.5	4.1	4.0	0.520	2084.0	4.1	3.9	0.158
4.9	Surveys	1257.0	3.8	4.1	0.139	1794.0	3.8	4.1	0.006
4.10	Open house / information days	1317.0	3.4	3.6	0.341	1788.5	3.4	3.8	0.017
4.11	Guided tours with environmental focus	1234.5	3.6	3.9	0.182	2108.0	3.8	4.0	0.248
4.12	Workshops / conferences	1422.0	3.4	3.5	0.734	2152.0	3.4	3.5	0.486
4.13	Radio interviews	1388.5	3.8	3.9	0.456	2268.5	3.8	3.9	0.547
4.14	Community liaison groups	1310.0	3.6	3.8	0.442	2281.5	3.8	3.8	0.975
4.15	Websites	1248.0	3.8	3.6	0.152	2208.0	3.6	3.6	0.461
4.16	Formal Environmental Reports	1397.0	4.1	4.2	0.622	2257.5	4.1	4.2	0.765
4.17	Newsletters	1414.0	4.2	4.3	0.536	2311.0	4.3	4.3	0.672
4.18	Product labels with environmental information	1274.5	3.7	4.0	0.239	1962.0	3.7	4.0	0.103
4.19	Posters displayed at local points such as Supermarkets	1439.0	4.0	4.0	0.650	2210.0	3.9	4.0	0.395

#	Statement	Panel B Residence <24 months vs >24 months Duration				Panel C Residence <60 months vs >60 months Duration			
		Mann-Whitney U Test Statistic	Mean Residents <24 months duration	Mean Residents >24 months duration	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Mean Residents <60 months duration	Mean Residents >60 months duration	Asymptotic Significant p-value (2-tailed)
4.20	Displays with environmental information manned by organization employees at local points such as Supermarkets	1336.5	4.0	3.9	0.372	2324.0	3.9	3.9	0.911
4.21	Letters to residents	1316.5	4.0	4.2	0.275	1997.5	4.0	4.2	0.085
4.22	Newspaper feature articles	1269.0	4.0	4.3	0.159	1924.0	4.0	4.3	0.034
4.23	News releases	1224.0	3.9	4.2	0.178	2037.0	4.0	4.2	0.166
4.24	Advertising	1340.0	3.6	3.8	0.379	2278.0	3.7	3.8	0.748
4.25	Public meetings	1261.0	3.2	3.5	0.192	1823.0	3.2	3.6	0.019
4.26	Personal contact / interviews	1397.5	3.4	3.5	0.590	2330.5	3.5	3.5	0.935
Part 5 - Below are strategies that Markman companies may have used. Have you noted any evidence of these strategies									
5.1	Markman organisations have changed their activities to suit society.	1324.0	0.1	0.0	0.284	2256.5	0.0	0.0	0.873
5.2	Markman organisations have implemented changes that are substantive and positive to blend in with society's norms and beliefs.	1324.0	0.1	0.0	0.284	2142.5	0.1	0.0	0.117
5.3	Markman organisations have through communication, altered their definition of societal legitimacy to suit their own needs.	1246.0	0.0	0.1	0.164	2020.5	0.1	0.2	0.063

#	Statement	Panel B Residence <24 months vs >24 months Duration				Panel C Residence <60 months vs >60 months Duration			
		Mann-Whitney U Test Statistic	Mean Residents <24 months duration	Mean Residents >24 months duration	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Mean Residents <60 months duration	Mean Residents >60 months duration	Asymptotic Significant p-value (2-tailed)
5.4	The Markman organisations advocate socially acceptable goals while their actions are less acceptable	1332.0	0.3	0.3	0.672	1949.5	0.2	0.3	0.077
5.5	Markman organisations have denied or concealed activities that are not legitimate.	1232.0	0.3	0.4	0.302	1719.5	0.3	0.5	0.005
5.6	Markman organisations offer public excuses about some of their actions.	1340.0	0.3	0.4	0.730	1949.0	0.3	0.4	0.096
5.7	Markman organisations make highly visible “right thing to do” actions without real organisational change taking place.	1390.0	0.2	0.2	0.987	2090.0	0.2	0.2	0.268
5.8	Markman organisations admit guilt when their actions affect others, but do little else.	1330.0	0.2	0.2	0.599	2147.5	0.1	0.2	0.418
5.9	Markman organisations supply ambiguous or misleading information regarding their activities that is open to misinterpretation.	1304.0	0.3	0.4	0.564	2176.5	0.4	0.4	0.633
5.10	Markman organisations offer trivial or partial information and do not address environmental problems.	1118.0	0.5	0.7	0.071	1941.0	0.5	0.7	0.090
Part 6 - How important do you think the Markman companies view each stakeholder listed below									

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#	Statement	Panel B Residence <24 months vs >24 months Duration				Panel C Residence <60 months vs >60 months Duration			
		Mann-Whitney U Test Statistic	Mean Residents <24 months duration	Mean Residents >24 months duration	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Mean Residents <60 months duration	Mean Residents >60 months duration	Asymptotic Significant p-value (2-tailed)
6.1	Government officials, Regulatory bodies	1027.0	3.5	3.0	0.080	1790.0	3.3	3.0	0.164
6.2	Shareholders, Investors	1272.0	4.0	4.1	0.880	1780.5	3.9	4.1	0.203
6.3	Banks etc. where loans are accessed	1226.0	3.9	3.9	0.717	1812.0	3.8	4.0	0.325
6.4	People in the community	1239.0	2.2	2.0	0.871	1857.5	2.2	2.0	0.368
6.5	Environmental lobby groups	1288.0	2.3	2.3	0.961	1855.5	2.4	2.2	0.382
6.6	Employees	1102.0	3.1	2.8	0.395	1820.5	3.0	2.8	0.440
6.7	Media	1165.0	3.0	3.0	0.627	1959.5	3.0	3.0	0.871
6.8	Customers	1145.5	3.5	3.8	0.320	1714.0	3.5	3.8	0.093
6.9	Trade organizations	976.0	3.7	3.4	0.056	1772.5	3.5	3.4	0.274
		Number of Statistically Significant Different Responses				7	Number of Statistically Significant Different Responses		8

(270)

The results show that there were statistically significant differences in the responses to nine questions among all three groups: 12 statistically significant different responses on Panel A (12 months cut point), seven statistically significant different responses on Panel B (24 months cut point), and eight statistically significant different responses on Panel C (60 months cut point). The aggregate percentages of the respondents that agree or disagree with the statistically significant different responses (p-value <0.05) are shown in Table 6-10.

Table 6-10 - Community Duration of Residence – All Groups (% Agreement on Statistically Significant Different Responses)

		Residence Duration All Groups		
#	Statement	Aggregate % Disagree	Aggregate % Neutral	Aggregate % Agree
Part 2b - Markman Companies should provide information to the community about the following:				
2.7.5	The amount and type of air emissions from your organization.	1.4%	4.9%	93.7%
2.7.9	Incidents of non-compliance with environmental laws and regulations.	1.4%	4.3%	94.3%
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community.		Aggregate % Ineffective	Aggregate % Neutral	Aggregate % Effective
4.9	Surveys	4.9%	12.7%	82.4%
4.10	Open house / information days	7.9%	32.9%	59.3%
4.25	Public meetings	15.6%	31.9%	52.5%

Part 5 - Below are strategies that Markman companies may have used. Have you noted any evidence of these strategies		Aggregate % Not Evident	-	Aggregate % Evident
5.1	Markman organisations have changed their activities to suit society.	95.7%	-	4.3%
5.5	Markman organisations have denied or concealed activities that are not legitimate.	57.1%	-	42.9%
Part 6 - How important do you think the Markman companies view each stakeholder listed below		Aggregate % Unimportant	Aggregate % Neutral	Aggregate % Important
6.4	People in the community	69.9%	17.3%	12.8%
6.8	Customers	15.0%	19.5%	65.4%

The aggregate responses in Table 6-10 indicate that on most questions there was a high level of disagreement or agreement by both respondent groups. Concerning the effectiveness of the communication methods, there appear to be a larger number of respondents that are neutral or undecided on open house and information days, as well as public meetings (32.9% and 31.9% respectively). The response to the legitimization activities (Question 5.5 – denying or concealing illegitimate activities), shows that 42.9% of the respondents had noted evidence of this strategy.

On the questions where there is less difference between those that agree and those that disagree, one would expect to see one or two groups responding differently to the other groups. The evaluation of the responses of the residents that resided in the area for less than 12, 24 months and 60 months is contained in the Sections 6.4.2.1-3 below.

There are two possible methods to interpret the aggregate percentages in the tables below. Firstly, the statistically significant difference in response could have arisen from the majority

of respondents in each group choosing different options: i.e. one group agrees with a statement, while the other group disagrees with the statement (e.g. Question 4.10 in Table 6-11 below). Secondly, the level of support for a particular option may be different, but the overall support for the option may be similar: i.e. both groups agree or disagree, but the overall number of persons agreeing and disagreeing in each group is different (e.g. Question 2.7.7 in Table 6-11 below).

6.4.2.1. Community Duration of Residence (Less than 12 months)

The aggregate percentages of responses for the residents who had resided in the area for less than and longer than 12 months are contained in Table 6-11 below.

Table 6-11 – Community Duration of Residence – <12 months vs >12 months (% Agreement on Statistically Significant Different Responses)

	Statement	Residence Duration <12 months			Residence Duration >12 months		
		Aggregate % Disagree	Aggregate % Neutral	Aggregate % Agree	Aggregate % Disagree	Aggregate % Neutral	Aggregate % Agree
Part 2b - Markman Companies should provide information to the community about the following:							
2.7.4	The amount and type of liquid effluents discharged to sewer.	11.1%	0.0%	88.9%	1.5%	3.7%	94.8%
2.7.5	The amount and type of air emissions from your organization.	11.1%	11.1%	77.8%	0.7%	4.5%	94.8%
2.7.6	The amount and type of chemical spills emanating from your plant	11.1%	11.1%	77.8%	1.5%	2.2%	96.3%
2.7.7	The amount and type of hazardous and non-hazardous waste	11.1%	33.3%	55.6%	6.0%	12.7%	81.3%

	Statement	Residence Duration <12 months			Residence Duration >12 months		
	generated.						
2.7.9	Incidents of non-compliance with environmental laws and regulations.	11.1%	11.1%	77.8%	0.8%	3.8%	95.5%
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community		Aggregate % Ineffective	Aggregate % Neutral	Aggregate % Effective	Aggregate % Ineffective	Aggregate % Neutral	Aggregate % Effective
4.4	Community dinners	20.0%	40.0%	40.0%	51.1%	35.1%	13.7%
4.9	Surveys	10.0%	30.0%	60.0%	4.5%	11.4%	84.1%
4.10	Open house / information days	20.0%	50.0%	30.0%	6.9%	31.5%	61.5%
4.14	Community liaison groups	44.4%	22.2%	33.3%	4.6%	22.1%	73.3%
Part 5 - Below are strategies that Markman companies may have used. Have you noted any evidence of these strategies		Aggregate % Not Evident	-	Aggregate % Evident	Aggregate % Not Evident	-	Aggregate % Evident
5.1	Markman organisations have changed their activities to suit society.	77.8%	-	22.2%	96.9%	-	3.1%
Part 6 - How important do you think the Markman companies view each stakeholder listed below - (Remember, this is how the Markman Organisations view each stakeholder)		Aggregate % Unimportant	Aggregate % Neutral	Aggregate % Important	Aggregate % Unimportant	Aggregate % Neutral	Aggregate % Important
6.4	People in the community	87.5%	0.0%	12.5%	68.8%	18.4%	12.8%
6.8	Customers	50.0%	25.0%	25.0%	12.8%	19.2%	68.0%

The results for Panel A indicate that of the 12 questions that were statistically significantly different, nine questions were similar in outcome i.e. the majority of the respondents in both groups either agreed or disagreed with the statement, the only difference being the overall number of respondents who differed. There were three questions where the majority of the residents who had lived in the area for less than 12 months answered differently to those who had been in the area for longer.

First, in Question 4.10, 30% of the respondents of less than 12 months residence agreed that open days and information days constitute an effective communication method, whereas 61% of the respondents who had been living in the area for longer than 12 months agreed that this is an effective method of communication.

Second, in Question 4.14, community liaison groups were viewed as an effective method of communication by 33.3% of the less than 12 months residents, as opposed to 7.3% of the residents with more than 12 months duration thought this would be effective.

The third question where there was a different overall answer was on the level of importance of customers to the companies. In Question 6.8, only 25% of the respondents who had been residing in the area for less than 12 months viewed customers as important, whereas 68% of the respondents with more than 12 months residence agreed that customers were important to the companies.

6.4.2.2. Community Duration of Residence (Less than 24 months)

The responses of the residents who had resided in the area for less than 24 months and those who had exceeded 24 months duration are contained in Table 6-12 below.

Table 6-12 - Community Duration of Residence – <24 months vs. >24 months (% Agreement on Statistically Significant Different Responses)

Statement		Residence Duration <24 months - Aggregate %			Residence Duration >24 months- Aggregate %		
Part 2a - Rate the following statements		Disagree	Neutral	Agree	Disagree	Neutral	Agree
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	8.0%	16.0%	76.0%	0.0%	11.2%	88.8%
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	13.8%	27.6%	58.6%	5.0%	23.5%	71.4%
Part 2b - Markman Companies should provide information to the community about the following:							
2.7.5	The amount and type of air emissions from your organization.	4.0%	12.0%	84.0%	0.8%	3.4%	95.8%
2.7.6	The amount and type of chemical spills emanating from your plant	8.0%	8.0%	84.0%	0.8%	1.7%	97.5%
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	16.0%	20.0%	64.0%	4.2%	12.7%	83.1%
2.7.9	Incidents of non-compliance with environmental laws and regulations.	4.0%	12.0%	84.0%	0.9%	2.6%	96.6%
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community		Ineffective	Neutral	Effective	Ineffective	Neutral	Effective
4.4	Community dinners	30.8%	42.3%	26.9%	53.0%	33.9%	13.0%

The data in Table 6-12 indicate that the overall response by the majority of the respondents of the two groups is the same, with only the level of response differing. The majority of the respondents in both groups of respondents thus either agreed or disagreed with the questions/statements.

6.4.2.3. Community Duration of Residence (Less than 60 months)

The responses of the residents who had resided in the area for less than 60 months and those who had exceeded 60 months in duration are contained in Table 6-13 below.

Table 6-13 - Community Duration of Residence – <60 months vs >60 months (% Agreement on Statistically Significant Different Responses)

Number	Statement	Residence Duration <60 months - Aggregate %			Residence Duration >60 months - Aggregate %		
Part 2a - Rate the following statements		Disagree	Neutral	Agree	Disagree	Neutral	Agree
2.3	The local communities east of the Swartkops River have the power to affect the Markman organizations.	23.1%	25.0%	51.9%	15.1%	22.1%	62.8%
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	3.8%	9.4%	86.8%	0.0%	13.6%	86.4%
Part 2b - Markman Companies should provide information to the community about the following:							
2.7.9	Incidents of non-compliance with environmental laws and regulations.	1.9%	7.5%	90.6%	1.1%	2.3%	96.6%
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community							
4.9	Surveys	5.6%	20.4%	74.1%	4.5%	8.0%	87.5%
4.10	Open house / information days	13.2%	39.6%	47.2%	4.6%	28.7%	66.7%
4.22	Newspaper feature articles	3.7%	13.0%	83.3%	1.1%	6.8%	92.0%
4.25	Public meetings	20.4%	38.9%	40.7%	12.6%	27.6%	59.8%
Part 5 - Below are strategies that Markman companies may have used. Have you noted any evidence of these strategies							
5.5	Markman organisations have denied or concealed activities that are not legitimate.	72.5%	-	27.5%	48.3%	-	51.7%

Table 6-13 shows that there were three questions where the two respondent groups had opposite aggregate responses. In Question 4.10, 47.2% of the respondents of less than 60 months residence agreed that open days and information days were an effective communication method, whereas 66.7% of the respondents who had been living in the area for more than 60 months agreed that this is an effective method of communication. A similar response was noted for the use of public meetings, only 40.7% of the respondents of less than 60 months residence agreed that it was an effective communication method, as opposed to 59.8% of the respondents who had been living in the area for longer than 60 months.

The response to the legitimization activities (Question 5.5 – denying or concealing illegitimate activities) shows that 27.5% of respondents who have resided for less than 60 months in the area had noted evidence of this strategy, whereas a higher percentage (51.7%) of the 60 months and more duration residents had noted evidence of this legitimization strategy. The higher percentage in this group is expected, given the long history of community concerns regarding the companies in Markman Industrial Township.

In summary, from the data of the three panels that were tested, it does not appear that the duration that residents had resided in Bluewater Bay had influenced the overall community survey results. This conclusion is based on the nature of the differences, the type of questions that differed, and the relatively low number of differences out of a total of 63 questions. However, cognisance must be taken that the sample size is relatively small and there could always be a statistical variance among responses.

6.4.3. Community Language Differences

The differences in the response between all the languages were tested using the Kruskal-Wallis One-Way ANOVA test. The Mann-Whitney U test was used to determine any differences in respondents between the following groupings of languages:

- Panel A - isiXhosa and Afrikaans
- Panel B – isiXhosa and English
- Panel C – isiXhosa and other languages
- Panel D – Afrikaans and English
- Panel E – Afrikaans and other languages
- Panel F - English and other languages

The various tests to determine whether the respondents' languages might have resulted in statistically different results are presented in Table 6-14 to Table 6-17. The test to determine the differences between the language groups is important – for two reasons; firstly, the Xhosa-speaking ethnic groups were only allowed to settle in Bluewater Bay after the fall of apartheid; and they would not have been exposed to all the pollution events that the English and Afrikaans-speaking residents would have been exposed to. The Xhosa language group could therefore be less concerned than the other groups. The respondent language could also be used as an indicator of the ethnic group to which the respondent belongs (Holtzhausen, Petersen & Tindall 2003).

The language test can thus be used as a triangulation technique to confirm the differences among the ethnic groups. Secondly, there may be a possibility that some language groups, such as the isiXhosa, who traditionally prefer oral methods of communication and not written methods, could have changed their preferences due to urbanization (Holtzhausen, Petersen & Tindall 2003). These factors had to be taken into account when interpreting the data.

Table 6-14 - Community Language Differences – All Languages

						Resident Language All Groups	
#	Statement	Mean isiXhosa	Mean Afrikaans	Mean English	Mean Other Languages	Kruskal- Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)
Part 2a - Rate the following statements							
2.1	The organisations in Markman affect the environment in a substantial manner.	3.9	4.5	4.5	4.6	6.3	0.098
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	3.7	3.9	3.8	4.1	1.1	0.779
2.3	The local communities east of the Swartkops River have the power to affect the Markman organizations.	3.5	3.6	3.6	3.8	0.3	0.965
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	4.2	4.4	4.4	4.3	0.8	0.854
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	4.5	4.7	4.6	4.4	2.0	0.566

						Resident Language All Groups	
#	Statement	Mean isiXhosa	Mean Afrikaans	Mean English	Mean Other Languages	Kruskal- Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	4.2	4.6	4.6	4.6	4.3	0.227
Part 2b - Markman Companies should provide information to the community about the following:							
2.7.1	The amount of raw materials consumed per annum.	3.4	4.1	3.9	4.1	7.4	0.059
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	3.6	4.1	3.9	4.2	3.7	0.292
2.7.3	The amount of water used per annum.	4.1	4.3	4.0	4.2	4.5	0.211
2.7.4	The amount and type of liquid effluents discharged to sewer.	4.2	4.7	4.7	4.9	6.9	0.076
2.7.5	The amount and type of air emissions from your organization.	4.0	4.7	4.8	4.7	9.3	0.026
2.7.6	The amount and type of chemical spills emanating from your plant	4.3	4.8	4.8	4.9	6.4	0.092
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	4.3	4.8	4.7	4.8	5.8	0.121

						Resident Language All Groups	
#	Statement	Mean isiXhosa	Mean Afrikaans	Mean English	Mean Other Languages	Kruskal- Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)
2.7.8	The amount of your product that can be recycled.	3.7	4.1	4.2	4.5	8.2	0.043
2.7.9	Incidents of non-compliance with environmental laws and regulations.	4.1	4.6	4.7	4.8	6.1	0.106
2.7.10	The significant impact of transport used for logistical purposes.	3.4	3.9	4.0	3.9	6.6	0.086
2.7.11	The total environmental expenditure by type per annum.	3.6	4.3	4.1	4.4	7.9	0.048
Part 3 - Preference for Verbal or Non-Verbal Communication							
3.1	Verbal Communication Preference (0=preferred)	0.5	0.2	0.2	0.1	4.6	0.205
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community							
4.1	Art exhibitions	2.8	3.0	2.5	2.9	6.9	0.074
4.2	Help desk	3.4	3.9	3.8	3.6	2.3	0.503

						Resident Language All Groups	
#	Statement	Mean isiXhosa	Mean Afrikaans	Mean English	Mean Other Languages	Kruskal- Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)
4.3	Presentation groups	3.8	3.6	3.6	3.3	0.7	0.866
4.4	Community dinners	3.3	2.6	2.3	2.7	8.9	0.031
4.5	Theatre presentations	2.8	2.8	2.5	2.7	2.9	0.412
4.6	Co-operative projects with the community	4.1	3.9	4.1	4.3	1.9	0.592
4.7	Sustainability agreements	3.8	4.0	4.0	3.9	1.0	0.805
4.8	Focus groups on a specific topic	4.0	4.1	3.9	4.2	1.0	0.801
4.9	Surveys	3.6	4.1	4.0	4.0	4.8	0.189
4.10	Open house / information days	3.5	3.7	3.5	4.0	4.1	0.255
4.11	Guided tours with environmental focus	3.7	3.9	3.9	4.3	3.7	0.302
4.12	Workshops / conferences	3.6	3.6	3.3	4.0	6.5	0.091
4.13	Radio interviews	4.0	3.8	3.8	4.4	4.2	0.240
4.14	Community liaison groups	3.7	3.7	3.8	4.1	1.6	0.661
4.15	Websites	3.8	3.9	3.4	4.0	7.2	0.066
4.16	Formal Environmental Reports	4.3	4.4	4.1	4.0	3.8	0.289
4.17	Newsletters	4.1	4.6	4.2	4.6	10.9	0.013

						Resident Language All Groups	
#	Statement	Mean isiXhosa	Mean Afrikaans	Mean English	Mean Other Languages	Kruskal- Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)
4.18	Product labels with environmental information	4.2	4.3	3.7	4.5	10.3	0.016
4.19	Posters displayed at local points such as Supermarkets	4.0	4.1	3.9	4.6	7.0	0.073
4.20	Displays with environmental information manned by organization employees at local points such as Supermarkets	3.6	4.2	3.8	4.1	10.1	0.018
4.21	Letters to residents	3.9	4.3	4.0	4.5	6.6	0.087
4.22	Newspaper feature articles	3.7	4.4	4.2	4.5	9.8	0.021
4.23	News releases	3.6	4.3	4.1	4.5	10.2	0.017
4.24	Advertising	3.7	3.9	3.7	4.3	4.4	0.219
4.25	Public meetings	3.5	3.4	3.5	3.4	0.6	0.907
4.26	Personal contact / interviews	3.4	3.4	3.5	3.4	1.0	0.794
Part 5 - Below are strategies that Markman companies may have used. Have you noted any evidence of these strategies							
5.1	Markman organisations have changed their activities to suit society.	0.1	0.1	0.0	0.1	5.1	0.167

						Resident Language All Groups	
#	Statement	Mean isiXhosa	Mean Afrikaans	Mean English	Mean Other Languages	Kruskal- Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)
5.2	Markman organisations have implemented changes that are substantive and positive to blend in with society's norms and beliefs.	0.0	0.0	0.1	0.1	1.8	0.607
5.3	Markman organisations have through communication, altered their definition of societal legitimacy to suit their own needs.	0.1	0.2	0.1	0.1	0.7	0.885
5.4	The Markman organisations advocate socially acceptable goals while their actions are less acceptable	0.4	0.3	0.3	0.2	0.5	0.909
5.5	Markman organisations have denied or concealed activities that are not legitimate.	0.4	0.4	0.4	0.4	0.3	0.953
5.6	Markman organisations offer public excuses about some of their actions.	0.4	0.2	0.4	0.4	2.9	0.404
5.7	Markman organisations make highly visible "right thing to do" actions without real organisational change taking place.	0.0	0.2	0.2	0.2	3.2	0.363
5.8	Markman organisations admit guilt when their actions affect others, but do little else.	0.2	0.2	0.2	0.2	0.5	0.920

						Resident Language All Groups	
#	Statement	Mean isiXhosa	Mean Afrikaans	Mean English	Mean Other Languages	Kruskal- Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)
5.9	Markman organisations supply ambiguous or misleading information regarding their activities that is open to misinterpretation.	0.1	0.4	0.4	0.1	8.0	0.046
5.10	Markman organisations offer trivial or partial information and do not address environmental problems.	0.5	0.6	0.6	0.4	2.7	0.444
Part 6 - How important do you think the Markman companies view each stakeholder listed below - (Remember, this is how the Markman Organisations view each stakeholder)							
6.1	Government officials, Regulatory bodies	4.1	2.9	3.1	3.6	9.3	0.025
6.2	Shareholders, Investors	4.5	3.9	4.0	4.3	1.6	0.663
6.3	Banks etc. where loans are accessed	3.9	3.8	3.9	4.1	0.5	0.909
6.4	People in the community	2.3	2.0	2.1	2.3	0.4	0.943
6.5	Environmental lobby groups	2.3	2.3	2.3	2.6	0.5	0.910
6.6	Employees	2.8	2.8	2.9	3.0	0.4	0.943

						Resident Language All Groups	
#	Statement	Mean isiXhosa	Mean Afrikaans	Mean English	Mean Other Languages	Kruskal- Wallis Test Statistic	Asymptotic Significant p-value (2-tailed)
6.7	Media	3.4	3.0	2.9	3.5	5.3	0.149
6.8	Customers	3.7	3.5	3.8	3.8	2.5	0.484
6.9	Trade organizations	3.2	3.6	3.4	3.9	3.8	0.282
						Number of Statistically Significant Different Results	11

Table 6-15 - Community Language Differences – Panel A, B & C

		Panel A isiXhosa and Afrikaans		Panel B isiXhosa and English		Panel C isiXhosa and Other Languages	
#	Statement	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
Part 2a - Rate the following statements							
2.1	The organisations in Markman affect the environment in a substantial manner.	116.5	0.018	303.0	0.025	27.5	0.073
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	154.0	0.467	395.5	0.583	30.0	0.340
2.3	The local communities east of the Swartkops River have the power to affect the Markman organizations.	185.0	0.630	443.5	0.728	38.0	0.600
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	179.0	0.428	416.5	0.440	45.5	0.743

#	Statement	Panel A isiXhosa and Afrikaans		Panel B isiXhosa and English		Panel C isiXhosa and Other Languages	
		Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	190.0	0.532	488.5	0.930	45.5	0.719
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	153.0	0.120	347.0	0.048	38.5	0.359
Part 2b - Markman Companies should provide information to the community about the following:							
2.7.1	The amount of raw materials consumed per annum.	98.5	0.005	298.0	0.027	24.5	0.044
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	143.0	0.095	380.0	0.202	30.5	0.125
2.7.3	The amount of water used per annum.	157.0	0.172	462.5	0.800	42.5	0.566
2.7.4	The amount and type of liquid effluents discharged to sewer.	145.0	0.063	325.0	0.018	27.0	0.043
2.7.5	The amount and type of air emissions from your organization.	130.5	0.018	292.0	0.003	33.0	0.165

#	Statement	Panel A isiXhosa and Afrikaans		Panel B isiXhosa and English		Panel C isiXhosa and Other Languages	
		Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
2.7.6	The amount and type of chemical spills emanating from your plant	145.0	0.035	343.0	0.020	31.5	0.090
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	121.5	0.026	310.5	0.029	30.5	0.166
2.7.8	The amount of your product that can be recycled.	137.0	0.065	283.5	0.014	17.5	0.016
2.7.9	Incidents of non-compliance with environmental laws and regulations.	151.0	0.181	325.5	0.028	30.5	0.100
2.7.10	The significant impact of transport used for logistical purposes.	120.0	0.023	277.0	0.014	30.0	0.210
2.7.11	The total environmental expenditure by type per annum.	101.5	0.010	323.5	0.052	21.5	0.024
Part 3 - Preference for Verbal or Non-Verbal Communication							
3.1	Verbal Communication Preference (0=preferred)	135.0	0.070	332.5	0.090	27.5	0.076

		Panel A isiXhosa and Afrikaans		Panel B isiXhosa and English		Panel C isiXhosa and Other Languages	
#	Statement	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
Part 4 - Rate each method listed below according to how effective it would be to promote communication with the community							
4.1	Art exhibitions	167.0	0.407	421.5	0.404	47.5	0.876
4.2	Help desk	143.5	0.138	376.0	0.187	43.5	0.634
4.3	Presentation groups	177.0	0.484	414.0	0.405	42.0	0.531
4.4	Community dinners	120.0	0.040	249.0	0.006	37.5	0.339
4.5	Theatre presentations	188.0	0.903	390.0	0.275	49.0	0.968
4.6	Co-operative projects with the community	192.5	0.758	481.0	0.866	41.5	0.514
4.7	Sustainability agreements	147.0	0.285	369.0	0.408	37.0	0.489
4.8	Focus groups on a specific topic	186.5	0.637	493.5	0.986	40.5	0.456
4.9	Surveys	118.5	0.023	335.5	0.058	33.5	0.129
4.10	Open house / information days	156.5	0.313	463.5	0.759	30.0	0.107
4.11	Guided tours with environmental focus	169.0	0.357	413.0	0.350	25.5	0.038
4.12	Workshops / conferences	191.0	0.848	390.0	0.268	40.0	0.447

#	Statement	Panel A isiXhosa and Afrikaans		Panel B isiXhosa and English		Panel C isiXhosa and Other Languages	
		Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
4.13	Radio interviews	191.5	0.741	460.0	0.685	31.5	0.116
4.14	Community liaison groups	180.0	0.887	413.5	0.729	34.0	0.341
4.15	Websites	182.0	0.579	405.0	0.329	44.5	0.682
4.16	Formal Environmental Reports	167.5	0.393	459.5	0.769	36.5	0.506
4.17	Newsletters	124.0	0.021	435.5	0.477	25.0	0.087
4.18	Product labels with environmental information	184.0	0.697	377.0	0.193	31.0	0.236
4.19	Posters displayed at local points such as Supermarkets	187.0	0.568	465.0	0.731	26.5	0.112
4.20	Displays with environmental information manned by organization employees at local points such as Supermarkets	118.0	0.026	422.0	0.428	25.5	0.109
4.21	Letters to residents	135.5	0.056	419.0	0.399	22.0	0.034
4.22	Newspaper feature articles	93.5	0.002	302.5	0.020	16.0	0.007
4.23	News releases	97.0	0.003	316.5	0.037	14.0	0.005
4.24	Advertising	167.0	0.335	484.5	0.953	28.0	0.159
4.25	Public meetings	184.5	0.623	466.5	0.792	38.0	0.606

#	Statement	Panel A isiXhosa and Afrikaans		Panel B isiXhosa and English		Panel C isiXhosa and Other Languages	
		Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
4.26	Personal contact / interviews	201.5	0.959	457.0	0.711	43.5	0.966
Part 5 - Below are strategies that Markman companies might have used. Have you noted any evidence of these strategies?							
5.1	Markman organisations have changed their activities to suit society.	201.5	0.918	435.5	0.083	48.5	0.884
5.2	Markman organisations have implemented changes that are substantive and positive to blend in with society's norms and beliefs.	198.0	0.586	445.5	0.414	44.0	0.269
5.3	Markman organisations have through communication, altered their definition of societal legitimacy to suit their own needs.	189.0	0.561	461.0	0.804	48.5	0.884
5.4	The Markman organisations advocate socially acceptable goals while their actions are less acceptable	184.5	0.554	433.0	0.562	42.5	0.503
5.5	Markman organisations have denied or concealed activities that are not legitimate.	195.0	0.806	436.0	0.624	45.5	0.721

#	Statement	Panel A isiXhosa and Afrikaans		Panel B isiXhosa and English		Panel C isiXhosa and Other Languages	
		Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
5.6	Markman organisations offer public excuses about some of their actions.	179.0	0.435	458.0	0.840	45.5	0.721
5.7	Markman organisations make highly visible “right thing to do” actions without real organisational change taking place.	154.0	0.073	374.0	0.094	38.5	0.108
5.8	Markman organisations admit guilt when their actions affect others, but do little else.	202.0	0.957	458.5	0.792	47.5	0.827
5.9	Markman organisations supply ambiguous or misleading information regarding their activities that is open to misinterpretation.	145.0	0.074	307.0	0.026	48.5	0.884
5.10	Markman organisations offer trivial or partial information and do not address environmental problems.	164.0	0.253	385.5	0.237	49.0	0.965
Part 6 - How important do you think the Markman companies view each stakeholder listed below? - (Remember, this is how the Markman Organisations view each stakeholder.)							

#	Statement	Panel A isiXhosa and Afrikaans		Panel B isiXhosa and English		Panel C isiXhosa and Other Languages	
		Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
6.1	Government officials, Regulatory bodies	77.0	0.007	217.0	0.010	33.0	0.306
6.2	Shareholders, Investors	130.0	0.232	350.0	0.386	35.0	0.623
6.3	Banks etc. where loans are accessed	163.0	0.952	403.0	0.876	33.5	0.543
6.4	People in the community	158.5	0.633	400.5	0.850	39.0	0.925
6.5	Environmental lobby groups	168.5	0.965	386.0	0.708	36.0	0.708
6.6	Employees	157.5	0.815	369.5	0.580	37.0	0.759
6.7	Media	134.0	0.291	275.0	0.076	39.0	0.923
6.8	Customers	173.0	0.954	348.5	0.387	37.5	0.812
6.9	Trade organizations	122.0	0.124	346.0	0.432	20.0	0.052
		Number of Statistically Significant Different Results		Number of Statistically Significant Different Results		Number of Statistically Significant Different Results	
		14		15		8	

Table 6-16 – Community-Language Differences – Panels D, E & F

		Panel D Afrikaans and English		Panel E Afrikaans and Other Languages		Panel F English and Other Languages	
#	Statement	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
Part 2a - Rate the following statements							
2.1	The organisations in Markman affect the environment in a substantial manner.	1533.5	0.560	161.5	0.872	383.0	0.855
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	1532.5	0.766	125.0	0.544	296.5	0.440
2.3	The local communities east of the Swartkops River have the power to affect the Markman organizations.	1577.5	0.938	140.5	0.814	323.5	0.774
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	1644.0	0.957	158.0	0.696	365.0	0.712
2.5	The local communities have the right to demand environmentally related	1547.0	0.281	133.5	0.184	354.5	0.455

#	Statement	Panel D Afrikaans and English		Panel E Afrikaans and Other Languages		Panel F English and Other Languages	
		Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
	information from Markman organizations.						
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	1627.5	0.593	157.5	0.664	352.0	0.422
Part 2b - Markman Companies should provide information to the community about the following:							
2.7.1	The amount of raw materials consumed per annum.	1528.5	0.367	167.0	0.908	357.0	0.574
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	1520.5	0.340	159.0	0.729	333.0	0.379
2.7.3	The amount of water used per annum.	1316.5	0.045	166.5	0.894	337.5	0.442
2.7.4	The amount and type of liquid effluents discharged to sewer.	1628.0	0.654	144.0	0.322	353.0	0.413
2.7.5	The amount and type of air emissions from your organization.	1646.0	0.732	154.5	0.546	348.0	0.357

#	Statement	Panel D Afrikaans and English		Panel E Afrikaans and Other Languages		Panel F English and Other Languages	
		Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
2.7.6	The amount and type of chemical spills emanating from your plant	1677.0	0.909	162.0	0.694	376.0	0.639
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	1604.0	0.635	158.5	0.737	401.0	0.944
2.7.8	The amount of your product that can be recycled.	1480.0	0.379	103.5	0.148	276.5	0.273
2.7.9	Incidents of non-compliance with environmental laws and regulations.	1398.0	0.203	133.0	0.326	373.0	0.711
2.7.10	The significant impact of transport used for logistical purposes.	1530.0	0.567	139.0	0.768	315.0	0.600
2.7.11	The total environmental expenditure by type per annum.	1373.0	0.181	153.5	0.789	319.5	0.287
Part 3 - Preference for Verbal or Non-Verbal Communication							
3.1	Verbal Communication Preference (0=preferred)	1629.0	0.657	154.0	0.500	346.0	0.361

		Panel D Afrikaans and English		Panel E Afrikaans and Other Languages		Panel F English and Other Languages	
#	Statement	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
Part 4 - Rate each method listed below according to how effective it would be to promote communication with the community							
4.1	Art exhibitions	1161.5	0.010	156.0	0.859	335.5	0.381
4.2	Help desk	1558.5	0.801	139.0	0.483	358.5	0.587
4.3	Presentation groups	1599.0	0.867	162.0	0.893	388.5	0.921
4.4	Community dinners	1378.0	0.199	147.0	0.656	325.5	0.335
4.5	Theatre presentations	1282.0	0.132	153.0	0.892	363.0	0.670
4.6	Co-operative projects with the community	1496.5	0.312	125.5	0.186	347.0	0.433
4.7	Sustainability agreements	1558.5	0.767	165.5	0.976	385.0	0.931
4.8	Focus groups on a specific topic	1557.0	0.543	148.5	0.584	341.5	0.416
4.9	Surveys	1559.5	0.720	142.0	0.510	373.0	0.669
4.10	Open house / information days	1370.5	0.265	125.0	0.292	274.0	0.096
4.11	Guided tours with environmental focus	1610.0	0.832	124.0	0.208	284.0	0.117
4.12	Workshops / conferences	1256.0	0.056	134.5	0.408	259.5	0.074

#	Statement	Panel D Afrikaans and English		Panel E Afrikaans and Other Languages		Panel F English and Other Languages	
		Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
4.13	Radio interviews	1652.0	0.941	101.5	0.045	256.0	0.054
4.14	Community liaison groups	1583.0	0.785	128.5	0.247	314.0	0.255
4.15	Websites	1211.5	0.015	163.0	0.919	293.0	0.167
4.16	Formal Environmental Reports	1287.5	0.077	104.0	0.180	318.5	0.634
4.17	Newsletters	1236.0	0.006	140.0	0.676	243.0	0.097
4.18	Product labels with environmental information	1162.5	0.012	113.5	0.310	202.5	0.036
4.19	Posters displayed at local points, such as Supermarkets	1437.0	0.131	96.0	0.076	192.0	0.022
4.20	Displays with environmental information manned by organization employees at local points, such as Supermarkets	1179.5	0.008	138.0	0.746	245.5	0.125
4.21	Letters to residents	1373.5	0.072	140.0	0.702	252.0	0.140
4.22	Newspaper-feature articles	1477.5	0.267	132.0	0.584	284.0	0.275
4.23	News releases	1416.0	0.174	124.0	0.421	252.0	0.136
4.24	Advertising	1398.5	0.156	119.0	0.360	238.0	0.100
4.25	Public meetings	1568.5	0.661	136.5	0.716	318.0	0.603

#	Statement	Panel D Afrikaans and English		Panel E Afrikaans and Other Languages		Panel F English and Other Languages	
		Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
4.26	Personal contact / interviews	1468.5	0.322	138.5	0.766	333.5	0.760
Part 5 – Below are strategies that Markman companies might have used. Have you noted any evidence of these strategies?							
5.1	Markman organisations have changed their activities to suit society.	1480.5	0.047	161.5	0.777	348.5	0.049
5.2	Markman organisations have implemented changes that are substantive and positive to blend in with society's norms and beliefs.	1541.5	0.464	152.5	0.273	366.5	0.536
5.3	Markman organisations have through communication, altered their definition of societal legitimacy to suit their own needs.	1518.0	0.490	158.0	0.705	385.0	0.963
5.4	The Markman organisations advocate socially acceptable goals, while their actions are less acceptable.	1577.0	0.921	158.5	0.771	365.0	0.717
5.5	Markman organisations have denied or concealed activities that are not legitimate.	1533.0	0.709	160.0	0.833	386.0	0.988

		Panel D Afrikaans and English		Panel E Afrikaans and Other Languages		Panel F English and Other Languages	
#	Statement	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
5.6	Markman organisations offer public excuses about some of their actions.	1349.0	0.106	133.0	0.234	368.0	0.776
5.7	Markman organisations make highly visible “right-thing-to-do” actions, without real organisational change taking place.	1537.0	0.678	163.0	0.896	382.0	0.928
5.8	Markman organisations admit guilt when their actions affect others, but do little else.	1530.5	0.602	161.0	0.825	359.5	0.580
5.9	Markman organisations supply ambiguous or misleading information on their activities that is open to misinterpretation.	1490.0	0.515	122.0	0.129	259.0	0.056
5.10	Markman organisations offer trivial or partial information, and do not address environmental problems.	1576.5	0.923	132.5	0.266	311.5	0.254
Part 6 - How important do you think the Markman companies view each stakeholder listed below - (Remember, this is how the Markman Organisations view each stakeholder.)							

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	Panel D Afrikaans and English		Panel E Afrikaans and Other Languages		Panel F English and Other Languages	
	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)	Mann-Whitney U Test Statistic	Asymptotic Significant p-value (2-tailed)
ory bodies	1320.0	0.508	100.0	0.101	283.0	0.203
	1305.0	0.498	118.0	0.542	315.0	0.798
ccessed	1318.5	0.743	112.0	0.490	292.0	0.555
	1404.0	0.764	123.0	0.575	303.0	0.670
	1356.0	0.732	121.5	0.628	290.0	0.542
	1294.0	0.694	128.0	0.887	322.0	0.926
	1271.0	0.437	104.0	0.287	213.5	0.089
	1220.0	0.152	128.0	0.693	306.5	0.708
	1244.5	0.279	122.0	0.558	241.5	0.219
	Number of Statistically Significant Different Results 7		Number of Statistically Significant Different Results 1		Number of Statistically Significant Different Results 3	

Table 6-17 – Community-Language Differences – Percentage Response per Language Group for Statistically Significant Different Responses only

Note³¹

Number	Statement	Percentage	Xhosa	Afrikaans	English	Other
Part 2a - Rate the following statements						
2.1	The organisations in Markman affect the environment in a substantial manner.	Disagree	0.0%	0.0%	1.1%	0.00%
		Neutral	36.4%	8.1%	9.1%	0.0%
		Agree	63.6%	91.9%	89.8%	100.0%
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	Disagree	0.0%	8.3%	6.8%	0.00%
		Neutral	50.0%	25.0%	33.0%	37.5%

³¹In Table 6-17 only the statistically significantly different questions are presented. There is at least one panel group that responded statistically significantly differently per question, although on some questions there may be more than one. Tables 6-14 to 6-17 contain the results of the various panels that were tested and indicates the questions on which panels had statistically significantly different results.

Number	Statement	Percentage	Xhosa	Afrikaans	English	Other
		Agree	50.0%	66.7%	60.2%	62.5%
Part 2b - Markman Companies should provide information to the community about the following:						
2.7.1	The amount of raw materials consumed per annum.	Disagree	0.0%	10.5%	7.9%	11.11%
		Neutral	63.6%	7.9%	24.7%	11.1%
		Agree	36.4%	81.6%	67.4%	77.8%
2.7.3	The amount of water used per annum.	Disagree	0.0%	7.9%	3.4%	0.00%
		Neutral	9.1%	5.3%	28.4%	33.3%
		Agree	90.9%	86.8%	68.2%	66.7%
2.7.4	The amount and type of liquid effluents discharged to sewer.	Disagree	9.1%	0.0%	2.2%	0.00%
		Neutral	9.1%	5.3%	2.2%	0.0%
		Agree	81.8%	94.7%	95.5%	100.0%
2.7.5	The amount and type of air emissions from your organization.	Disagree	9.1%	0.0%	1.1%	0.00%

Number	Statement	Percentage	Xhosa	Afrikaans	English	Other
		Neutral	27.3%	7.9%	2.2%	0.0%
		Agree	63.6%	92.1%	96.6%	100.0%
2.7.6	The amount and type of chemical spills emanating from your plant	Disagree	9.1%	0.0%	2.2%	0.00%
		Neutral	9.1%	5.3%	1.1%	0.0%
		Agree	81.8%	94.7%	96.6%	100.0%
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	Disagree	0.0%	0.0%	1.1%	0.00%
		Neutral	20.0%	5.4%	4.4%	0.0%
		Agree	80.0%	94.6%	94.4%	100.0%
2.7.8	The amount of your product that can be recycled.	Disagree	0.0%	0.0%	1.1%	0.00%
		Neutral	27.3%	16.2%	12.5%	12.5%
		Agree	72.7%	83.8%	86.4%	87.5%
2.7.9	Incidents of non-compliance with environmental laws and regulations.	Disagree	9.1%	0.0%	1.1%	0.00%
		Neutral	18.2%	5.6%	2.3%	0.0%

Number	Statement	Percentage	Xhosa	Afrikaans	English	Other
		Agree	72.7%	94.4%	96.6%	100.0%
2.7.10	The significant impact of transport used for logistical purposes.	Disagree	9.1%	0.0%	2.3%	0.00%
		Neutral	45.5%	24.3%	23.9%	37.5%
		Agree	45.5%	75.7%	73.9%	62.5%
2.7.11	The total environmental expenditure by type per annum.	Disagree	0.0%	2.8%	2.2%	0.00%
		Neutral	45.5%	13.9%	23.6%	11.1%
		Agree	54.5%	83.3%	74.2%	88.9%
Part 4 - Rate each method listed below, according to how effective it would be in promoting communication with the community						
4.1	Art exhibitions	Ineffective	10.0%	11.8%	21.6%	25.00%
		Neutral	30.0%	11.8%	27.3%	25.0%
		Effective	18.2%	30.6%	16.9%	44.4%
4.4	Community dinners	Ineffective	18.2%	47.2%	57.3%	33.33%
		Neutral	36.4%	38.9%	32.6%	33.3%

Number	Statement	Percentage	Xhosa	Afrikaans	English	Other
		Effective	45.5%	13.9%	10.1%	33.3%
4.9	Surveys	Ineffective	0.0%	0.0%	8.9%	0.00%
		Neutral	36.4%	13.9%	11.1%	11.1%
		Effective	63.6%	86.1%	80.0%	88.9%
4.11	Guided tours with environmental focus	Ineffective	0.0%	10.8%	9.0%	0.00%
		Neutral	27.3%	16.2%	15.7%	11.1%
		Effective	72.7%	73.0%	75.3%	88.9%
4.13	Radio interviews	Ineffective	0.0%	8.1%	8.9%	0.00%
		Neutral	18.2%	16.2%	23.3%	0.0%
		Effective	81.8%	75.7%	67.8%	100.0%
4.15	Websites	Ineffective	0.0%	8.1%	16.9%	0.00%
		Neutral	45.5%	21.6%	31.5%	44.4%
		Effective	54.5%	70.3%	51.7%	55.6%

Number	Statement	Percentage	Xhosa	Afrikaans	English	Other
4.17	Newsletters	Ineffective	0.0%	0.0%	5.6%	0.00%
		Neutral	18.2%	2.6%	7.8%	12.5%
		Effective	81.8%	97.4%	86.7%	87.5%
4.18	Product labels with environmental information	Ineffective	0.0%	0.0%	14.6%	0.00%
		Neutral	9.1%	13.9%	22.5%	12.5%
		Effective	90.9%	86.1%	62.9%	87.5%
4.19	Posters displayed at local points such as Supermarkets	Ineffective	0.0%	7.9%	8.9%	0.00%
		Neutral	36.4%	5.3%	24.4%	12.5%
		Effective	63.6%	86.8%	66.7%	87.5%
4.20	Displays with environmental information manned by organization employees at local points, such as Supermarkets	Ineffective	0.0%	2.7%	10.1%	12.50%
		Neutral	45.5%	18.9%	22.5%	12.5%
		Effective	54.5%	78.4%	67.4%	75.0%
4.21	Letters to residents	Ineffective	0.0%	2.6%	5.6%	0.00%

Number	Statement	Percentage	Xhosa	Afrikaans	English	Other
		Neutral	18.2%	13.2%	15.7%	0.0%
		Effective	81.8%	84.2%	78.7%	100.0%
4.22	Newspaper-feature articles	Ineffective	0.0%	0.0%	3.3%	0.00%
		Neutral	27.3%	2.7%	10.0%	0.0%
		Effective	72.7%	97.3%	86.7%	100.0%
4.23	News releases	Ineffective	0.0%	0.0%	3.4%	0.00%
		Neutral	36.4%	8.1%	15.7%	0.0%
		Effective	63.6%	91.9%	80.9%	100.0%
Part 5 - Below are strategies that Markman companies may have used. Have you noted any evidence of these strategies?						
5.1	Markman companies have changed their activities to suit society.	Not Evident	90.9%	91.9%	98.8%	88.9%
		Evident	9.1%	8.1%	1.2%	11.1%
5.9	Markman companies supply ambiguous or misleading information on their activities that is	Not Evident	90.9%	62.2%	55.8%	88.9%

Number	Statement	Percentage	Xhosa	Afrikaans	English	Other
	open to misinterpretation.	Evident	9.1%	37.8%	44.2%	11.1%
5.10	Markman companies offer trivial or partial information, and do not address environmental problems.	Not Evident	54.6%	35.1%	36.1%	55.6%
		Evident	45.5%	64.9%	64.0%	44.4%
Part 6 - How important do you think the Markman companies view each stakeholder listed below? - (Remember, this is how the Markman Organisations view each stakeholder.)						
6.1	Government officials, Regulatory bodies	Unimportant	10.0%	35.3%	35.7%	11.11%
		Neutral	20.0%	38.2%	25.0%	33.3%
		Important	70.0%	26.5%	39.3%	55.6%

The data in Table 6-17 show that there were statistically significant differences on 29 questions between the different language groups. There are 25 questions where the difference is mainly the level of agreement between the various language groups for the various options. The following four questions showed that the majority of respondents of at least one language group had a different viewpoint to the other language groups. The dissimilar questions are summarised as follows:

- *Question 2.7.1 – Markman Industrial Township companies should provide information to the local community on the amount of raw materials consumed per annum.* The majority of the Xhosa language group did not agree that this type of information should be provided by the companies, as only 36.4% of the respondents agreed that this information is required. The majority of the other language groups respondents agreed that the information on raw materials used was required.
- *Question 2.7.10 – Markman companies should provide information to the local community on the significant impact of transport used for logistical purposes.* The majority of the other language groups agreed that transport information should be provided, whereas only 45.5% of the Xhosa speakers were in agreement.
- *Question 5.10 – Markman companies offer trivial or partial information and do not address environmental problems.* The majority of the Afrikaans and English-language groups agreed that the companies use this legitimisation strategy, whereas only 45.5% and 44.4% of the Xhosa and “Other” language speakers, respectively, were in agreement.
- *Question 6.1 – How important do you think the Markman companies view: Government officials, regulatory bodies?* The majority of the Xhosa and “Other” language group respondents agreed (70% and 55.6% respectively) that the government and regulatory

bodies were important to the companies. The majority of the Afrikaans and English respondents did not agree that the government and the regulatory bodies were important to the company.

In conclusion, the language differences among respondents resulted in four statistically significant different questions out of a possible 63 questions, where the viewpoint of one language group was different from that of the other groups. These differences were among the Xhosa and “Other” language speakers.

In conclusion, it does not appear, based on the nature of the different questions and the level of agreement of the majority of the respondents within the different language groups, that the language spoken by the respondent could have resulted in a statistically significant difference in the overall outcome of the survey.

6.5. Intra-group Differences – Company Respondents

6.5.1. ISO 14001 Certified Companies

A test was conducted to determine whether the companies that are ISO 14001 certified would have provided different responses to those that are not. The reason for testing this information was that the holders of ISO 14001 certificates might view, and manage, their environmental performance differently from those companies that were not certified. In Element 4.4.3 of ISO 14001, a certified company is required to have procedures for communication, both internally and externally. The company also has to decide on whether to communicate its environmental aspects and impacts to external stakeholders. When this information is requested, it is usually made freely available by a written internal procedure.

The data indicate that at least seven respondents should have some form of communication procedure, as they are ISO14001 certified. In Element 4.3.2 of ISO 14001, it is stated that the company has to have a register of applicable legislation, as well as an evaluation of the legal compliance audit conducted (Element 4.5.2 of ISO 14001). There are thus substantive actions that the company must take to improve its environmental performance, in order to maintain its certification.

Table 6-18 - ISO 14001 Certified Companies vs Non-Certified Companies

Number	Statement	Kruskal-Wallis Test Statistic	Mean Non-Certified Companies	Mean Certified Companies	Asymptotic Significant p-value (2-tailed)
Part 2a - Rate the following statements					
2.1	The organisations in Markman affect the environment in a substantial manner.	0.588	2.5	2.9	0.443
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	1.016	2.2	2.6	0.313
2.3	The local communities east of the Swartkops River have the power to affect the Markman organizations.	3.044	2.1	2.9	0.081
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	3.074	1.5	2.4	0.080
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	3.856	2.9	4.0	0.050
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	0.234	2.6	2.9	0.629
Part 2b - Markman Companies should provide information to the community about the following:					
2.7	The amount of raw materials consumed per annum.	4.358	1.7	2.6	0.037

Number	Statement	Kruskal-Wallis Test Statistic	Mean Non-Certified Companies	Mean Certified Companies	Asymptotic Significant p-value (2-tailed)
2.8	The amount of energy consumed per annum (oil, gas electricity, coal).	5.856	2.1	3.3	0.016
2.9	The amount of water used per annum.	4.896	2.2	3.3	0.027
2.10	The amount and type of liquid effluents discharged to sewer.	3.490	2.9	3.9	0.062
2.11	The amount and type of air emissions from your organization.	3.157	2.8	3.8	0.076
2.12	The amount and type of chemical spills emanating from your plant	4.721	2.9	4.1	0.030
2.13	The amount and type of hazardous and non-hazardous waste generated.	1.975	3.0	3.7	0.160
2.14	The amount of your product that can be recycled.	1.060	2.9	3.4	0.303
2.15	Incidents of non-compliance with environmental laws and regulations.	0.771	3.1	3.6	0.380
2.16	The significant impact of transport used for logistical purposes.	3.984	2.2	3.0	0.046
2.17	The total environmental expenditure by type per annum.	0.708	2.4	2.7	0.400
Part 3 - Preference for Verbal or Non-Verbal Communication					
3.1	Verbal Communication Preference (0=preferred)	0.125	0.2	0.3	0.724
Part 4 – Rate each method listed below according to how effective it would be in promoting communication with the community.					
4.1	Art exhibitions	1.054	2.0	2.4	0.305
4.2	Help desk	1.090	2.7	3.1	0.297
4.3	Presentation groups	0.391	3.1	3.3	0.532
4.4	Community dinners	0.030	2.6	2.6	0.863
4.5	Theatre presentations	0.345	2.6	2.9	0.557
4.6	Co-operative projects with the community	0.013	3.6	3.6	0.911
4.7	Sustainability agreements	0.924	3.1	3.4	0.336
4.8	Focus groups on a specific topic	0.065	3.5	3.3	0.798
4.9	Surveys	1.060	3.4	2.9	0.303
4.10	Open house / information days	0.293	3.1	3.4	0.588
4.11	Guided tours with environmental focus	0.844	3.1	3.6	0.358

Number	Statement	Kruskal-Wallis Test Statistic	Mean Non-Certified Companies	Mean Certified Companies	Asymptotic Significant p-value (2-tailed)
4.12	Workshops / conferences	0.014	3.3	3.3	0.907
4.13	Radio interviews	5.564	3.6	2.7	0.018
4.14	Community-liaison groups	1.636	3.4	2.8	0.201
4.15	Websites	0.071	2.9	3.2	0.790
4.16	Formal Environmental Reports	0.210	2.9	2.7	0.647
4.17	Newsletters	0.554	3.4	3.7	0.457
4.18	Product labels with environmental information	0.598	2.8	3.1	0.439
4.19	Posters displayed at local points, such as Supermarkets	0.314	3.1	2.9	0.575
4.20	Displays with environmental information manned by organization employees at local points, such as Supermarkets	1.339	2.9	2.3	0.247
4.21	Letters to residents	0.154	3.3	3.0	0.695
4.22	Newspaper-feature articles	0.361	3.1	2.9	0.548
4.23	News releases	1.383	3.3	2.7	0.240
4.24	Advertising	1.399	3.5	2.9	0.237
4.25	Public meetings	0.567	2.8	3.1	0.452
4.26	Personal contact / interviews	5.131	2.9	4.0	0.023
Part 5 – How important do you think the stakeholders are that are listed below?					
5.1	Government officials, Regulatory bodies	4.631	3.3	4.1	0.031
5.2	Shareholders, Investors	0.216	3.8	4.0	0.642
5.3	Banks etc. where loans are accessed	0.305	3.4	3.6	0.581
5.4	People in the community	0.399	3.4	3.7	0.528
5.5	Environmental lobby groups	0.328	2.9	3.3	0.567
5.6	Employees	1.711	4.3	4.7	0.191
5.7	Media	1.128	2.9	3.3	0.288
5.8	Customers	1.258	4.6	4.9	0.262
5.9	Trade organizations	1.584	3.4	4.0	0.208

The data in Table 6-18 indicate that there were nine questions where a statistically significant difference in response occurred. The percentage response per statistically significant question is presented in Table 6-19 below.

Table 6-19 - ISO 14001 Certified vs Non Certified Companies

(Percentage agreement per statistically significant question)

		ISO 14001 Non-Certified			ISO 14001 Certified		
Number	Statement	Aggregate % Disagree / Ineffective / Unimportant	Neutral	Aggregate % Agree / Effective / Important	Aggregate % Disagree / Ineffective / Unimportant	Neutral	Aggregate % Agree / Effective / Important
Part 2a - Rate the following statements							
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	37.5%	18.8%	43.8%	14.3%	0.0%	85.7%
Part 2b - Markman Companies should provide environmental information to the community about the following:							
2.7	The amount of raw materials consumed per annum.	86.7%	13.3%	0.0%	42.9%	42.9%	14.3%
2.8	The amount of energy consumed per annum (oil, gas electricity, coal).	75.0%	12.5%	12.5%	14.3%	42.9%	42.9%
2.9	The amount of water used per annum.	75.0%	6.3%	18.8%	14.3%	42.9%	42.9%
2.12	The amount and type of chemical spills emanating from your plant	33.3%	26.7%	40.0%	0.0%	14.3%	85.7%
2.16	The significant impact of transport used for logistical purposes.	68.8%	25.0%	6.3%	14.3%	57.1%	28.6%
Part 4 - Rate each method listed below, according to how effective it would be in promoting communication with the community							
4.13	Radio interviews	12.5%	25.0%	62.5%	33.3%	66.7%	0.0%
4.26	Personal contact / interviews	31.3%	43.8%	25.0%	0.0%	28.6%	71.4%
Part 5 - How important do you think the stakeholders are that are listed below?							
5.1	Government officials, Regulatory bodies	18.8%	31.3%	50.0%	0.0%	14.3%	85.7%

In Question 2.5 in Table 6-19 above, the majority of respondents (85.7%) of the ISO 14001 certified companies agreed that the communities could demand information regarding environmental performance, whereas the non-certified company respondents disagreed

(43.8%). This is probably due to the certified companies having the communication procedures in place, as was discussed previously.

In Questions 2.7, 2.8 and 2.9, the majority (86.7%; 75% and 75% respectively) of the ISO 14001 non-certified company respondents disagreed that information regarding raw materials consumption, the amount of energy consumed, and the amount of water consumed per year, should be provided to the community. The majority of the ISO 14001 certified company respondents appeared to be undecided, as 42.9% indicated they were neutral or uncertain about providing this information.

In Question 2.12, regarding the release of information about chemical spills, the majority of ISO 14001 certified company respondents (85.7%) agreed that this information should be disclosed. Firstly, this is likely to be attributed to the legal requirements under the NEMA and the NEMA:NWA that require the authorities to be informed of any environmental incidents, such as spills. Secondly, being ISO 14001 certified, the companies would have a procedure in place to facilitate this disclosure, as they have to comply with an “evaluation of legal compliance audit” to gain certification (ISO14001- Element 4.5.2). The aforementioned audit would have included an evaluation of the communication with regulatory authorities. The non-certified company respondents were undecided on this question, and had probably not been informed of this specific legal requirement.

In Question 2.16, the respondents were asked if they agreed that information on the environmental impact of their transports system should be disclosed. The results show that 68.8% of the non-certified company respondents disagreed that this information should be disclosed, whereas the majority of the certified companies’ respondents were undecided or

neutral (57.1%). The relative minor environmental impact of transport systems on the community, could have attributed to the indecisiveness of the ISO 14001 certified respondents, as they would all have an environmental “aspects and impacts register”, that highlights the most important impacts; and transport systems usually have a low impact rating.

The majority of non-certified ISO14001 company respondents (62.5%) agreed that radio interviews would be an effective means of communication. In contrast, 66.7% of the ISO14001 certified company respondents were neutral or undecided. The difference could be explained by the knowledge the ISO 14001 certified companies have regarding their environmental impacts; and they might therefore be hesitant to publicly communicate any environmental impacts.

In Question 4.26, the majority of ISO 14001 certified company respondents (71.4%), indicated that personal contact and interviews with residents would be an effective method of communication. Only 25% of the non-certified ISO14001 company respondents agreed that this method would be effective.

The respondents were also asked to indicate the importance of various stakeholders, one being government officials and regulatory bodies. Although both respondent groups agreed that government officials and regulatory bodies were important, the level of agreement among the respondent groups differed. There was a higher level of agreement among the ISO 14001 certified companies (85.7%) than among the non-certified companies (50%). This difference could be explained by the ISO 14001 requirement that companies would to tend know their legal requirements, as well as their level of compliance. Legal issues would

thus be one area of company performance that these companies would monitor. This could explain the higher level of importance attributed to this question in the survey.

The nine – out of 53 questions – that were statistically and significantly different could be partially explained by the management systems and procedures that ISO 14001 certified companies would have to implement, in order to gain certification. It does not appear that ISO 14001 certification would have influenced the overall results of the company survey.

6.5.2. Food or Agriculture-related Company vs other Industries

The nature of the industries in Markman Industrial Township will dictate what type of environmental impacts they produce. The agricultural industries have in the past been responsible for the majority of environmental impacts that the community has been concerned about. A test was thus conducted to determine if the food and agricultural products industries responded statistically significantly differently to the other industries. The results are contained in Table 6-20.

Table 6-20 – Food or Agriculture-Related Company vs other Industries

Number#	Statement	Kruskal-Wallis Test Statistic	Mean Other Industries	Mean Food & Agricultural Products Industries	Asymptotic Significant p-value (2-tailed)
Part 2a - Rate the following statements					
2.1	The organisations in Markman affect the environment in a substantial manner.	0.124	2.6	3.0	0.725
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	0.010	2.3	2.0	0.820
2.3	The local communities east of the Swartkops River have the power	0.411	2.4	2.2	1.000

Number#	Statement	Kruskal-Wallis Test Statistic	Mean Other Industries	Mean Food & Agricultural Products Industries	Asymptotic Significant p-value (2-tailed)
	to affect the Markman organizations.				
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	0.001	1.8	1.4	0.355
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	0.074	3.2	2.6	0.039
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	0.949	2.6	2.4	0.955
Part 2b - Markman Companies should provide information to the community about the following:					
2.7.1	The amount of raw materials consumed per annum.	1.052	2.1	1.4	0.927
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	0.056	2.4	2.2	0.514
2.7.3	The amount of water used per annum.	0.056	2.5	2.2	0.590
2.7.4	The amount and type of liquid effluents discharged to sewer.	0.010	3.1	3.0	0.646
2.7.5	The amount and type of air emissions from your organization.	0.645	3.1	2.6	0.249
2.7.6	The amount and type of chemical spills emanating from your plant	0.037	3.3	3.0	0.694
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	0.075	3.2	2.8	0.954
2.7.8	The amount of your product that can be recycled.	0.991	3.0	3.2	0.751
2.7.9	Incidents of non-compliance with environmental laws and regulations.	0.139	3.2	2.8	0.909
2.7.10	The significant impact of transport used for logistical purposes.	0.139	2.4	2.4	0.333
2.7.11	The total environmental expenditure by type per annum.	1.960	2.4	2.6	0.264
Part 3 - Preference for Verbal or Non-Verbal Communication					
3.1	Verbal Communication Preference (0=preferred)	0.048	0.2	0.3	0.547

Number#	Statement	Kruskal-Wallis Test Statistic	Mean Other Industries	Mean Food & Agricultural Products Industries	Asymptotic Significant p-value (2-tailed)
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community					
4.1	Art exhibitions	2.825	2.3	1.8	0.205
4.2	Help desk	0.224	3.0	3.0	0.349
4.3	Presentation groups	0.018	3.2	3.4	0.733
4.4	Community dinners	0.222	2.5	3.2	0.128
4.5	Theatre presentations	0.500	2.7	2.8	0.735
4.6	Co-operative projects with the community	0.608	3.6	3.6	0.518
4.7	Sustainability agreements	1.492	3.4	2.8	0.613
4.8	Focus groups on a specific topic	0.933	3.5	3.4	0.492
4.9	Surveys	0.059	3.4	3.2	0.121
4.10	Open house / information days	0.211	3.3	3.0	0.330
4.11	Guided tours with environmental focus	1.552	3.1	3.8	0.053
4.12	Workshops / conferences	2.398	3.1	3.8	0.189
4.13	Radio interviews	2.109	3.2	4.0	0.733
4.14	Community liaison groups	0.000	3.4	3.0	0.523
4.15	Websites	3.601	3.2	2.4	0.092
4.16	Formal Environmental Reports	0.005	3.0	2.6	0.051
4.17	Newsletters	2.349	3.7	2.8	0.279
4.18	Product labels with environmental information	3.551	3.0	2.4	0.276
4.19	Posters displayed at local points such as Supermarkets	0.230	3.1	3.0	0.864
4.20	Displays with environmental information manned by organization employees at local points such as Supermarkets	0.739	2.8	3.0	0.808
4.21	Letters to residents	0.020	3.4	2.8	0.062
4.22	Newspaper feature articles	1.646	3.2	2.8	0.030
4.23	News releases	0.890	3.2	2.8	0.041
4.24	Advertising	0.032	3.3	3.6	0.314
4.25	Public meetings	0.079	3.0	2.8	0.906
4.26	Personal contact / interviews	0.907	3.4	3.0	0.376
Part 5 - How important do you think the stakeholders are that are listed below					
5.1	Government officials, Regulatory	0.900	3.3	3.8	0.133

Number#	Statement	Kruskal-Wallis Test Statistic	Mean Other Industries	Mean Food & Agricultural Products Industries	Asymptotic Significant p-value (2-tailed)
	bodies				
5.2	Shareholders, Investors	0.515	3.7	3.4	0.527
5.3	Banks etc., where loans are accessed	0.161	3.4	3.4	0.634
5.4	People in the community	2.251	3.3	3.8	0.069
5.5	Environmental lobby groups	0.234	2.9	2.8	0.491
5.6	Employees	0.063	4.3	4.2	0.020
5.7	Media	0.029	2.8	3.4	0.424
5.8	Customers	0.014	4.5	4.4	0.210
5.9	Trade organizations	0.971	3.4	3.8	0.163

The results indicate that there were statistically significant differences on four questions. The percentage response per statistically significant question is presented in Table 6-21 below.

Table 6-21 – ISO 14001 Food and Agricultural Products Industries vs Other Industries
(Percentage agreement per statistically significant question)

		Other Industries			Food & Agricultural Products Industries		
Number	Statement	Aggregate % Disagree / Ineffective / Unimportant	Neutral / Undecided	Aggregate % Agree / Effective / Important	Aggregate % Disagree / Ineffective / Unimportant	Neutral / Undecided	Aggregate % Agree / Effective / Important
Part 2a - Rate the following statements							
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	28.6%	14.3%	57.1%	60.0%	0.0%	40.0%

		Other Industries			Food & Agricultural Products Industries		
Number	Statement	Aggregate % Disagree / Ineffective / Unimportant	Neutral / Undecided	Aggregate % Agree / Effective / Important	Aggregate % Disagree / Ineffective / Unimportant	Neutral / Undecided	Aggregate % Agree / Effective / Important
Part 4 - Rate each method listed below according to how effective it would be in promoting communication with the community							
4.22	Newspaper feature articles	23.8%	28.6%	47.6%	20.0%	60.0%	20.0%
4.23	News releases	19.0%	33.3%	47.6%	20.0%	60.0%	20.0%
Part 5 - How important do you think the stakeholders are that are listed below?							
5.6	Employees	4.8%	4.8%	86.4%	0.0%	20.0%	80.0%

Question 2.5 shows that the majority of food and agricultural product companies' respondents (60%) disagreed that the community has the right to demand environmental performance information, whereas only 28.6% of the other industry respondents disagreed. A possible reason the food and agricultural products company's do not think the community is entitled to this information, is that they might feel the environmental information is sensitive and releasing it to the community could have negative consequences for the company – given the past history of pollution in this area.

The reluctance to disclose information could possibly be explained by the companies believing their legitimacy might be threatened if negative information about their activities were to become public (Nasi, Nasi, Phillips, & Zyglidopoulos 1997).

Questions 4.22 and 4.23 on the effectiveness of newspaper-feature articles and news releases, shows that the majority of both respondent groups do not agree that they are effective methods of communication. The number of neutral and undecided respondents is high in both groups.

The level of importance of employees as a stakeholder group (Question 5.6) was rated as important by the majority of food and agricultural-product company's respondents (80%), as well as the majority of the other industries respondents (86.4%). It appears that the differences in the level of agreement could explain the statistically significant different results.

It is unlikely that the four out of 53 questions that were statistically significantly different would influence the overall result to such an extent that the industry sector of the company respondents would be a factor in interpreting the results.

6.5.3. Size of Company (Number of Employees)

The responses from the companies of different sizes were tested to determine whether size could cause statistically significant differences in the responses. The rationale is that larger companies might have more resources available to deal with environmental issues. Larger companies are also more "visible" which could lead to more pressure being put on them to perform environmentally responsibly. Furthermore, bigger companies may have a greater impact on the environment, particularly the animal products processing companies. The company responses were grouped into two categories, namely: those that had less than 50 employees, and those that had more than 50 employees. Table 6-22 shows the results of the Kruskal-Wallis One-Way ANOVA test to determine whether company size could have influenced the results of the company survey.

Table 6-22 – Size of Company (Number of Employees)

#	Statement	Kruskal-Wallis Test Statistic	Mean <50 Employees	Mean > 50 Employees	Asymptotic Significant p-value (2-tailed)
Part 2a - Rate the following statements					
2.1	The organisations in Markman affect the environment in a substantial manner.	4.568	2.2	3.2	0.033
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	0.052	2.2	2.4	0.820
2.3	The local communities east of the Swartkops River have the power to affect the Markman organizations.	0.000	2.4	2.4	1.000
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	0.856	1.8	1.7	0.355
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	4.251	2.6	3.7	0.039
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	0.003	2.5	2.6	0.955
Part 2b - Markman Companies should provide information to the community on the following:					
2.7.1	The amount of raw materials consumed per annum.	0.008	2.0	1.9	0.927
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	0.427	2.3	2.6	0.514
2.7.3	The amount of water used per annum.	0.291	2.4	2.6	0.590
2.7.4	The amount and type of liquid effluents discharged into the sewer.	0.211	3.1	3.3	0.646
2.7.5	The amount and type of air emissions from your organization.	1.329	2.8	3.4	0.249
2.7.6	The amount and type of chemical spills emanating from your plant	0.155	3.3	3.4	0.694
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	0.003	3.2	3.3	0.954
2.7.8	The amount of your product that can be recycled.	0.101	3.1	3.1	0.751
2.7.9	Incidents of non-compliance with environmental laws and regulations.	0.013	3.2	3.2	0.909
2.7.10	The significant impact of transport used for logistical purposes.	0.936	2.3	2.7	0.333
2.7.11	The total environmental expenditure by type per annum.	1.250	2.3	2.8	0.264
Part 3 - Preference for Verbal or Non-Verbal Communication					
3.1	Verbal Communication Preference (0=preferred)	0.363	0.2	0.3	0.547

#	Statement	Kruskal-Wallis Test Statistic	Mean <50 Employees	Mean > 50 Employees	Asymptotic Significant p-value (2-tailed)
Part 4 – Rate each method listed below according to how effective it would be in promoting communication with the community					
4.1	Art exhibitions	1.604	2.5	2.0	0.205
4.2	Help desk	0.877	3.2	2.8	0.349
4.3	Presentation groups	0.116	3.2	3.3	0.733
4.4	Community dinners	2.311	2.3	3.0	0.128
4.5	Theatre presentations	0.115	2.7	2.8	0.735
4.6	Co-operative projects with the community	0.419	3.5	3.7	0.518
4.7	Sustainability agreements	0.256	3.4	3.2	0.613
4.8	Focus groups on a specific topic	0.471	3.5	3.3	0.492
4.9	Surveys	2.403	3.5	3.1	0.121
4.10	Open house / information days	0.947	3.2	3.3	0.330
4.11	Guided tours with environmental focus	3.745	2.9	3.6	0.053
4.12	Workshops / conferences	1.726	3.0	3.5	0.189
4.13	Radio interviews	0.117	3.4	3.3	0.733
4.14	Community liaison groups	0.408	3.2	3.4	0.523
4.15	Websites	2.835	3.5	2.6	0.092
4.16	Formal Environmental Reports	3.800	3.2	2.5	0.051
4.17	Newsletters	1.172	3.7	3.3	0.279
4.18	Product labels with environmental information	1.187	3.1	2.7	0.276
4.19	Posters displayed at local points such as Supermarkets	0.030	3.1	3.0	0.864
4.20	Displays with environmental information manned by organization employees at local points, such as Supermarkets	0.059	2.8	2.7	0.808
4.21	Letters to residents	3.473	3.6	2.8	0.062
4.22	Newspaper-feature articles	4.734	3.5	2.7	0.030
4.23	News releases	4.179	3.5	2.8	0.041
4.24	Advertising	1.015	3.5	3.2	0.314
4.25	Public meetings	0.014	3.0	2.8	0.906
4.26	Personal contact / interviews	0.785	3.2	3.3	0.376
Part 5 - How important do you think the stakeholders are listed below?					
5.1	Government officials, Regulatory bodies	2.253	3.1	3.8	0.133
5.2	Shareholders, Investors	0.399	3.6	3.9	0.527
5.3	Banks etc. where loans are accessed	0.227	3.2	3.4	0.634

#	Statement	Kruskal-Wallis Test Statistic	Mean <50 Employees	Mean > 50 Employees	Asymptotic Significant p-value (2-tailed)
5.4	People in the community	3.307	3.0	3.8	0.069
5.5	Environmental lobby groups	0.475	2.7	3.1	0.491
5.6	Employees	5.447	3.9	4.7	0.020
5.7	Media	0.639	3.0	2.8	0.424
5.8	Customers	1.569	4.2	4.8	0.210
5.9	Trade organizations	1.942	3.1	3.8	0.163

The data in the Table 5-34 indicate that there was a statistically significant difference in the responses to the five questions. Table 6-23 indicates the percentage of agreement with the various statistically significant different questions.

Table 6-23 – Company Size (Percentage agreement per statistically significant question)

		<50 Employees			>50 Employees		
Number	Statement	Aggregate % Disagree / Ineffective / Unimportant	Neutral / Undecided	Aggregate % Agree / Effective / Important	Aggregate % Disagree / Ineffective / Unimportant	Neutral / Undecided	Aggregate % Agree / Effective / Important
Part 2a - Rate the following statements							
2.1	The organisations in Markman affect the environment in a substantial manner.	69.2%	15.4%	15.4%	27.3%	18.2%	54.5%
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	46.2%	15.4%	38.5%	25.0%	0.0%	75.0%
Part 4 – Rate each method listed below according to how effective it would be in promoting communication with the community.							
4.22	Newspaper-feature articles	7.7%	30.8%	61.5%	41.7%	33.3%	25.0%
4.23	News releases	7.7%	30.8%	61.5%	33.3%	41.7%	25.0%
Part 5 - How important do you think the stakeholders are that are listed below?							
5.6	Employees	7.7%	7.7%	84.6%	0.0%	8.3%	91.7%

In Question 2.1 the companies were asked whether they affected the environment in a substantial manner. The majority of the bigger companies agreed with the statement (54.5%), while only 15.4% of the smaller companies (of less than 50 employees) agreed they affected the environment in a substantial manner. This could be as a result of the larger companies possibly having more of an environmental impact, and the respondents recognising this.

In Question 2.5 it is shown that the majority of larger company's respondents (75%) agree that the community has the right to demand environmental-performance information, whereas only 38.5% of the smaller company's respondents were in agreement. A reason for the difference could be that the larger companies are more aware of their environmental impact and legal requirements, and that they could have internal resources, such as Environmental Managers who would have knowledge of these issues. They would thus know that there is a legal requirement to disclose such information, and hence agree with the statement.

The majority of both respondent groups do not agree that newspaper-feature articles and news releases (Questions 4.22 and 4.23) are effective methods of communication. The number of neutral and undecided respondents is high in both groups.

The level of importance of employees as a stakeholder group (Question 5.6) was rated as important by the larger company respondents (91.0%), as well as by the majority of the smaller company respondents (84.6%). The only difference between the results is thus the aggregate number of respondents that agreed in both groups.

The results of the tests indicate that company size does not appear to have influenced the overall result of the company survey.

6.6. Second Community Survey

The initial community and company survey was conducted in 2006. A second community survey was conducted in 2010 – to determine whether the community would respond differently given the passing of time. The second survey was conducted on 30 randomly selected homes that were not part of the initial survey. A Mann-Whitney U test was conducted to determine whether there were any statistically significant differences between the first and second community survey. Two questions in Part 2A, Questions 2.3 and 2.4, of the second survey were omitted on the advice of an expert in the field of environmental accounting research, as they were deemed to be overly subjective.

The result of the test to determine whether the first survey was statistically significantly different from the second survey is contained in Table 6-24.

Table 6-24 – Second Community Survey

	Statement	Mann-Whitney U Test Statistic	Mean First Survey	Mean Second Survey	Asymptotic Significant p-value (2-tailed)
Part 2a - Rate the following statements					
2.1	The organisations in Markman affect the environment in a substantial manner.	1383.0	4.4	3.8	0.000
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	1771.5	3.8	4.2	0.093
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	2103.5	4.6	4.6	0.450

	Statement	Mann-Whitney U Test Statistic	Mean First Survey	Mean Second Survey	Asymptotic Significant p-value (2-tailed)
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	1933.5	4.6	4.5	0.133
Part 2b - Markman Companies should provide information to the community about the following:					
2.7.1	The amount of raw materials consumed per annum.	2117.0	3.9	3.9	0.591
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	2033.0	4.0	3.8	0.376
2.7.3	The amount of water used per annum.	2206.5	4.1	4.1	0.907
2.7.4	The amount and type of liquid effluents discharged to sewer.	2163.5	4.7	4.7	0.665
2.7.5	The amount and type of air emissions from your organization.	1848.5	4.7	4.5	0.046
2.7.6	The amount and type of chemical spills emanating from your plant	1713.5	4.7	4.5	0.004
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	1760.0	4.7	4.5	0.015
2.7.8	The amount of your product that can be recycled.	1970.5	4.2	4.0	0.313
2.7.9	incidents of non-compliance with environmental laws and regulations.	1874.5	4.6	4.4	0.119
2.7.10	The significant impact of transport used for logistical purposes.	1891.5	3.9	3.7	0.188
2.7.11	The total environmental expenditure by type per annum.	1738.5	4.1	3.8	0.047
Part 3 - Preference for Verbal or Non-Verbal Communication					
3.1	Verbal Communication Preference (0=preferred)	2030.0	0.2	0.3	0.296
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community					
4.1	Art exhibitions	1626.0	2.7	3.3	0.014
4.2	Help desk	2182.0	3.8	3.7	0.876
4.3	Presentation groups	1876.0	3.6	3.8	0.153
4.4	Community dinners	2090.5	2.5	2.7	0.599
4.5	Theatre presentations	1870.5	2.6	2.9	0.192
4.6	Co-operative projects with the community	2158.0	4.1	4.0	0.695
4.7	Sustainability agreements	2036.5	4.0	3.9	0.522
4.8	Focus groups on a specific topic	2138.5	4.0	3.9	0.649
4.9	Surveys	2225.0	4.0	4.0	0.966
4.10	Open house / information days	2059.0	3.6	3.7	0.541
4.11	Guided tours with environmental focus	2023.5	3.9	4.0	0.378

	Statement	Mann-Whitney U Test Statistic	Mean First Survey	Mean Second Survey	Asymptotic Significant p-value (2-tailed)
4.12	Workshops / conferences	1945.5	3.5	3.7	0.282
4.13	Radio interviews	2082.0	3.9	4.0	0.489
4.14	Community liaison groups	1909.0	3.8	4.0	0.202
4.15	Websites	2097.0	3.6	3.7	0.578
4.16	Formal Environmental Reports	2042.5	4.2	4.1	0.531
4.17	Newsletters	2070.0	4.3	4.2	0.446
4.18	Product labels with environmental information	2146.5	3.9	4.0	0.809
4.19	Posters displayed at local points, such as Supermarkets	2161.5	4.0	4.1	0.719
4.20	Displays with environmental information manned by organization employees at local points, such as Supermarkets	2093.0	3.9	4.0	0.602
4.21	Letters to residents	2172.0	4.1	4.1	0.793
4.22	Newspaper-feature articles	2153.5	4.2	4.2	0.729
4.23	News releases	2132.0	4.1	4.2	0.709
4.24	Advertising	1695.5	3.8	4.2	0.030
4.25	Public meetings	1946.0	3.5	3.7	0.265
4.26	Personal contact / interviews	1862.5	3.5	3.8	0.149
Part 5 - Below are strategies that Markman companies might have used. Have you noted any evidence of these strategies?					
5.1	Markman organisations have changed their activities to suit society.	1975.0	0.0	0.1	0.049
5.2	Markman organisations have implemented changes that are substantive and positive to blend in with society's norms and beliefs.	2062.5	0.0	0.1	0.268
5.3	Markman organisations have through communication, altered their definition of societal legitimacy to suit their own needs.	2082.5	0.1	0.2	0.531
5.4	The Markman organisations advocate socially acceptable goals while their actions are less acceptable	1977.5	0.3	0.4	0.321
5.5	Markman organisations have denied or concealed activities that are not legitimate.	1985.0	0.4	0.3	0.376
5.6	Markman organisations offer public excuses about some of their actions.	2120.0	0.4	0.3	0.793
5.7	Markman organisations make highly visible "right thing to do" actions without real organisational change taking place.	1885.0	0.2	0.3	0.111
5.8	Markman organisations admit guilt when their actions affect others, but do little else.	1737.5	0.2	0.4	0.012
5.9	Markman organisations supply ambiguous or misleading information regarding their activities that is open to misinterpretation.	2002.5	0.4	0.3	0.413

	Statement	Mann-Whitney U Test Statistic	Mean First Survey	Mean Second Survey	Asymptotic Significant p-value (2-tailed)
5.10	Markman organisations offer trivial or partial information and do not address environmental problems.	1782.5	0.6	0.4	0.069
Part 6 - How important do you think the Markman companies view each stakeholder listed below - (Remember, this is how the Markman Organisations view each stakeholder)?					
6.1	Government officials, Regulatory bodies	2095.5	3.1	3.1	0.985
6.2	Shareholders, Investors	1630.0	4.1	3.8	0.053
6.3	Banks etc., where loans are accessed	1996.5	3.9	3.9	0.798
6.4	People in the community	1610.5	2.1	2.5	0.042
6.5	Environmental lobby groups	1635.0	2.3	2.7	0.061
6.6	Employees	1643.5	2.9	3.2	0.071
6.7	Media	1942.0	3.0	3.1	0.623
6.8	Customers	2057.0	3.7	3.8	0.904
6.9	Trade organizations	1745.0	3.5	3.7	0.196
Number of Statistically Significantly Different Results					10

Table 6-25 – Second Community Survey - (Percentage agreement per statistically significant question)

	Statement	First Community Survey			Second Community Survey		
		Aggregate % Disagree	Aggregate % Neutral	Aggregate % Agree	Aggregate % Disagree	Aggregate % Neutral	Aggregate % Agree
Part 2a - Rate the following statements							
2.1	The organisations in Markman affect the environment in a substantial manner.	0.7%	10.1%	89.2%	6.7%	23.3%	70.0%
Part 2b - Markman Companies should provide information to the community about the following:							
2.7.5	The amount and type of air emissions from your organization.	1.3%	5.3%	93.3%	0.0%	3.3%	96.7%

	Statement	First Community Survey			Second Community Survey		
2.7.6	The amount and type of chemical spills emanating from your plant	2.0%	2.7%	95.3%	0.0%	3.3%	96.7%
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	6.0%	14.7%	79.3%	6.7%	36.7%	56.7%
2.7.11	The total environmental expenditure by type per annum.	2.0%	22.3%	75.7%	10.0%	20.0%	70.0%
Part 4 - Rate each method listed below according to how effective it would be to promote communication with the community		Aggregate % Ineffective	Aggregate % Neutral	Aggregate % Effective	Aggregate % Ineffective	Aggregate % Neutral	Aggregate % Effective
4.1	Art Exhibitions	39.2%	39.2%	21.6%	26.7%	33.3%	40.0%
4.24	Advertising	6.8%	27.7%	65.5%	0.0%	20.0%	80.0%
Part 5 - Below are strategies that Markman companies may have used. Have you noted any evidence of these strategies?		Aggregate % Not Evident	-	Aggregate % Evident	Aggregate % Not Evident	-	Aggregate % Evident
5.1	Markman organisations have changed their activities to suit society.	95.9%	-	4.1%	86.7%	-	13.3%
5.8	Markman organisations admit guilt when their actions affect others, but do little else.	83.4%	-	16.6%	63.3%	-	36.7%
Part 6 - How important do you think the Markman companies view each stakeholder listed below - (Remember, this is how the Markman Organisations view each stakeholder)?		Aggregate % Unimportant	Aggregate % Neutral	Aggregate % Important	Aggregate % Unimportant	Aggregate % Neutral	Aggregate % Important
6.4	People in the community	67.6%	18.7%	13.7%	56.7%	26.7%	16.7%

Table 6-25 indicates that the two respondent groups had similar beliefs on all ten statistically significantly different questions, as the majority of the respondents from both groups, either agreed or disagreed with the statement in the question. The only difference was the percentage of agreement or disagreement.

As the second survey is important to ensure that the first survey findings are still valid, an examination of the direction and extent of the changes in the aggregate percentages is warranted. The results of the examination are presented in Table 6-26 below.

Table 6-26 – Second Community Survey - (Analysis of aggregate percentage differences)

Number	Statement	First Survey Aggregate %	Second Survey Aggregate %	Majority Disagree / Agree / Effective / Important	Size of difference relative to first survey	Comments
2.1	The organisations in Markman affect the environment in a substantial manner.	89.2%	70.0%	Agree	-19.2%	There appears to be less agreement for this statement. The reason could be that the national legislation has changed regarding air pollution between the first and second surveys and companies are now more aware of the legal duty to prevent pollution. It is also possible that there were process changes within the companies that decreased the number of pollution events.
2.7.5	The amount and type of air emissions from your organization.	93.3%	96.7%	Agree	+3.4%	There are a higher percentage of respondents that agree with the statement.
2.7.6	The amount and type of chemical spills emanating from your plant	95.3%	96.7%	Agree	+1.4%	There are a higher percentage of respondents that agree with the statement.

Number	Statement	First Survey Aggregate %	Second Survey Aggregate %	Majority Disagree / Agree / Effective / Important	Size of difference relative to first survey	Comments
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	79.3%	56.7%	Agree	-22.6%	There is a lower percentage of respondents that agree with the statement. A possible reason is that a new hazardous waste site is being planned and the present site that is located near to the community will thus be closed. The respondents may have taken this into account as waste will be less of an issue in future, hence the lower aggregate agreement. The number of neutral respondents has increased from 14.7% to 34.7% which has resulted in the decrease in agreement.
2.7.11	The total environmental expenditure by type per annum.	75.7%	70.0%	Agree	-5.7%	A lower percentage of respondents agree with the statement. The lower percentage of respondents requiring information about environmental expenditure could be attributed there being fewer pollution events since the first survey.

Number	Statement	First Survey Aggregate %	Second Survey Aggregate %	Majority Disagree / Agree / Effective / Important	Size of difference relative to first survey	Comments
4.1	Art Exhibitions	39.2%	26.7%	Ineffective	-12.5%	There does not appear to be a majority view in either of the two respondent groups regarding the effectiveness of Art exhibitions as a communication method. The decrease in the view that this method is ineffective could not be determined.
4.24	Advertising	65.5%	80.0%	Effective	+14.5%	The increase in the view of the effectiveness of this communication method could possibly be related to the general increase in people's access to the internet and social media since the first survey.
5.1	Markman organisations have changed their activities to suit society.	95.9%	86.7%	Evident	-9.2%	Less respondents have noted evidence of this legitimisation strategy which may be attributed to the changes in legislation as stated in the comments to Question 2.1
5.8	Markman organisations admit guilt when their actions affect others, but do little else.	83.4%	63.3%	Evident	-20.1%	Less respondents agree with this statement, which may be attributed to the changes in legislation as stated in the comments to Question 2.1

Number	Statement	First Survey Aggregate %	Second Survey Aggregate %	Majority Disagree / Agree / Effective / Important	Size of difference relative to first survey	Comments
6.4	People in the community	67.6%	56.7%	Unimportant	-10.9%	The overall increase in societal awareness of the environmental rights of citizens could have influenced the decrease in the percentage of unimportance attributed to the community in this statement. The respondents are probably aware that companies will have to view the community as an important stakeholder, as this is what society expects. The awareness of the companies' obligation towards the community could thus influence the aggregate percentage.

The analysis of the aggregate percentages for the ten statistically significantly different questions in Table 6-26 above, and the accompanying explanation for the percentage differences, indicate that overall there does not appear to be a substantial difference between the first and second surveys. A conclusion could thus be made that the results of the first survey are still valid.

6.7. Non-Response Bias

In order to test for non-response bias, an early-late method was used, as described by Tilt (1997). Therefore, a Mann-Whitney U test was conducted on the first twenty community respondents that submitted their questionnaire, and on the last twenty questionnaires that were received. This was to determine whether there was a statistically significant difference in the responses of these groups, as the last group were encouraged with door-to-door visits to return the questionnaire. This group can be regarded as a proxy for those residents that did not respond, as it is highly likely that the last 20 respondents would not have participated in the survey, if they had not been contacted.

A similar test was conducted on the company survey results, with the first five and last five respondents being tested, as the company sample size was small (26 respondents).

6.7.1. Non-Response Bias Test – Community

The result of the community non-response bias test is presented in Table 6-27 below.

Table 6-27 – Non-Response Bias Test (Community)

Number	Statement	Mann-Whitney U Test Statistic	Mean First 20 Respondents	Mean Last 20 Respondents	Asymptotic Significant p-value (2-tailed)
Part 2a - Rate the following statements					
2.1	The organisations in Markman affect the environment in a substantial manner.	4.1	4.7	4.1	0.043
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	1.3	4.1	3.8	0.256
2.3	The local communities east of the Swartkops River have the power to affect the Markman organizations.	0.1	3.4	3.7	0.707

Number	Statement	Mann-Whitney U Test Statistic	Mean First 20 Respondents	Mean Last 20 Respondents	Asymptotic Significant p-value (2-tailed)
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	2.3	4.5	4.0	0.132
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	1.6	4.6	4.1	0.206
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	5.0	4.8	4.0	0.025
Part 2b - Markman Companies should provide information to the community about the following:					
2.7.1	The amount of raw materials consumed per annum.	1.3	4.3	3.9	0.255
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	1.9	4.2	3.8	0.165
2.7.3	The amount of water used per annum.	0.4	4.2	4.0	0.509
2.7.4	The amount and type of liquid effluents discharged into the sewer.	3.4	4.8	4.2	0.066
2.7.5	The amount and type of air emissions from your organization.	8.0	4.9	4.2	0.005
2.7.6	The amount and type of chemical spills emanating from your plant	3.7	4.9	4.2	0.053
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	8.6	4.9	4.2	0.003
2.7.8	The amount of your product that can be recycled.	0.3	4.2	4.0	0.593
2.7.9	Incidents of non-compliance with environmental laws and regulations.	3.6	4.7	4.1	0.057
2.7.10	The significant impact of transport used for logistical purposes.	1.6	4.0	3.6	0.206
2.7.11	The total environmental expenditure by type per annum.	2.0	4.2	3.8	0.162
Part 3 - Preference for Verbal or Non-Verbal Communication					
3.1	Verbal Communication Preference (0=preferred)	0.9	0.2	0.3	0.341

Number	Statement	Mann-Whitney U Test Statistic	Mean First 20 Respondents	Mean Last 20 Respondents	Asymptotic Significant p-value (2-tailed)
Part 4 - Rate each method listed below according to how effective it would be in promoting communication with the community.					
4.1	Art exhibitions	0.0	2.9	2.9	0.955
4.2	Help desk	2.5	4.0	3.4	0.112
4.3	Presentation groups	1.4	3.7	3.4	0.244
4.4	Community dinners	0.0	2.5	2.5	0.899
4.5	Theatre presentations	0.0	2.7	2.7	0.955
4.6	Co-operative projects with the community	0.0	4.0	4.0	0.863
4.7	Sustainability agreements	1.7	4.1	3.7	0.192
4.8	Focus groups on a specific topic	0.9	4.3	3.9	0.346
4.9	Surveys	4.7	4.4	3.8	0.030
4.10	Open house / information days	5.2	4.0	3.1	0.023
4.11	Guided tours with environmental focus	1.4	4.1	3.7	0.238
4.12	Workshops / conferences	0.6	3.6	3.7	0.423
4.13	Radio interviews	0.0	3.9	3.8	0.848
4.14	Community liaison groups	0.3	3.8	3.6	0.556
4.15	Websites	0.5	3.6	3.8	0.463
4.16	Formal Environmental Reports	4.3	4.6	4.0	0.039
4.17	Newsletters	0.4	4.3	4.1	0.527
4.18	Product labels with environmental information	0.0	4.1	4.2	0.988
4.19	Posters displayed at local points such as Supermarkets	0.9	4.3	4.0	0.346
4.20	Displays with environmental information manned by organization employees at local points such as Supermarkets	4.3	4.2	3.4	0.039
4.21	Letters to residents	2.4	4.4	4.0	0.124
4.22	Newspaper-feature articles	0.3	4.3	4.1	0.570
4.23	News releases	3.9	4.4	3.8	0.049
4.24	Advertising	0.1	3.8	3.9	0.771
4.25	Public meetings	0.3	3.7	3.5	0.589
4.26	Personal contact / interviews	2.9	3.7	3.0	0.090
Part 5 - Below are strategies that Markman companies may have used. Have you noted any evidence of these strategies?					

Number	Statement	Mann-Whitney U Test Statistic	Mean First 20 Respondents	Mean Last 20 Respondents	Asymptotic Significant p-value (2-tailed)
5.1	Markman organisations have changed their activities to suit society.	1.2	0.1	0.2	0.273
5.2	Markman organisations have implemented changes that are substantive and positive to blend in with society's norms and beliefs.	5.9	0.0	0.3	0.015
5.3	Markman organisations have through communication, altered their definition of societal legitimacy to suit their own needs.	0.0	0.2	0.2	0.946
5.4	The Markman organisations advocate socially acceptable goals while their actions are less acceptable	0.6	0.3	0.4	0.429
5.5	Markman organisations have denied or concealed activities that are not legitimate.	0.0	0.4	0.4	0.895
5.6	Markman organisations offer public excuses about some of their actions.	0.0	0.5	0.5	0.884
5.7	Markman organisations make highly visible "right thing to do" actions without real organisational change taking place.	0.2	0.2	0.2	0.627
5.8	Markman organisations admit guilt when their actions affect others, but do little else.	0.0	0.2	0.2	0.936
5.9	Markman organisations supply ambiguous or misleading information regarding their activities that is open to misinterpretation.	0.3	0.5	0.4	0.609
5.10	Markman organisations offer trivial or partial information and do not address environmental problems.	0.3	0.6	0.6	0.609
Part 6 – How important do you think the Markman companies view each stakeholder listed below?					
6.1	Government officials, Regulatory bodies	5.9	2.6	3.6	0.016
6.2	Shareholders, Investors	0.2	4.2	3.9	0.622
6.3	Banks etc., where loans are accessed	1.7	4.2	3.7	0.198
6.4	People in the community	5.8	1.6	2.8	0.016
6.5	Environmental lobby groups	6.2	1.8	2.9	0.013
6.6	Employees	0.0	3.0	3.1	0.920
6.7	Media	0.9	2.6	2.9	0.345
6.8	Customers	0.7	3.8	3.4	0.388
6.9	Trade organizations	0.4	3.4	3.5	0.536

Number	Statement	Mann-Whitney U Test Statistic	Mean First 20 Respondents	Mean Last 20 Respondents	Asymptotic Significant p-value (2-tailed)
Number of Statistically Significantly Different Responses					13

The results indicate that there was a statistically significant difference in the response to thirteen out of a possible 63 questions between the first and last group of respondents. A further analysis of the statistically significant data is presented in Table 6-28 below.

Table 6-28 – Community Non-Response Bias Test - (Percentage agreement per statistically significant question)

		First 20 Respondents			Last 20 Respondents		
Statement		Aggregate % Disagree	Aggregate % Neutral	Aggregate % Agree	Aggregate % Disagree	Aggregate % Neutral	Aggregate % Agree
Part 2a - Rate the following statements							
2.1	The companies in Markman affect the environment in a substantial manner.	0.0%	0.0%	100.0%	5.0%	20.0%	75.0%
2.6	Markman companies should have a continuing dialogue with the local communities about their environmental performance.	0.0%	25.0%	75.0%	22.7%	27.3%	50.0%
Part 2b - Markman companies should provide information to the community about the following:							
2.7.5	The amount and type of air emissions from your organization.	0.0%	0.0%	100.0%	10.0%	10.0%	80.0%
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	0.0%	10.0%	90.0%	20.0%	30.0%	50.0%
Number		First Community Survey			Second Community Survey		

		First 20 Respondents			Last 20 Respondents		
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community		Aggregate % Ineffective	Aggregate % Neutral	Aggregate % Effective	Aggregate % Ineffective	Aggregate % Neutral	Aggregate % Effective
4.9	Surveys	0.0%	15.8%	84.2%	10.0%	15.0%	75.0%
4.10	Open house / information days	0.0%	27.8%	72.2%	30.0%	20.0%	50.0%
4.16	Formal Environmental Reports	5.6%	0.0%	94.4%	10.0%	15.0%	75.0%
4.20	Displays with environmental information manned by organization employees at local points such as Supermarkets	5.6%	16.7%	77.8%	25.0%	25.0%	50.0%
4.23	News releases	0.0%	16.7%	83.3%	10.0%	15.0%	75.0%
Part 5 - Below are strategies that Markman companies may have used. Have you noted any evidence of these strategies?		Aggregate % Not Evident	-	Aggregate % Evident	Aggregate % Not Evident	-	Aggregate % Evident
5.2	Markman organisations have implemented changes that are substantive and positive to blend in with society's norms and beliefs.	100.0 %		0.0%	73.7%		26.3%
Part 6 - How important do you think the Markman companies view each stakeholder listed below - (Remember, this is how the Markman Organisations view each stakeholder)?		Aggregate % Unimportant	Aggregate % Neutral	Aggregate % Important	Aggregate % Unimportant	Aggregate % Neutral	Aggregate % Important
6.1	Government officials, Regulatory bodies	63.2%	15.8%	21.1%	15.8%	26.3%	57.9%
6.4	People in the community	88.9%	11.1%	0.0%	42.1%	15.8%	42.1%
6.5	Environmental lobby groups	83.3%	16.7%	0.0%	42.1%	21.1%	36.8%

The data in Table 6-28 indicate the following:

- In Part 2A, Question 2.1, a lower percentage (75%) of the last 20 respondents agreed that the Markman Industrial Township companies affected the environment in a substantial manner, as opposed to 100% of the first 20 respondents. In addition, 50% of the last 20 respondents agreed a continuing dialogue was necessary with the companies, whereas 75% of the first 20 respondents had agreed with the statement. One of the reasons for the decrease in agreement on both

questions could be that the average duration of residence varies substantially between the two respondent groups. The first 20 respondent's average duration of residence in the area was 212 months, whereas the last 20 respondent's average duration was 90 months. There are also six non-home owners in the last 20 respondents, whereas all 20 respondents in the first group were home owners. The longer duration of residence in the area could mean that the respondents had experienced more of the historical pollution, hence the higher level of agreement in Question 2.1.

- In Questions 2.7.5 and 2.7.7 the overall level of agreement decreased and the level of neutral responses increased. The reasons provided above, regarding the duration of residence, could be applicable to the difference in these two questions as well.
- Part 4 of the survey asked the respondents to rate the effectiveness of various communication methods. The level of agreement on the effectiveness of the methods decreased in all five statistically significantly different questions. The majority of the respondents in both respondent groups did, however, still have the same overall belief regarding the method's effectiveness.
- In Part 5, Question 5.1, none of the first 20 respondents indicated that they noted any evidence of substantive changes made by the companies, while 26.3% of the last 20 respondents had seen some evidence of substantive changes. The influence of the non-home owners and the shorter duration of residence among the last 20 respondents could once again explain the difference.
- Part 6 (Questions 6.1, 6.4 and 6.5) determined the importance of the various company-stakeholder groups from the community perspective. The majority of the first 20 respondents believed that the company views the government officials,

people in the community and environmental groups, as being unimportant. The majority of the last 20 respondents viewed the government officials as important (57.9%), and were undecided on the people in the community and environmental lobby groups, as there was no clear majority preference on any of these options.

The data indicate that the overall differences between the two respondent groups were not considerable, given the number of statistically significantly different questions (13 out of 63), and that on only three questions did the last 20 respondents have different viewpoints to the first 20 respondents. It therefore appears that the last 20 respondents, being a proxy for the non-response group, did not have a substantial effect on the overall results of the survey. It must be noted that the last 20 respondents would not have been part of the survey, as they were personally contacted to take part in the survey. They could thus be viewed as suitable proxies for the non-respondents.

Furthermore, the non-response bias test discussed above is supported by the results from the second community survey, as discussed in Section 5.10. The respondents in the second community survey could also be viewed as a proxy for the non-respondents, as they did not participate in the first survey, and were randomly chosen to complete the second survey questionnaire.

6.7.2. Non-Response Bias Test – Company Survey

The results presented in Table 6-29 below indicate that all the p-values exceeded 0.05. It was therefore concluded that the companies that chose not to take part in the survey would not have influenced the overall results. The results could, however, have been influenced by the small sample size. The results should, therefore, be viewed with caution.

Table 6-29 – Non-Response Bias (Companies)

Number	Statement	Mann-Whitney U Test Statistic	Mean First 5 Respondents	Mean Last 5 Respondents	Asymptotic Significant p- value (2-tailed)
Part 2a - Rate the following statements					
2.1	The organisations in Markman affect the environment in a substantial manner.	8.5	3.0	2.6	0.694
2.2	The local communities east of the Swartkops River are legitimate stakeholders in the Markman organizations.	8.5	2.6	2.2	0.381
2.3	The local communities east of the Swartkops River have the power to affect the Markman organizations.	5.5	3.2	2.0	0.135
2.4	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	8.0	2.2	1.4	0.309
2.5	The local communities have the right to demand environmentally related information from Markman organizations.	8.5	4.2	3.0	0.343
2.6	Markman organisations should have a continuing dialogue with the local communities about their environmental performance.	10.0	2.8	2.8	0.584
Part 2b - Markman Companies should provide information to the community about the following:					
2.7.1	The amount of raw materials consumed per annum.	3.0	2.4	1.3	0.067
2.7.2	The amount of energy consumed per annum (oil, gas electricity, coal).	6.0	3.0	2.2	0.163
2.7.3	The amount of water used per annum.	6.0	3.0	2.2	0.163
2.7.4	The amount and type of liquid effluents discharged into the sewer.	8.5	3.8	3.0	0.386
2.7.5	The amount and type of air emissions from your organization.	4.5	4.0	2.3	0.167
2.7.6	The amount and type of chemical spills emanating from your plant	4.5	4.0	2.3	0.167
2.7.7	The amount and type of hazardous and non-hazardous waste generated.	8.0	3.8	2.6	0.314
2.7.8	The amount of your product that can be recycled.	9.5	3.4	2.8	0.504

Number	Statement	Mann-Whitney U Test Statistic	Mean First 5 Respondents	Mean Last 5 Respondents	Asymptotic Significant p- value (2-tailed)
2.7.9	Incidents of non-compliance with environmental laws and regulations.	11.0	3.8	3.0	0.723
2.7.10	The significant impact of transport used for logistical purposes.	12.0	2.4	2.4	0.913
2.7.11	The total environmental expenditure by type per annum.	9.5	2.4	3.0	0.515
Part 3 - Preference for Verbal or Non-Verbal Communication					
3.1	Verbal Communication Preference (0=preferred)	8.5	0.4	0.3	0.655
Part 4 - Rate each method listed below according to how effective it will be to promote communication with the community					
4.1	Art exhibitions	9.0	2.2	1.8	0.439
4.2	Help desk	6.0	2.2	3.0	0.154
4.3	Presentation groups	8.0	2.8	3.6	0.309
4.4	Community dinners	12.0	2.8	2.8	0.910
4.5	Theatre presentations	9.5	2.6	3.2	0.501
4.6	Co-operative projects with the community	11.0	3.8	3.8	0.700
4.7	Sustainability agreements	11.0	3.4	3.0	0.729
4.8	Focus groups on a specific topic	8.0	3.4	4.0	0.288
4.9	Surveys	8.0	3.0	3.6	0.307
4.10	Open house / information days	12.0	3.2	3.0	0.911
4.11	Guided tours with environmental focus	10.5	3.2	3.4	0.650
4.12	Workshops / conferences	10.5	3.2	3.4	0.661
4.13	Radio interviews	6.0	3.0	3.8	0.154
4.14	Community liaison groups	9.0	3.2	3.4	0.408
4.15	Websites	5.5	3.2	2.0	0.129
4.16	Formal Environmental Reports	10.5	3.2	2.8	0.661
4.17	Newsletters	8.0	3.6	3.0	0.307
4.18	Product labels with environmental information	9.5	2.8	2.4	0.511
4.19	Posters displayed at local points such as Supermarkets	12.0	2.8	2.8	0.913
4.20	Displays with environmental information manned by organisation employees at local points such as Supermarkets	3.5	2.0	3.4	0.093
4.21	Letters to residents	9.5	3.0	3.4	0.511

Number	Statement	Mann-Whitney U Test Statistic	Mean First 5 Respondents	Mean Last 5 Respondents	Asymptotic Significant p-value (2-tailed)
4.22	Newspaper-feature articles	12.5	2.8	2.8	1.000
4.23	News releases	12.5	3.0	3.0	1.000
4.24	Advertising	11.0	3.0	3.4	0.743
4.25	Public meetings	12.0	3.0	3.0	0.913
4.26	Personal contact / interviews	9.5	3.6	3.0	0.502
Part 5 - How important do you think the Markman companies view each stakeholder listed below?					
5.1	Government officials, Regulatory bodies	9.5	3.8	3.0	0.439
5.2	Shareholders, Investors	5.5	3.8	2.4	0.129
5.3	Banks etc. where loans are accessed	10.5	3.0	2.6	0.667
5.4	People in the community	10.0	3.2	3.2	0.588
5.5	Environmental lobby groups	10.5	3.2	2.4	0.665
5.6	Employees	6.5	4.8	3.6	0.156
5.7	Media	9.0	3.0	2.4	0.448
5.8	Customers	7.0	4.8	3.6	0.189
5.9	Trade organizations	11.5	4.0	3.6	0.827
Number of Statistically Significantly Different Responses					0

6.8. Summary of Analysis Results

6.8.1. Community Survey

The community survey results have indicated the following:

- There were 153 respondents.
- The period of residence duration varies from two months to 850 months.
- 22 respondents indicated that they did not own their dwelling, while 123 were home owners.
- There were 11 Xhosa respondents, 39 Afrikaans respondents, 91 English respondents, and nine “other” language respondents.

The majority of the community respondents see themselves as stakeholders in the Markman Industrial Township companies, and they believe that they are being negatively affected by the companies. Furthermore, the community respondents believe that a continuing dialogue needs to take place with the companies on their environmental performance, and they believe they have the power to affect the activities of the companies in the Markman Township to bring about positive change in their environmental performance.

The community respondents indicated that they require the following environmental-performance information in descending order of importance:

- The amount and type of chemical spills emanating from each company;
- The amount and type of hazardous and non-hazardous waste generated;
- The amount and type of air emissions from each company;
- The amount and type of liquid effluents discharged into the sewer;
- Incidents of non-compliance with environmental laws and regulations;
- The amount of product of each company that can be recycled;
- The total environmental expenditure by type per annum;
- The amount of water used per annum;
- The amount of energy consumed per annum (oil, gas, electricity, coal);
- The amount of raw materials consumed per annum; and
- The significant impact of transport used for logistical purposes.

The majority of the community respondents supported non-verbal communication strategies rather than verbal strategies. The methods of communication that the community prefer, in descending order of preference, are:

- Newsletters
- Formal Environmental Reports
- Newspaper feature articles
- Letters to residents
- News releases
- Co-operative projects with the community
- Personal contact/interviews
- Surveys
- Sustainability agreements
- Posters displayed at local points, such as supermarkets
- Focus groups on a specific topic
- Product labels with environmental information
- Displays with environmental information manned by company employees at local points, such as supermarkets
- Guided tours with environmental focus
- Radio interviews
- Community-liaison groups
- Advertising
- Help desk
- Open-house/information days
- Presentation groups

- Websites
- Workshops/conferences
- Public meetings

The majority of the community-survey respondents did not consider art exhibitions, theatre presentations or community dinners as effective means to communicate environmental-performance information.

The community noted evidence of all the legitimization strategies that were contained in the survey. The strategy that the highest number of respondents identified was “the company avoids, trivializes, or skirts around the issue”. The second-most identified legitimization strategy was the company “denies or conceals information”. The community believes that the companies do not regard them, the local community, as being a legitimate stakeholder.

6.8.2. Company Survey

The analysis of the company survey results has indicated the following:

- There were 25 company respondents.
- The economic sectors in which the respondents are active include automotive products, agricultural products, buildings, furniture and transport.
- Nine respondents indicated that they had a communication strategy.
- Seven respondents have been certified ISO 14001:2004.

The majority of the company respondents do not believe that the local communities are legitimate stakeholders in the companies located in Markman Industrial Township. The companies also do not agree that the community have the power to affect the companies’

activities. The company respondents do, however, believe that the community has the right to demand environmental information.

The majority of the company respondents do not believe that they affect the environment in a substantial manner, although three out the seven ISO 14001:2004 respondents believed they did. The companies indicated that they prefer non-verbal communication strategies, and that the company should only provide the community with information regarding chemical spills.

The companies only views seven methods of communication as effective, namely co-operative projects, newsletters, focus groups, surveys, community-liaison groups, advertising and letters to residents. The companies indicated that their customers are the most important stakeholders. The company respondents ranked the community fifth out of the nine listed stakeholders. A number of companies indicated that they had implemented measures to reduce pollution.

6.8.3. Differences between the Community and Company-Respondent groups

There was a statistically significant difference in the responses of 43 out of the 53 questions that were common to both the community and company survey, which indicates that an expectations gap could exist between the two groups. The companies and the community differed on a number of issues – the most important being the majority of company respondents do not believe that the community members are legitimate stakeholders in their companies. The respondents differed on the types of information that the community needed and that the companies were prepared to provide.

The respondents both indicated a preference for non-verbal communication. The community believe three methods of environmental communication are ineffective, while the companies indicated that 19 methods would. The community and the company respondents differed in their response to the importance of various stakeholders. The majority of company respondents agreed that the community was not an important stakeholder.

6.8.4. Differences within the respondent groups

6.8.4.1. Differences within the community respondents

The owners of dwellings differed substantially on one question, where their viewpoint is different to the non-homeowners, and this relates to the importance of trade companies as a stakeholder in the company. The non-owners agreed that this stakeholder was important to the company, whereas the owners did not.

The community duration-of-residence test showed a statistically significant difference in a number of questions. Residents that had been living in the area for less than 12 months appeared to respond differently to those that had been in the area for longer, although the difference was mainly confined to the level of support for a particular option, and not to a different viewpoint. A majority of the residents who had been living in Bluewater Bay for longer than 60 months believed that they had seen evidence of companies denying or concealing certain activities.

Differences in home language resulted in 11 questions being answered statistically and significantly differently. The isiXhosa language group appears to have responded differently from the other language groups.

The statistically significant differences in the responses between the various sub-groups that made up the community respondents did not appear to have affected the overall validity of the community survey. This is based on the low number of statistically significantly different questions in each sub-group, as well as the nature of the responses, where the main difference was in the level of aggregate percentages, and not the underlying viewpoint.

6.8.4.2. Differences between the company respondents

The ISO 14001 certified companies agreed that the information on effluent, air emissions, chemical spills and hazardous waste should be made available to the public. The food and agriculture-related industries did not respond differently from the other industries that had participated in the company.

The size of the company was tested; and those that employ less than 50 people did not believe that they affected the environment. Companies employing more than 50 employees supported the use of guided tours as a method of communication.

The data indicate that it is unlikely that the intra-group differences among the company respondents would have negatively influenced the results.

6.8.5. Non-Response Bias

The non-response bias test of the company and the community surveys did not indicate that the non-response groups would have biased the study.

6.9. Summary and Conclusion regarding the Research Objectives

6.9.1. Summary and Conclusion

The number of community residents that participated in the survey was disappointing, since only 10% of the Bluewater Bay residents responded. However, it was shown in the literature review that a low response rate does not necessarily mean the results are biased (Sax, Gilmartin & Bryant 2003). The second community survey has shown that the low response rate was not a significant factor in the overall outcome.

The survey did provide a valuable insight into the community beliefs on environmental-performance reporting.

The following general conclusions can be made regarding the community survey:

- Research Objective 1A – The community respondents believed that the Markman Industrial Township companies are substantially affecting the environment.
- Research Objective 1B – The community respondents believed they were legitimate stakeholders in companies that could affect them.
- Research Objective 1C – The community also believed that they were a less-important stakeholder than the other company stakeholders.
- Research Objective 1D – The community survey showed that the respondents believed the Markman Industrial Township companies used various symbolic legitimization strategies. The community also believed that there is little evidence of substantive legitimization strategies.
- Research Objective 2A – The community respondents believed that all the information types that were presented to them in Part 2 of the questionnaire were applicable, and they want access to this information.

- Research Objective 2B – The community respondents prefer non-verbal communication, such as written communication methods. If verbal communication methods are to be used, they believe that personal contact and interviews would be the most effective.

The following general conclusions can be made regarding the company survey:

The company survey shows a 39% response rate. The company respondents believe that:

- Research Objective 1A – The majority of the company respondents did not believe that they substantially affect the environment. This includes four out of the seven ISO 14001 certified companies.
- Research Objective 1B – The majority of the company respondents did not believe that the community is a legitimate stakeholder in their company.
- Research Objective 1C – The majority of the company respondents believed that the community is a less-important stakeholder than other company stakeholders, as the community was ranked fifth out of nine stakeholders on mean score.
- Research Objective 2A – The majority of the company respondents stated that they were only willing to provide information on three of the eleven information types that were presented to them in Part 2.
- Research Objective 2B – The company respondents agreed with the majority of the community respondents that non-verbal communication methods are preferred. The company respondents only believed that seven out of the 26 methods of communication that were listed were effective.

6.9.2. Conclusion regarding the Research Objectives

There were a number of research problems that were tested to address the main research objectives in this study. Research Problem 1, the main problem, tests whether there is a

legitimacy gap between the community and the companies, and if there is, does an expectations gap exist between the companies and the community regarding the exchange of information? This was tested in Section 2 of the community and company questionnaire.

The inter-group analysis (community versus company survey) showed that there were statistically significantly different responses to all of the questions contained in Section 2. There is thus evidence of a possible expectations gap between the community and the companies in Markman Township on the exchange of environmental-performance information.

The second objective was to identify what type of environmental information the community desired, and what method of communication was preferred. The various types of information were tested in Section 2.7.1 to 2.7.11. The information that the respondents require included:

- Chemical spills
- Waste
- Effluents
- Legal non-compliance
- Air emissions
- Recycling efforts
- Environmental expenditure
- Environmental impact of transport
- Water use
- Energy consumption
- Raw material consumption

The study showed that non-verbal communication is preferred by both the community and the company. The field study presented 26 different methods, and the community supported 23 of the methods. Those methods that were non-verbal had higher mean scores, and were thus preferred.

The summary of the findings, the implications of the study, the areas for future research, and the limitations of the study will be discussed in Chapter 7.

CHAPTER 7 FINAL SUMMARY AND RECOMMENDATIONS

7.1. Introduction

The main research objective in this study was, firstly, to determine whether an expectations gap exists between an affected community and the companies that produce pollution; and secondly, what actions could be taken by the polluting companies to address the expectations gap. The expectations gap in the context of this study relates to the exchange of information between the community and the companies.

A sub-problem of the study was to determine whether the community believe they are legitimate stakeholders in the companies that affect them. The third sub-problem of the study was to determine what communication methods the community would prefer, in order to address the expectations gap.

In Chapter 2, a review of the literature was presented on the expectations gap, and the reasons for reporting environmental performance and corporate social disclosure. Chapter 2 also included a discussion on the frameworks for reporting environmental performance and the applicable South African environmental laws. In chapter 3 the background to the study was discussed, as well as the theoretical frameworks used in the study. The research design and method were discussed in Chapter 4; and the analysis of the data collected during the field survey was presented in Chapter 5 and 6.

In this chapter, an overall summary is presented of each of the aforementioned chapters; and a conclusion is reached on the research objectives. The implications of the study, areas for future research, and the limitations of the study are also discussed in this chapter 7.

7.2. Review of the Relevant Literature

The concept of an expectations gap between companies reporting environmental information and the users of the information has been established by a number of authors. The expectations gap can arise for several reasons, such as the accuracy of environmental information, differences in expectations on the performance level of the company, and the failure to care for the use of the information. The presentation of environmental information that is not structured to meet the user's needs, or is not relevant, could lead to an expectations gap.

The increased awareness among society of sustainability issues is a compelling reason for companies to act in an environmentally responsible manner.

The Stakeholder Theory posits that companies have fiduciary duties, as well as moral obligations towards various stakeholders. The Stakeholder Theory analyses how companies interact with their stakeholders, in order to secure resources and to ensure long-term viability. The identification of stakeholders is a complicated issue, as the community may believe they are stakeholders in an organization, whereas the company may not believe that they are.

This incongruence was tested in the empirical study. The study found that the companies of Markman Industrial Township, and the residents of Bluewater Bay, differed as to the importance of various company stakeholders.

The Legitimacy Theory explains how companies align themselves with the values, beliefs, definitions and norms of society. In order to achieve legitimacy, companies employ legitimization strategies to align their activities with society's expectations. The legitimization strategies are either substantive in nature, when the company adopts society's expectations, or symbolic, when the company changes or manipulates the values and norms of society.

7.3. Frameworks and Methods for Reporting Environmental Performance

The reporting of environmental information by companies has taken place in a milieu of vastly different standards and frameworks. These include four of the most widely accepted frameworks, namely: the PERI, CERES, UNEP-IE and GRI guidelines that provide a framework for reporting environmental performance. The ISO 14063:2006 communication guidelines were used to test the communication methods that the community prefers. ISO 14063:2006 identifies twenty-six methods that the company could use to communicate environmental performance.

In South Africa, there are two main drivers of corporate environmental reporting. These are, firstly, the King III Code of Corporate Governance; and secondly, the requirements of the Companies Act (2008). The King III Code is binding on all JSE-listed companies, as they either have to apply the principles or explain why they have not been applied (JSE 2013).

7.4. South African Environmental Law

South African environmental law was reviewed, firstly, to determine whether there was any obligation on the company to report environmental performance; and secondly, whether the

communities enjoyed any rights in respect of the environment in which they lived. The volume of environmental legislation has increased substantially since 1994. The legal definitions of the environment include the relationships between a company and a community. The South African Constitution has entrenched the rights of individuals to an environment that is not harmful to their health or wellbeing, and for the environment to be protected.

The main environmental legislation, besides the Constitution, that drives sound environmental practice and protects community rights is the NEMA, and to a lesser extent the ECA. The definition of the environment in both the aforementioned pieces of legislation is important to this study, as the actions of a company that influence or affect the local community, could infringe upon the community's right to an environment that is not harmful, according to Section 24 of the Constitution.

The current focus in South African environmental legislation is mostly "command and control". Eight pieces of environmental legislation were discussed that could have an impact on the area under study.

The State, by court action, can be compelled by the judiciary to take action against a polluter. The community can thus enjoy just administrative action if a regulatory authority is not performing its legislated duties. The community secured added rights in 2006 with respect to the public participation processes on new economic developments. The NEMA environmental impact assessment process has been enhanced to ensure that citizens have the right to comment on developments, and that their comments are taken seriously by the regulatory authority – when deciding if a new development should be approved.

7.5. Research Design

The research design in this study consisted of a field study using two questionnaires. After the data were collected, statistical analysis was performed to compare the two sample groups. The two sample groups were the residents of Bluewater Bay and the companies in Markman Industrial Township.

The questions relating to the frameworks for reporting environmental information were based on the GRI guidelines. The communication-method questions were based on ISO 14063:20064. The questionnaire used a five-point Likert scale, as well as two sections with a yes/no choice. The survey population consisted of 1514 households for the community survey and 66 organizations. The response rate was 10% for the community, and 39% for the companies.

7.6. Analysis of the Results

7.6.1. Community Survey

A total of 153 survey questionnaires were returned by the community. The duration of residence in Bluewater Bay ranged from two months to 850 months. The data showed that 94.8% of the residents indicated that they owned their dwelling. The respondents were mainly English (59.5%) and Afrikaans (25.5%) speaking; while isiXhosa (7.2%) and other languages (5.9%) made up the balance.

The results of the community survey indicated that the majority of the community residents (61.4%) regard themselves as legitimate stakeholders in the Markman Township

organizations. A higher percentage (93.4%) believes that an ongoing dialogue should take place between themselves and the organizations. The community believe that they have the right to demand environmental-performance information from the organizations. This, in effect, makes them stakeholders in the organizations. The community believe that the companies in Markman Township can affect the environment; but only a small majority believed they have the power to affect the actions of the Markman Township organizations.

The community indicated that they required information on all the types of environmental information that were presented in the questionnaire. The five types that had the most support were:

- The amount and type of chemical spills emanating from each organization.
- The amount and type of hazardous and non-hazardous waste generated.
- The amount and type of air emissions from each organization.
- The amount and type of liquid effluent discharged into the sewer.
- Incidents of non-compliance with environmental laws and regulations.

The above types of information relate to physical pollution and regulatory compliance.

The community indicated a preference for non-verbal communication methods; and this was supported by the responses to 26 communication methods that were tested. The reason for the preference for non-verbal communication is possibly that a written record is kept of the communication, and that non-verbal communication could be construed as being less confrontational than verbal communication. The five most-favoured communication methods are:

- Newsletters,

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- Formal environmental reports,
 - Newspaper-feature articles,
 - Letters to residents, and
 - News releases.

The community indicated that they had identified the use by the companies of all of the legitimation strategies that Dowling and Pfeffer (1975), Lindblom (1993), Suchman (1995), Ashforth and Gibbs (1990) and Savage (1998) had developed. A majority of the residents (61.4%) identified that the companies “*avoid, trivialize, or do not address the issue*” with respect to environmental matters. The following legitimation strategies were identified by more than 30% of the respondents:

- Denial and concealment – activities that are not legitimate are frequently denied or concealed.
- Misrepresentation or open to misrepresentation – supplying ambiguous information that is misleading, or open to misrepresentation.
- Offering accounts – the company offers excuses for its actions, so that its legitimacy is not affected.
- Offer trivial or partial information, and do not address environmental problems.

The community perceives itself to be the least-important stakeholder from the company’s point of view. A company would need to overcome this viewpoint if it wishes to have any success in dealing with the community on environmental matters.

7.6.2. Company Survey

There were 26 Markman Township companies that took part in the survey. The responses indicated that 34.6% of the companies claimed to have a communication strategy, although no detail was declared on what the strategy consisted of. This author feels that this question may have been misinterpreted by the respondents, as the nature of the responses to other questions that were posed indicates that communication with communities is not a high priority for most of the respondents. Seven of the respondents were certified ISO 14001:2004; and thus they should have, at least, a procedure on internal and external communication. It is the opinion of this author, based on his experience from implementing and auditing ISO 14001 management systems, that the communication procedures developed by companies are mostly rudimentary, and that the procedures deal mostly with the internal process to follow when a complaint or a regulatory directive is received.

The survey responses show that only 11.5% of the company respondents view the community as a legitimate stakeholder in the organization. This included one ISO 14001 certified organization. This statistic is most important for this study, as it forms the basis of an expectations gap between the company and the community. A minority of company respondents (26.9%) indicated that they believed in an ongoing dialogue with the community. Eight of the larger companies (50 or more employees) believed they affected the environment in a substantial manner; while overall, only 30.8% of the respondents shared this view.

A small minority (19.2%) of the respondents felt they could be affected by the actions of the community. There were only two companies that indicated the community had urgent environmental issues on the activities of the Markman Township organizations.

The company responses indicated that half the respondents (13) would share information with the community on chemical spills, types of waste and liquid effluent. Twelve respondents would only share information on incidents of regulatory non-compliance. Eleven respondents would share information on air emissions; and ten respondents would share recycling information. The majority of the respondents would not share information on water use, the amount of energy used, the environmental impact on the use of transport, the use of raw material, and environmental expenditure.

The companies prefer non-verbal communication methods. The communication methods that the majority of companies believed were either effective or very effective included:

- Co-operative projects with the community,
- Newsletters,
- Focus groups on a specific topic,
- Surveys, and
- Advertising

The companies ranked public participation meetings 19th out of 26 methods of communicating environmental information.

The survey responses showed that the companies had implemented substantive measures to reduce pollution.

7.6.3. Differences between the Respondent Groups

Statistical tests indicated that of the 53 common questions, 35 questions had statistically different responses ($p\text{-value} < 0.05$). These differences are consistent with the existence of

an expectations gap on corporate environmental disclosures between companies and local residents. This expectations gap is evident for the types of information needed, and the methods of communication.

7.6.4. Differences within the Respondent Groups

There were statistically significant differences in the responses within the community respondents – between those residents that owned homes and those that did not; those residents that had lived in the area for different durations, and those residents that spoke different home languages. The parts of the survey where differences occurred could be explained in most cases, as the aggregate responses indicated that on most questions there was a high level of disagreement, or agreement, by both respondent groups.

The author is of the opinion that these differences would not significantly affect the overall results of the survey.

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There were statistically significant differences in the responses within the company respondents: between the ISO 14001-certified companies and those companies that were not certified; companies that employed more than 50 people, and those who employed less than 50; and companies in the food and agricultural products industries, and those in other industries. The main differences were in the aggregate levels of agreement or disagreement. These differences should not affect the overall results of the survey.

7.6.5. Non-Response Bias

A non-response bias test was conducted on the data, using the statistical tests. The tests and procedures performed suggest that there is a low probability that a non-response bias

is present in the results. It may be concluded that the responses are representative of the community group and the company group.

7.7. Implications of the Study

There are several implications of the study. These are discussed in turn.

7.7.1. Theoretical Implications

The results of the study offer support for the notion that a legitimacy gap, as investigated in Research Objective 1A, can occur when companies affect the natural environment of local communities (O'Donovan 2002; Suchman 1995; Ashforth & Gibbs 1990 and Samson & Schneider 2010). Similarly, the results of Research Objective 1B and 1C support Stakeholder Theory. The community see themselves as stakeholders in the companies, as they could be affected by the companies' actions (Humber 2002).

The results also support Research Objective 2, which tested whether an expectations gap can occur when companies do not disclose the quantity or type of CSR performance information that communities require. This is notwithstanding the fact that companies may choose not to disclose any information they possess. The findings highlight the necessity for companies to take cognisance of the environmental needs of local communities. This is especially important where communities have the legal power (through legislated public participation processes) to influence regulators that issue permits and licences that enable the companies to operate. The community influence on the regulators may thus threaten the company's overall legal legitimacy, and their ultimate survival, as described by Samson & Schneider (2010).

7.7.2. Practical Implications for Companies

The main practical implication of this study for companies is that it has highlighted a gap in expectations between the level of company-environmental performance that communities perceive, and what they expect. If the gap gets too big, then the overall legitimacy of the company could be threatened. In order to address the expectations gap, and to improve community relations, it is recommended that companies improve their environmental performance and their environmental-communications strategies. There are a number of strategies that companies may wish to consider:

- a) Recognise that all companies, no matter how small, affect the environment in some way; and they may be called to account by local communities who may have *locus standi* in terms of legislation.
- b) Recognise that local communities are legitimate stakeholders in the company, and that they have a constitutional right to an environment that is not harmful to their wellbeing as enshrined in Section 24 of the South African Constitution (South Africa 1996: s24).
- c) Consider implementing an environmental-management system to improve environmental performance such as ISO 14001:2004. The benefits of a formal system may have internal economic benefits, as it is likely that resources would be conserved, and pollution prevented or mitigated. The external benefits are that communities would see evidence of a substantive change in the organization's behaviour.
- d) Develop a communication strategy that is based on the sharing of relevant information, on an ongoing basis, and not only during crises, or when complaints are received as described in ISO 14063:2006.
- e) Include more non-verbal communication methods as a means to convey environmental-performance information. The communication methods contained in the strategy would thus include a number of the methods contained in ISO 14063:2006.

- f) Provide information on all the applicable types of information contained in the GRI framework; and most importantly, implement systems to improve on the environmental performance of the information parameters that are reported on.
- g) Communicate openly with all the stakeholders. This need is evident from the comments some of the respondents made (See Appendix 11 and 13).

The above strategies could assist the company in partnering with the community in protecting the environment for the benefit of all species, humans included.

7.7.3. Implications for Communities

The implications for communities are, that in order to ensure that environmental issues that affect them are addressed they would need to increase their profile within the social system, and ensure that their legal rights are addressed. The following strategies are suggested for communities that feel their neighbourhoods are being polluted by companies:

- a) Communities may consider using the media and local political structures, in order to increase their public profile and their ability to influence corporate decisions related to the environment. The more powerful they appear to a company, the more important they will be viewed as a stakeholder, and in turn, the more substantive changes they could demand from the company.
- b) Communities may recognise that companies prefer to use symbolic legitimization strategies. The goal of the community is to put pressure on companies to make substantive changes, and then to ensure that these changes are implemented and maintained.
- c) Communities could also use the NEMA to ensure that legally binding agreements can be reached with regulators, and companies, in order to improve their environment. It is

important that part of this agreement be the regular reporting on environmental performance.

7.7.4. Implications for Regulators

The implication of this study for regulators is that, in addition to the importance placed on verbal communication methods in the law (such as public meetings), there are many other effective communication methods available, some of them preferred by local communities. Furthermore, the public reporting of environmental performance is important for communities to determine whether their environmental rights are being affected. If a regulator issues a licence or a permit to a company, one of the conditions may be the reporting of the environmental performance to the regulator, as well as to the public.

7.7.5. Implications for Investors

The implications for investors are that companies may have to make substantive changes to their operations if they affect local communities. These changes may involve investments in the company that might reduce the short-term profits. These changes could be brought about by public pressure or regulatory directives. The investments may, however, increase company legitimacy, and ultimately the long-term survival of the company. It is in the best interests of the investors to ensure that the company management take responsibility for their environmental performance, to ensure a long-term return on their investments.

7.7.6. Implications for Lenders

The implication for lenders is that a company's ability to repay long-term debt may be threatened if they affect local communities to a point where the company's long-term

survival is in question. It may thus be prudent for lenders to seek information on the company's environmental performance.

7.8. Contributions

This study has contributed to the social and environmental accounting in a number of ways. Firstly, the study has provided evidence that a substantial gap in expectations, as suggested in the Legitimacy Theory, can occur. Secondly, in terms of the Stakeholder Theory, the community see themselves as less salient than other stakeholders, which has further contributed to the expectations gap. Thirdly, community preferences for the list of communication methods, as described in ISO 14063:2006, have been tested. These preferences may have a wider use than just in a South African context, as ISO 14063:2006 is an international standard. This research thus has important implications for companies that wish to engage with communities, as well as regulators that generate public participation laws. Regulators may wish to legislate a number of the communication methods contained in ISO 14063:2006 or alternatively include these methods into the licences and permits that they issue to companies. Fourthly, the type of information that communities require when they perceive that their environment is being affected has been presented. In conclusion, this study has provided evidence that there could be measurable differences between the environmental ethos³² of companies and communities. The study also suggests that companies may have to go beyond the legislated requirements of public participation (i.e. public meetings and newspaper adverts) when communicating with communities.

³² Environmental ethos in this context is a term described by Solomon and Lewis (2002:155) to indicate a change in society's ethics that has led to an increase in environmental awareness.

7.9. Recommendations for future Research

The following areas of future research are suggested:

- a) The notion of community power could be examined with a particular focus on the methods the community employs to increase their ability to influence decisions on environmental issues.
- b) If a company finds itself in a similar situation where it is currently polluting a community and wishes to improve its environmental performance, it may consider the strategies that are recommended in Section 6.7.1, as well as to conduct a pre- and post-intervention study to determine whether the strategies are effective, or not.
- c) Investigate the effect that culture has on the methods of communication in different areas where one particular culture is dominant. This should increase our understanding of the strategies that could be employed to suit different cultures.
- d) Conduct ambient-air monitoring in the Bluewater Bay Area, as well as Motherwell and Wells Estate to quantify the levels of pollutants to which the residents are exposed. At present, one monitoring station is owned by the Coega Development Corporation in Motherwell; but this is only to measure background levels for future industries in the Coega Industrial Development Zone, which is to the east of Markman Township. It is not measuring the level of hydrogen sulphide, which is the biggest air-quality complaint in this area. The public disclosure of the monitoring results would enable the community to monitor the company's environmental performance. This would allow the community and the companies to engage in an open discussion when pollution events occur. Companies would then have data to motivate their investors to make substantive changes, thereby increasing their legitimacy and addressing the expectations gap.
- e) The introduction of the most recent GRI G4 reporting framework is an area for future research. The disclosure of environmental performance information to communities

using the G4 version could be tested to determine if communities accept this format of disclosure.

7.10. Limitations of the Study

The limitations of the study include the following:

- The small sample size of both the Bluewater Bay community and the Markman Industrial Township company surveys may be seen as a limitation. However, I have shown that my two respondent groups may be regarded as representative of the community and of the companies.
- The inclusion of ordinal data that necessitated the use of non-parametric statistical tests. The non-parametric tests that were used in the study are widely utilised among researchers, and are appropriate to this study.
- The length of time between the first survey and the second survey. However, the tests for statistically significant differences did not indicate that the gap in the surveys would have influenced the overall results.
- The recent rapid rise in social media communication methods that would have been included as a communication method to be tested, had this method been available at the time of the survey. There were, however, electronic-communication methods that were included in the study.
- The demographic changes that could have occurred in Bluewater Bay since the first study. The changes might indicate that more isiXhosa speakers are now living in the area. However, the tests for statistically significant differences among different languages groups in this study did not indicate that different languages influenced the overall result in any significant way.

- The lack of interviews among the respondents could be seen as a limitation, although the respondents were given the opportunity to submit comments when returning their questionnaires. The comments received are included in Appendices 11 and 13.
- The study results could also be affected by the fact that the respondents may overstate the importance of information they do not have to pay for.
- The sensitivity of some of the pollution issues could have resulted in some company respondents understating the importance of some of the issues. These responses could thus have been strategic, rather than a true reflection of the respondents views.

Notwithstanding these limitations, it is suggested that the study still provides valuable insights and recommendations for companies and communities in similar situations in South Africa.

7.11. Final Conclusion

The results of the study show that there is evidence of an expectations gap on environmental-performance information between the companies in Markman Township and the residents of Bluewater Bay. The community believe that the companies in Markman Industrial Township are affecting the environment and that the community is a legitimate stakeholder that should be taken into account when decisions are made on environmental matters. The community members require information on the chemical spills, hazardous and non-hazardous waste generated, air emissions, effluent generation and incidents of non-compliance with environmental laws and regulations. The community preferred non-verbal

means of communication (such as co-operative; newsletters; focus groups; surveys and advertising), over verbal communication.

Companies should take heed that most communities value their environment. Lastly, companies are increasingly being held accountable to the communities, even though the company impact on the environment may not always be visibly evident.

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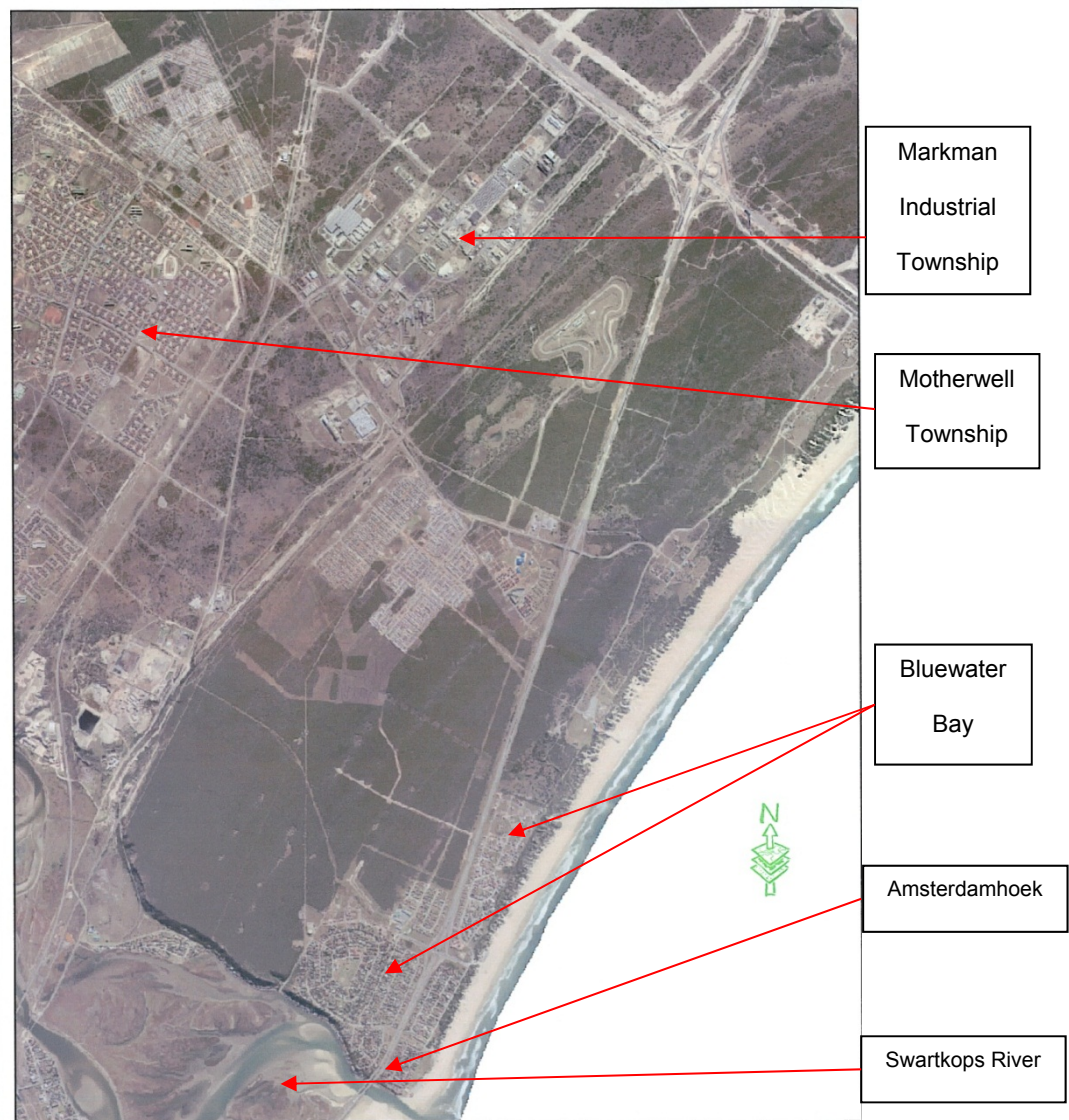
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Appendix 1 – Aerial Photograph of Study Area

(Nelson Mandela Metropolitan Municipality 2007)



Appendix 2 – KING III Report – Principles of Governance (Principles 8&9)

Governance Element	Principles	Recommended Practice
8. Governing stakeholder relationships		
	8.1. The board should appreciate that stakeholders' perceptions affect a company's reputation.	8.1.1. The gap between stakeholder perceptions and the performance of the company should be managed and measured to enhance or protect the company's reputation 8.1.2. The company's reputation and its linkage with stakeholder relationships should be a regular board agenda item. 8.1.3. The board should identify important stakeholder groupings.
	8.2. The board should delegate to management to proactively deal with stakeholder relationships	8.2.1. Management should develop a strategy and formulate policies for the management of relationships with each stakeholder grouping. 8.2.2. The board should consider whether it is appropriate to publish its stakeholder policies 8.2.3. The board should oversee the establishment of mechanisms and processes that support stakeholders in constructive engagement with the company. 8.2.4. The board should encourage shareholders to attend AGM's. 8.2.5. The board should consider not only formal, but also informal, processes for interaction with the company's stakeholders. 8.2.6. The board should disclose in its integrated report the nature of the company's dealings with stakeholders and the outcomes of these dealings.
	8.3. The board should strive to achieve the appropriate balance between its various stakeholder groupings, in the best interests of the company	8.3.1. The board should take account of the legitimate interests and expectations of its stakeholders in its decision-making in the best interests of the company.
	8.4. Companies should ensure the equitable treatment of shareholders	8.4.1. There must be equitable treatment of all holders of the same class of shares issued. 8.4.2. The board should ensure that minority shareholders are protected.

Governance Element	Principles	Recommended Practice
	8.5. Transparent and effective communication with stakeholders is essential for building and maintaining their trust and confidence	8.5.1. Complete, timely, relevant, accurate, honest and accessible information should be provided by the company to its stakeholders whilst having regard to legal and strategic considerations. 8.5.2. Communication with stakeholders should be in clear and understandable language. 8.5.3. The board should adopt communication guidelines that support a responsible communication programme. 8.5.4. The board should consider disclosing in the integrated report the number and reasons for refusals of requests of information that were lodged with the company in terms of the Promotion of Access to Information Act, 2000.
	8.6. The board should ensure that disputes are resolved as effectively, efficiently and expeditiously as possible	8.6.1. The board should adopt formal dispute resolution processes for internal and external disputes. 8.6.2. The board should select the appropriate individuals to represent the company in ADR.
9. Integrated reporting and disclosure		
Transparency and accountability	9.1. The board should ensure the integrity of the company's integrated report	9.1.1. A company should have controls to enable it to verify and safeguard the integrity of its integrated report. 9.1.2. The board should delegate to the audit committee to evaluate sustainability disclosures. The integrated report should: 9.1.3. be prepared every year; 9.1.4. convey adequate information regarding the company's financial and sustainability performance; and 9.1.5. focus on substance over form.
	9.2. Sustainability reporting and disclosure should be integrated with the company's financial reporting	9.2.1. The board should include commentary on the company's financial results. 9.2.2. The board must disclose if the company is a going concern. 9.2.3. The integrated report should describe how the company has made its money. 9.2.4. The board should ensure that the positive and negative impacts of the company's operations and plans to improve the positives and eradicate or ameliorate the negatives in the financial year ahead are conveyed in the integrated report.

Governance Element	Principles	Recommended Practice
	9.3. Sustainability reporting and disclosure should be independently assured	9.3.1. General oversight and reporting of sustainability should be delegated by the board to the audit committee. 9.3.2. The audit committee should assist the board by reviewing the integrated report to ensure that the information contained in it is reliable and that it does not contradict the financial aspects of the report. 9.3.3. The audit committee should oversee the provision of assurance over sustainability issues.

Appendix 3 – A Selection of "Expectations Gap" Articles Found in Accounting Literature

Article Title	Author(s)	Source	Year	Refers to:
Corporate Reporting: Science or Art....ful?	Steele	De Ratione Vol. 5	1991	Accounting's obligation to create and sustain investor confidence
The Audit Expectations Gap in the United Kingdom.	Humphrey, Moizer & Turley	ICAEW	1992	Research regarding audit expectations
The Accountants' Precarious Perch	Abbott	The Practical Accountant Vol. 27	1994	Auditing and financial statements
A Lesson In How To Raise Expectations	Singleton-Green	Accountancy Vol. 114	1994a	Auditing standards
Investor Views of Audit Assurance: Recent Evidence Of The Expectations Gap	Epstein & Geiger	Journal of Accountancy Vol. 177	1994	Auditors versus investors
In The Public Interest – Is It Enough?	Knutson	The CPA Journal Vol. 64	1994	Audit reports versus fraud detection
The Audit Expectations Gap Found In The Republic Of South Africa	Singleton-Green	Accountancy Vol. 113	1994b	Comment on research conducted in South Africa regarding the expectations gap in auditing
The Audit Expectation Gap In The Republic Of South Africa.	Gloeck & De Jager	University of Pretoria School of Accountancy.	1993	Comment on research conducted in South Africa regarding the expectations gap in auditing
Perception vs Reality	Chenok	Journal of Accountancy Vol. 177	1994	Audit failures versus public expectations
The Way Out of The Wilderness – Narrowing The Audit Expectation Gap.	Gloeck	University of Pretoria School of Accountancy.	1995	Address to an Audit Organisations summer school
On The Edge of an Unbridgeable Gap	Singleton-Green	Accountancy Vol. 115	1995	Audit reports and fraud detection
A user perspective on 'making corporate reports valuable'	Berry & Waring	The British Accounting Review	1995	Creating more meaningful reports for the reader
Report: Beyond The Gap	Parker & Reilly	Australian Accountant Vol. 66	1996	Recommendations to close the expectations gap between issuers and users of financial reports
The Materiality of Environmental Information to Users of Annual Reports	Deegan & Rankin	Accounting, Auditing & Accountability Journal Vol. 10	1997	Environmental reporting

Article Title	Author(s)	Source	Year	Refers to:
Do Australian Companies Report Environmental News Objectively? An Analysis Of Environmental Disclosures By Firms Prosecuted Successfully By The Environment Protection Authority	Deegan & Rankin	Accounting, Auditing & Accountability Journal. Vol. 9	1996	Environmental reporting
Bridging The Expectations Gap – On Shaky Foundations	Sweeney	Accountancy Ireland Vol. 29	1997	Users' expectations of audit information
Expectations Gap In Internal Audit Thriving	Anonymous	Accountancy Vol. 119	1997	Internal audits and auditor advice versus fraud detection
The impossibility of eliminating the expectations gap: some theory and evidence	Sikka, Puxty, Willmott & Cooper	Critical Perspectives on Accounting Vol 9	1998	Users' expectations of audit information
The Environmental Reporting Gap: Australian Evidence	Deegan & Rankin	British Accounting Review Vol. 31	1999	Environmental performance reporting
SA Industry Faces Gap On Environmental Issues	KPMG	KPMG Virtual Library	2000	Environmental performance reporting
Bridging The Gap	Tibergien	Journal of Financial Planning	2001	Financial planning expectations
Closing The Expectations Gap	Colby & Holl	The Practical Accountant	2001	Using client engagement letters to close the expectations gap

Appendix 4 – GRI Performance Indicators

ENVIRONMENTAL PERFORMANCE INDICATORS

Materials

EN 1. Weight of materials used.

EN 2. Percentage of materials used that are recycled.

EN3. Direct energy consumption broken down by primary energy source.

Energy

EN4. Indirect energy consumption broken down by primary source.

EN5. Percentage of total energy consumption met by renewable resources.

EN6. Total energy saved due to conservation and efficiency improvements.

EN7. Initiatives to provide energy-efficient products and services.

EN8. Initiatives to reduce indirect energy consumption.

EN10. Water sources and related habitats significantly affected by withdrawal of water.

Water

EN9. Total water withdrawal by source.

EN11. Percentage and total volume of water recycled and reused.

EN12. Location and size of land owned, leased, or managed in, or adjacent to, protected areas.

Biodiversity

EN13. Description of significant impacts of activities on protected

EN14. Area of habitats protected or restored.

EN15. Programmes for managing impacts on biodiversity.

EN16. Number of IUCN Red List species with habitats in areas affected by operations broken down by level of extinction risk.

Emissions, Effluents and Waste

EN17. Greenhouse gas emissions.

EN18. Emissions of ozone-depleting substances.

EN19. NO_x, SO_x, and other significant air emissions by weight.

EN20. Total amount of waste by type and destination.

EN21. Total water discharge and quality.

EN22. Total number and volume of significant spills.

EN23. Other relevant indirect greenhouse gas emissions.

EN24. Weight of transported, imported, or exported waste deemed hazardous under the terms of the Basel Convention Annex I, II, III and VIII.

EN25. Water sources and related habitats significantly affected by discharges of water and runoff.

EN26. Initiatives to manage the environmental impacts of products and services and extent of impact reduction.

Products and Services

EN27. Percentage of products sold that is reclaimed at the end of the products' useful life by product category.

Compliance

EN28. Incidents of, and fines, or non-monetary sanctions for, non-compliance with applicable environmental regulations.

Transport

EN29. Significant environmental impacts of transportation used for logistical purposes.

Overall

EN30. Total environmental protection expenditures by type.

SOCIETY-PERFORMANCE INDICATORS

Community

SO1. Programmes and practices for assessing and managing the impacts of operations on communities, including entering, operating and exiting.

SO2. Extent of training and risk analysis to prevent corruption.

Corruption

SO3. Actions taken in response to instances of corruption.

Public Policy

SO4. Participation in public policy development and lobbying.

SO5. Total value of contributions to political parties or related institutions broken down by country.

Anti-Competitive Behaviour

SO6. Instances of legal actions for anti-competitive behaviour, anti-trust, and monopoly practices and their outcomes.

PERFORMANCE INDICATORS – ECONOMIC

Economic Performance

EC1. Economic value generated and distributed, including revenues, operating costs, employee compensation, donations, and other community investments, retained earnings, and payments to capital providers and to governments.

EC2. Financial implications of climate change.

EC3. Coverage of the organization's defined benefit pension plan obligations.

EC4. Financial assistance received from government.

EC5. Entry level wage compared to local minimum wage for significant locations of operation.

EC6. Practices and proportion of spending on locally based suppliers at significant locations of operation.

Market Presence

EC7. Procedures for local hiring, and proportion of senior management in locations of significant operation from the local community.

Indirect Economic Impacts

EC8. Description of infrastructure investments and services supported that provide public benefit.

EC9. Indirect economic impacts.

PERFORMANCE INDICATORS – HUMAN RIGHTS

Management Practices

HR1. Percentage of significant investment agreements that include human rights clauses or that underwent human-rights screening.

HR2. Percentage of major suppliers and contractors that underwent screening on human rights.

HR3. Type of employee training on policies and procedures concerning aspects of human rights relevant to operations, including the number of employees trained.

Non-discrimination

HR4. Incidents of discrimination.

Freedom of Association

HR5. Incidents of violations of freedom of association and collective bargaining.

Child Labour

HR6. Incidents of child labour.

Forced and Compulsory Labour

HR7. Incidents of forced or compulsory labour.

Disciplinary Practices

HR8. Procedures for complaints and grievances filed by customers, employees, and communities concerning human rights, including provisions for non-retaliation.

Security Practices

HR9. Percentage of security personnel trained in organization's policies or procedures regarding human rights.

Indigenous Rights

HR10. Incidents involving rights of indigenous people

PERFORMANCE INDICATORS – LABOUR

Employment

LA1. Breakdown of total workforce by employment type and by region.

LA2. Total number and rate of employee turnover broken down by age group and gender.

LA3. Minimum benefits provided to full-time employees, which are not provided to temporary or part-time employees.

LA4. Percentage of employees represented by independent trade union organisations or covered by collective-bargaining agreements.

Labour/ Management Relations

LA5. Minimum notice period(s) and consultation and negotiation practices with employees and/or their representatives regarding operational changes.

LA6. Percentage of workforce represented in formal joint management of worker health and safety committees that help monitor and advise on occupational health and safety programmes.

LA7. Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities.

Occupational Health and Safety

LA8. Education, training, counselling, prevention and risk-control programmes in place for assisting workforce members, their families or community members affected by HIV/AIDS or other serious communicable diseases.

LA9. Elements of occupational health and safety management approach.

LA10.

Health and safety topics covered in formal agreements with trade unions.

Training and Education

LA11. Average hours of training per year per employee broken down by employee category.

LA12. Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings.

LA13. Percentage of employees receiving regular performance and career development review.

Diversity and Equal Opportunity

LA14. Composition of governance bodies' and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity.

LA15. Ratio of average remuneration of men and women broken down by employee category.

PERFORMANCE INDICATORS – PRODUCT RESPONSIBILITY

Customer Health and Safety

PR1. Procedures for improving health and safety across the life cycle of products and services.

PR2. Number and type of instances of non-compliance with regulations concerning health and safety effects of products and services.

PR4. Number and type of instances of non-compliance with regulations concerning product and service information and labelling.

Product and Service Labelling

PR3. Procedures for product and service information and labelling.

PR5. Procedures related to customer satisfaction, including results of surveys measuring customer satisfaction.

Marketing Communications

PR6. Procedures and programmes for adherence to laws, standards, and voluntary codes related to marketing communications including advertising, promotion, and sponsorship.

PR7. Number and type of instances of non-compliance with regulations concerning marketing communication, including advertising, promotion, and sponsorship.

Customer Privacy

PR8. Percentage of customer data covered by the data protection procedures.

PR9. Number of substantiated complaints regarding breaches of customer privacy.

Appendix 5 – Input, Output Factors and Environmental Effects

(Lehni 1998:3)

Input factors	Output factors
Energy • Fossil • Nuclear • Renewable Fresh water • Process • Cooling • Sanitary Materials • Hazardous • Non-hazardous • Scarce • Renewable	Air emissions • Carbon dioxide • Sulphur dioxide • Oxides of nitrogen • volatile organic compounds • CFC Water emissions • Biological oxygen demand • Chemical oxygen demand • AOX • Metals Wastes • Hazardous • Non-hazardous
Effects / Burden	
<i>Global warming</i> <i>Ozone depletion</i> <i>Smog</i> <i>Acid rain</i> <i>Eutrophication</i> <i>Human-toxicity</i> <i>Eco-toxicity</i> <i>etc.</i>	

Appendix 6 – ISO/DIS 14063:2006 Communication Methods

Written Communication

- Websites
- Environmental Reports
- Newsletters
- Product labels
- Posters
- Displays
- Letters
- Newspaper feature articles
- News releases
- Advertising

Verbal Communication

- Public meetings
- Personal contact / interviews
- Focus groups
- Surveys
- Open house / information days
- Guided tours with environmental focus
- Workshops / conferences
- Radio interviews
- Community liaison groups
- Help desk
- Presentation groups
- IAP dinners
- Theatre presentations

Other Means

- Co-operative projects
- Sustainability agreements
- Art exhibitions

Appendix 7 – Selection of South African HSE Law as at 28 February 2013

Extract From Butterworths Health, Safety and Environmental Law Library.

	Title	Act No & Year
1.	Sea-shore Act	21 of 1935
2.	Advertising on Roads and Ribbon Development Act	21 of 1940
3.	Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act	36 of 1947
4.	Merchant Shipping Act	57 of 1951
5.	Animals Protection Act	71 of 1962
6.	Aviation Act	74 of 1962
7.	Atmospheric Pollution Prevention Act (Repealed)	45 of 1965
8.	Medicines and Related-Substances Control Act	101 of 1965
9.	Physical Planning Act	88 of 1967
10.	Mountain-Catchment Areas Act	63 of 1970
11.	Foodstuffs, Cosmetics and Disinfectants Act	54 of 1972
12.	Bophuthatswana Nature Conservation Act	3 of 1973
13.	Hazardous Substances Act	15 of 1973
14.	Sea Birds and Seals Protection Act	46 of 1973
15.	Occupational Diseases in Mines and Works Act	78 of 1973
16.	International Health Regulations Act	28 of 1974
17.	Lake Areas Development Act [Repealed]	39 of 1975
18.	QwaQwa Nature Conservation Act	5 of 1976
19.	Plant Breeders' Rights Act	15 of 1976
20.	Plant Improvement Act	53 of 1976
21.	National Parks Act	57 of 1976
22.	Health Act	63 of 1977
23.	National Building Regulations and Building Standards Act	103 of 1977
24.	Dumping at Sea Control Act	73 of 1980
25.	Marine Traffic Act	2 of 1981

	Title	Act No & Year
26.	Marine Pollution (Control and Civil Liability) Act	6 of 1981
27.	Bophuthatswana Prevention and Control of Littering Act	16 of 1981
28.	Agricultural Pests Act	36 of 1983
29.	Conservation of Agricultural Resources Act	43 of 1983
30.	Marine Pollution (Prevention of Pollution from Ships) Act	2 of 1986
31.	Ciskei Animals Protection Act	20 of 1986
32.	KwaZulu Animal Protection Act	4 of 1987
33.	Ciskei Nature Conservation Act	10 of 1987
34.	Bophuthatswana Protected Areas Act	24 of 1987
35.	Electricity Act	41 of 1987
36.	Marine Pollution (Intervention) Act	64 of 1987
37.	Sea Fishery Act	12 of 1988
38.	Environment Conservation Act	73 of 1989
39.	Minerals Act [Repealed]	50 of 1991
40.	Game Theft Act	105 of 1991
41.	Physical Planning Act	125 of 1991
42.	KwaZulu Nature Conservation Act	29 of 1992
43.	Management of State Forests Act	128 of 1992
44.	Tobacco Products Control Act	83 of 1993
45.	Occupational Health and Safety Act	85 of 1993
46.	Compensation for Occupational Injuries and Diseases Act	130 of 1993
47.	Local Government Transition Act	209 of 1993
48.	Maritime Zones Act	15 of 1994
49.	North West Tourism Council Act	7 of 1995
50.	Eastern Cape Tourism Board Act	9 of 1995
51.	Labour Relations Act	66 of 1995
52.	Development Facilitation Act	67 of 1995
53.	Gauteng Land Administration Act	11 of 1996
54.	Mine Health and Safety Act	29 of 1996

	Title	Act No & Year
55.	Antarctic Treaties Act	60 of 1996
56.	National Road Traffic Act	93 of 1996
57.	Wreck and Salvage Act	94 of 1996
58.	Environment Conservation Act, Extension Act	100 of 1996
59.	Constitution of the Republic of South Africa Act	108 of 1996
60.	KwaZulu-Natal Nature Conservation Management Act	9 of 1997
61.	Genetically Modified Organisms Act	15 of 1997
62.	Environmental Laws Rationalisation Act	51 of 1997
63.	Basic Conditions of Employment Act	75 of 1997
64.	Water Services Act	108 of 1997
65.	Free State Land Administration Act	1 of 1998
66.	Western Cape Constitution, Act	1 of 1998
67.	KwaZulu-Natal Planning and Development Act	5 of 1998
68.	Mpumalanga Land Administration Act	5 of 1998
69.	Western Cape Land Administration Act	6 of 1998
70.	Mpumalanga Nature Conservation Act	10 of 1998
71.	Marine Living Resources Act	18 of 1998
72.	National Water Act	36 of 1998
73.	Animal Improvement Act	62 of 1998
74.	National Forests Act	84 of 1998
75.	National Veld and Forest Fire Act	101 of 1998
76.	National Environmental Management Act	107 of 1998
77.	Local Government: Municipal Structures Act	117 of 1998
78.	Western Cape Planning and Development Act	7 of 1999
79.	National Heritage Council Act	11 of 1999
80.	National Heritage Resources Act	25 of 1999
81.	Nuclear Energy Act	46 of 1999
82.	National Nuclear Energy Regulator Act	47 of 1999
83.	World Heritage Convention Act	49 of 1999

	Title	Act No & Year
84.	Promotion of Access to Information Act	2 of 2000
85.	Promotion of Administrative Justice Act	3 of 2000
86.	KwaZulu-Natal Health Act	4 of 2000
87.	Mineral and Petroleum Resources Development Act	28 of 2002
88.	Disaster Management Act	57 of 2002
89.	National Environmental Management: Protected Areas Act	57 of 2003
90.	National Health Act	61 of 2003
91.	National Environmental Management: Biodiversity Act	10 of 2004
92.	Water services <u>Amendment</u> Act	30 of 2004
93.	National Environmental Management: Protected Areas <u>Amendment</u> Act	31 of 2004
94.	National Environmental Management: Air Quality Act	39 of 2004
95.	National Energy Regulator Act,	40 of 2004
96.	Petroleum Products <u>Amendment</u> Act	2 of 2005
97.	Minerals and Energy Laws <u>Amendment</u> Act	11 of 2005
98.	National Ports Act	12 of 2005
99.	Forestry Laws <u>Amendment</u> Act	35 of 2005
100.	Electricity Regulation Act	4 of 2006
101.	Tobacco Products Control <u>Amendment</u> Act	23 of 2007
102.	National Environmental Management: Integrated Coastal Management Act	24 of 2008
103.	Mineral and Petroleum Resources Royalty Act	28 of 2008
104.	Mineral and Petroleum Resources Royalty (Administration) Act	29 of 2008
105.	National Energy Act	34 of 2008
106.	Mineral and Petroleum Resources Development <u>Amendment</u> Act	49 of 2008
107.	National Radioactive Waste Disposal Institute Act	53 of 2008
108.	Provision of Land Assistance <u>Amendment</u> Act,	58 of 2008
109.	National Environmental Management: Waste Act	59 of 2008
110.	National Environmental Management <u>Amendment</u> Act,	62 of 2008
111.	Tobacco Products Control <u>Amendment</u> Act,	63 of 2008

	Title	Act No & Year
112.	National Road Traffic <u>Amendment</u> Act,	64 of 2008
113.	Mine Health and Safety <u>Amendment</u> Act,	74 of 2008
114.	National Environmental Laws <u>Amendment</u> Act	14 of 2009
115.	National Environmental Management: Protected Areas <u>Amendment</u> Act	15 of 2009
116.	Rural Development and Land Reform General <u>Amendment</u> Act	4 of 2011
117.	Merchant Shipping (Safe Containers Convention) Act,	10 of 2011

Appendix 8 - Community Survey Questionnaire

URGENT !!! PLEASE HELP!!!

**ENVIRONMENTAL POLLUTION SURVEY
OF BLUEWATER BAY**

**Your opinion is important!!
Help make your community a healthier place**

**THIS SURVEY CAN BE RETURNED TO THE BOX
PROVIDED AT
PICK n Pay
and the Engen Petrol Station or
SMS your address to 0723250219 to have it collected**

**ENVIRONMENTAL POLLUTION SURVEY
OF BLUEWATER BAY**

**Your opinion is important!!
Help make your community a healthier place**

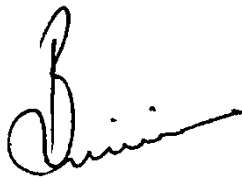
Dear Resident,

I am a doctoral student registered at the University of Pretoria; and I require your urgent assistance. I am conducting research into the exchange of information between organisations and communities regarding environmental matters. I have been working in the Markman area for a number of years; and I am currently measuring various air-pollution parameters in Markman for a private client. I am also a resident of Port Elizabeth; and I have been following the “pollution debate” regarding your area for a number of years.

The final part of my research is a survey amongst residents of Amsterdamhoek and Bluewater Bay, as well as the organisations in Markman Township. The survey that is attached will be treated very confidentially; and no person or organisation will be identified in my final report.

Your willingness to complete the survey would help to identify a model that organisations could use to improve their communication with communities. The survey should not take longer than 10 minutes to complete. The survey questionnaire will be collected within four days. Please complete the survey as soon as possible. If you have any questions, please feel free to contact me at my office in Port Elizabeth at 3639992.

Many thanks,



Brett Williams

Part 1 - Demographics	1.1 Survey No.				
1.2 Surname & Initials (Optional)					
1.3 Duration of Residence in Bluewater Bay (Months)		1.4 Owner of dwelling	Y e s	N o	
1.5 Home Address					
1.6 Home language:	isi Xhosa	Afrikaans	English	Other	

Part 2 - Questions and Statements		Strongly Disagree	Disagree	Uncertain/ Neutral	Agree	Strongly Agree
1.	The organizations in Markman Township are polluting the environment and this is affecting the residents of Blue Water Bay.	1	2	3	4	5
2.	The residents of Blue Water Bay have the right to be viewed as stakeholders in the Markman organizations	1	2	3	4	5
3.	The local communities east of the Swartkops River have the power to compel the Markman organizations to take positive environmental actions to improve the environment.	1	2	3	4	5
4.	The local communities east of the Swartkops River have urgent environmental issues with respect to Markman organizations.	1	2	3	4	5
5.	The residents of Blue Water Bay have the right to demand environmentally related information from Markman organizations	1	2	3	4	5
6.	Markman organizations should continually or regularly inform the residents of Blue Water Bay about their environmental performance.	1	2	3	4	5
2.7	Markman organisations should provide information to the local community about the following:					
2.7.1.	The amount of raw materials consumed per annum.	1	2	3	4	5
2.7.2.	The amount of energy consumed per annum (oil, gas electricity, coal).	1	2	3	4	5
2.7.3.	The amount of water used per annum.	1	2	3	4	5
2.7.4.	The amount and type of liquid effluents discharged to sewer.	1	2	3	4	5
2.7.5.	The amount and type of air emissions from each organization.	1	2	3	4	5
2.7.6.	The amount and type of chemical spills emanating from each organization	1	2	3	4	5
2.7.7.	The amount and type of hazardous and non-hazardous waste generated.	1	2	3	4	5
2.7.8.	The amount of product of each organisationthat can be recycled.	1	2	3	4	5
2.7.9.	Incidents of non-compliance with environmental laws and regulations.	1	2	3	4	5

Part 2 - Questions and Statements		Strongly Disagree	Disagree	Uncertain/ Neutral	Agree	Strongly Agree
2.7.10.	The significant impact of transport used for logistical purposes.	1	2	3	4	5
2.7.11.	The total environmental expenditure by type per annum.	1	2	3	4	5

Part 3 - Question and Statements	
Choose one strategy which you think is best for communicating with the community. Choose <u>one</u> only.	
3.1	Verbal Communication (e.g. regular public meetings)
3.2	Non-verbal Communication (e.g. regular newsletters)

Part 4 - Questions and Statements		Very Ineffective	Ineffective	Neutral	Effective	Very Effective
Rate each method listed below according to how effective it will be to promote communication with a community.						
4.1.	Art exhibitions	1	2	3	4	5
4.2.	Help desk	1	2	3	4	5
4.3.	Presentation groups	1	2	3	4	5
4.4.	Community dinners	1	2	3	4	5
4.5.	Theatre presentations	1	2	3	4	5
4.6.	Co-operative projects with the community	1	2	3	4	5
4.7.	Sustainability agreements	1	2	3	4	5
4.8.	Focus groups on a specific topic	1	2	3	4	5
4.9.	Surveys	1	2	3	4	5

Part 4 - Questions and Statements		Very Ineffective	Ineffective	Neutral	Effective	Very Effective
Rate each method listed below according to how effective it will be to promote communication with a community.						
4.10.	Open house / information days	1	2	3	4	5
4.11.	Guided tours with environmental focus	1	2	3	4	5
4.12.	Workshops / conferences	1	2	3	4	5
4.13.	Radio interviews	1	2	3	4	5
4.14.	Community liaison groups	1	2	3	4	5
4.15.	Websites	1	2	3	4	5
4.16.	Formal Environmental Reports	1	2	3	4	5
4.17.	Newsletters	1	2	3	4	5
4.18.	Product labels with environmental information	1	2	3	4	5
4.19.	Posters displayed at local points such as Supermarkets	1	2	3	4	5
4.20.	Displays with environmental information manned by organization employees at local points such as Supermarkets	1	2	3	4	5
4.21.	Letters to residents	1	2	3	4	5
4.22.	Newspaper feature articles	1	2	3	4	5
4.23.	News releases	1	2	3	4	5
4.24.	Advertising	1	2	3	4	5
4.25.	Public meetings	1	2	3	4	5
4.26.	Personal contact / interviews	1	2	3	4	5

Part 5 - Questions and Statements		Evident
Listed below are strategies that the organisations in Markman have / may have used before with regard to any environmental problems. If you have not noted a particular strategy, leave it blank. You may tick more than one strategy if you think it has been used.		
5.1.	Markman organisations have changed their activities to suit society.	
5.2.	Markman organisations have implemented changes that are substantive and positive to blend in with society's norms and beliefs.	
5.3.	Markman organisations have through communication, altered their definition of societal legitimacy to suit their own needs.	
5.4.	The Markman organisations advocate socially acceptable goals while their actions are less acceptable	
5.5.	Markman organisations have denied or concealed activities that are not legitimate.	
5.6.	Markman organisations offer public excuses about some of their actions.	
5.7.	Markman organisations make highly visible "right thing to do" actions without real organisational change taking place.	
5.8.	Markman organisations admit guilt when their actions affect others, but do little else.	
5.9.	Markman organisations supply ambiguous or misleading information regarding their activities that is open to misinterpretation.	
5.10.	Markman organisations offer trivial or partial information and do not address environmental problems.	

Part 6 - Questions and Statements		Totally unimportant	unimportant	Uncertain/ Does not matter	Important	Very Important
How <u>important</u> do you think the Markman Organisations view each stakeholder listed below - e.g. The Markman organisations could view their <u>Customers</u> as <u>Very Important</u> . (Remember, this is how the Markman Organisations view each stakeholder)						
6.1.	Government officials, Regulatory bodies	1	2	3	4	5
6.2.	Shareholders, Investors	1	2	3	4	5
6.3.	Banks etc. where loans are accessed	1	2	3	4	5
6.4.	People in the community	1	2	3	4	5
6.5.	Environmental lobby groups	1	2	3	4	5
6.6.	Employees	1	2	3	4	5
6.7.	Media	1	2	3	4	5
6.8.	Customers	1	2	3	4	5
6.9.	Trade organizations	1	2	3	4	5

Thank you very much!!

Appendix 9 – Company Survey Questionnaire

Dear Sir / Madam,

I am a doctoral student at the University of Pretoria and I require your urgent assistance. I am conducting research into the exchange of information between organisations and communities on environmental matters.

The final part of my research is a survey amongst the residents of Amsterdamhoek and Bluewater Bay, as well as the organisations in Markman Township. The survey that is attached will be treated very confidentially and no person or organisation will be identified in my final report.

Your willingness to complete the survey will help to identify a model that organisations can use to improve their communication with communities. The survey should not take longer than 10 minutes to complete. Please complete the survey as soon as possible. If you have any questions, please feel free to contact me at my office in Port Elizabeth at 3639992. Please fax the completed survey to me at 041- 3631588.

Many thanks,

Brett Williams

Part 1 - Demographics	1.1 Erf No. (if known, otherwise leave blank)									
1.2 Name of Organisation(Optional)										
1.3 Position in organization:			1.4 No. Employees:							
1.5 Sector (e.g. fishing, local government, NGO):			1.6 Does Co. Have Communication Strategy	<table border="1"> <tr> <td>Y</td> <td>N</td> </tr> <tr> <td>e</td> <td>o</td> </tr> <tr> <td>s</td> <td></td> </tr> </table>	Y	N	e	o	s	
Y	N									
e	o									
s										
1.7 Is your organization currently certified to ISO 14001:2004	Yes	No	1.8 Date of Certification:							

Part 2 - Questions and Statements		Strongly Disagree	Disagree	Uncertain/ Neutral	Agree	Strongly Agree
2.1.	Your organisation can affect the environment in a substantial manner.	1	2	3	4	5
2.2.	The local communities east of the Swartkops River are to be considered legitimate stakeholders in your organization.	1	2	3	4	5
2.3.	The local communities east of the Swartkops River have the power to affect your organization.	1	2	3	4	5
2.4.	The local communities east of the Swartkops River have urgent environmental issues with respect to your organization.	1	2	3	4	5
2.5.	The local communities have the right to demand environmentally related information from you.	1	2	3	4	5
2.6.	Your organisations should have a continuing dialogue with the local communities about environmental performance at your organization.	1	2	3	4	5
Your organisations should provide information to the local communities about the following:						
2.7.	a) The amount of raw materials consumed per annum.	1	2	3	4	5
2.8.	b) The amount of energy consumed per annum (oil, gas electricity, coal).	1	2	3	4	5
2.9.	c) The amount of water used per annum.	1	2	3	4	5
2.10.	d) The amount and type of liquid effluents discharged to sewer.	1	2	3	4	5
2.11.	e) The amount and type of air emissions from your organization.	1	2	3	4	5

Part 2 - Questions and Statements		Strongly Disagree	Disagree	Uncertain/ Neutral	Agree	Strongly Agree
2.12.	f) The amount and type of chemical spills emanating from your plant	1	2	3	4	5
2.13.	g) The amount and type of hazardous and non-hazardous waste generated.	1	2	3	4	5
2.14.	h) The amount of your product that can be recycled.	1	2	3	4	5
2.15.	i) Incidents of non-compliance with environmental laws and regulations.	1	2	3	4	5
2.16.	j) The significant impact of transport used for logistical purposes.	1	2	3	4	5
2.17.	k) The total environmental expenditure by type per annum.	1	2	3	4	5

Part 3 - Questions and Statements	
7.	Choose the strategy you think is best for <u>communicating</u> with communities. Choose <u>one</u> only.
a.	Verbal Communication (e.g. regular public meetings)
b.	Non-verbal Communication (e.g. regular newsletters)

Part 4 - Questions and Statements		Very ineffective	Ineffective	Neutral	Effective	Very Effective
Rate each method listed below according to how effective it will be to promote communication with a community.						
4.1.	Art exhibitions	1	2	3	4	5
4.2.	Help desk	1	2	3	4	5
4.3.	Presentation groups	1	2	3	4	5
4.4.	Community dinners	1	2	3	4	5
4.5.	Theatre presentations	1	2	3	4	5

Part 4 - Questions and Statements		Very Ineffective	Ineffective	Neutral	Effective	Very Effective
Rate each method listed below according to how effective it will be to promote communication with a community.						
4.6.	Co-operative projects with the community	1	2	3	4	5
4.7.	Sustainability agreements	1	2	3	4	5
4.8.	Focus groups on a specific topic	1	2	3	4	5
4.9.	Surveys	1	2	3	4	5
4.10.	Open house / information days	1	2	3	4	5
4.11.	Guided tours with environmental focus	1	2	3	4	5
4.12.	Workshops / conferences	1	2	3	4	5
4.13.	Radio interviews	1	2	3	4	5
4.14.	Community liaison groups	1	2	3	4	5
4.15.	Websites	1	2	3	4	5
4.16.	Formal Environmental Reports	1	2	3	4	5
4.17.	Newsletters	1	2	3	4	5
4.18.	Product labels with environmental information	1	2	3	4	5
4.19.	Posters displayed at local points such as Supermarkets	1	2	3	4	5
4.20.	Displays with environmental information manned by organization employees at local points such as Supermarkets	1	2	3	4	5
4.21.	Letters to residents	1	2	3	4	5
4.22.	Newspaper feature articles	1	2	3	4	5
4.23.	News releases	1	2	3	4	5
4.24.	Advertising	1	2	3	4	5
4.25.	Public meetings	1	2	3	4	5
4.26.	Personal contact / interviews	1	2	3	4	5

Part 5 - Questions and Statements		Very unimportant	unimportant	Neutral	Important	Very Important
Rate each stakeholder listed below according to their importance to your organization.						
5.1.	Government officials, Regulatory bodies	1	2	3	4	5
5.2.	Shareholders, Investors	1	2	3	4	5
5.3.	Banks etc. where loans are accessed	1	2	3	4	5
5.4.	People in the community	1	2	3	4	5
5.5.	Environmental lobby groups	1	2	3	4	5
5.6.	Employees	1	2	3	4	5
5.7.	Media	1	2	3	4	5
5.8.	Customers	1	2	3	4	5
5.9.	Trade organizations	1	2	3	4	5

Part 6 - Questions and Statements		Within the last two years		Prior to 2004	Not Applicable
		Yes	No	Yes	
Has your organisation introduced any environmental improvements in order to decrease environmental impacts or reduce pollution levels. If yes, please specify the type of improvements by ticking the appropriate box. If the type of improvement is not applicable to your organization. Please indicate this as well.					
6.1	Air pollution control equipment				
6.2	Effluent treatment and control				
6.3	New production technologies that prevent or reduce pollution				
6.4	Recycling or reuse of material				
6.5	Waste separation to ensure hazardous waste is collected.				
6.6	Substitution of less hazardous substances used in the organization				
6.7	Engineering projects to reduce possible pollution e.g. bund walls around tanks.				
6.8	Remediation of past pollution problems (spills, soil contamination from storage of chemicals etc..)				

Thank You

Appendix 10 – Organisations' survey of the Raw Data Results

Survey #	Date Received	Question Number				
		1.1.	1.2.	1.3.	1.4.	Sector
1	27-10-2006		Name Withheld by Author	General Manager	132	Automotive Components
2	27-10-2006			Environmental Management Rep	163	Local
3	27-10-2006	414	Name Withheld by Author	Director	12	
4	27-10-2006		Name Withheld by Author	Quality Manager	320	Industrial - Automotive
5	27-10-2006			SHEQ Manager	207	Private
6	19-10-2006		Name Withheld by Author	S-H-E-Manager	27	Automotive Components
7	11-10-2006		Name Withheld by Author	Director	100	Building
8	11-10-2006			Health, Safety, and Environmental Coordinator	70	
9	11-10-2006	435	Name Withheld by Author	Owner		Manufacturing
10	11-10-2006	535-540	Valley Trucks	Manager	3	Second Hand Motor Spares
11	09-10-2006		Name Withheld by Author	Member	20	
12	06-10-2006		Name Withheld by Author	Manager	15	Reinforcing
13	06-10-2006		Name Withheld by Author	Production Manager	40	
14	05-10-2006		Name Withheld by Author	Project Co-ordinator	80	Private Sector
15	05-10-2006	553	Name Withheld by Author	Member	21	Manufacturing
16	05-10-2006		Name Withheld by Author	Manager	30	
17	06-10-2006	548	Name Withheld by Author	Director	45	Furniture
18	03-11-2006	430	Name Withheld by Author	Director	7	Manufacturing
19	03-11-2006		Name Withheld by Author	Bookkeeper	130	Transport
20	03-11-2006		Name Withheld by Author	General Manager	75	Meat Wholesale
21	03-11-2006	581	Name Withheld by Author	Admin Manager	8	Manufacturing
22	03-11-2006		Name Withheld by	Director	180	Meat

Survey #	Date Received	Question Number				
		1.1.	1.2.	1.3.	1.4.	Sector
			Author			
23	03-11-2006		Name Withheld by Author	H.R.	220	AGRI
24	03-11-2006		Name Withheld by Author	Ops. Manager	72	Manufacturing
25	03-11-2006		Name Withheld by Author	Manager	6	
26	06-10-2006			Manager	35	Food

Survey #	Question Number											
	1.6.	1.7.	1.8.	2.1.	2.2.	2.3.	2.4.	2.5.	2.6.	2.7.	2.8.	2.9.
1	0	0			2	2	1	4	3	3	3	3
2	1	1	07-08-2006	4	3	3	3	4	2	3	3	3
3	0	0		3	2	4	2	4	3	2	2	2
4	1	1	06-2002	1	3	4	1	5	3	3	3	3
5		1	10-02-2006	4	3	3	4	4	3	1	4	4
6	0	1	04-2006	2	2	3	2	4	2	2	4	4
7	0	0		2	4	1	1	4	3	1	2	2
8	1	1	24-07-2006	4	1	1	1	5	2	2	2	2
9	0	0		3	1	1	1	3	3	1	1	1
10	1	1		3	2	2	2	2	4	3	3	3
11				4	3	4	2	2	2	2	2	2
12	0	0		2	2	2	2	3	4	3	3	4
13	0	0		4	3	2	2	3	4	2	2	2
14				4	2	3	1	4	3	2	2	2
15	0	0		1	1	2	2	4	2	2	4	4
16	1	1		2	4	4	4	4	4	4	4	4
17	0	0		1	3	3	1	1	1	1	1	1
18	0	0		2	2	2	1	1	1	1	1	1
19	1	0		3	2	2	2	2	1	2	2	2
20	1	0		2	2	2	2	2	2	2	2	2
21	0	0		2	1	1	1	1	1	1	1	1
22	1	0		3	1	2	1	1	1	1	1	1
23	1	0		4	5	5	2	5	4	2	2	2
24	0	0		4	1	1	1	4	4	1	5	5
25				1	1	1	1	1	1	1	1	1
26	0	0		1	3	1	2	4	4		2	2

Survey #	Question Number														
	2.1 0	2.1 1	2.1 2	2.1 3	2.1 4	2.1 5	2.1 6	2.1 7	3.1. a	3.1. b	4. 1	4. 2	4. 3	4.4 .	4.5 .
1	4	4	4	4	4	4	3	3	0	1	3	2	3	4	4
2	4	4	4	4	3	3	3	3	1	0	2	2	4	4	2
3	2	3	3	3	3	4	2	2	1	0	2	2	2	2	2
4	5	5	5	4	3	4	3	3	0	1	3	4	4	3	4
5	4	4	4	4	4	4	1	1	0	1	1	1	1	1	1
6	4	4	5	4	4	4	3	2	0	1	2	4	4	3	2
7	4	4	4	5	3	5	2	3	0	1	1	2	4	2	2
8	2		3	2	2	2	3	3	0	1	3	4	2	2	4
9	1	1	1	1	1	1	1	1	0	1	1	1	5	3	1
10	4	2	4	4	4	4	4	3	1	0	2	3	3	2	3
11	4	2	4	4	3	3	2	2	0	1	4	5	5	1	2
12	2	3	3	3	2	3	3	3	0	1	4	2	2	4	4
13	4	4	4	4	4	4	2	2	0	1	2	4	4	1	1
14	3	4	3	3	3	3	4	3	0	1	2	4	4	4	3
15	4	4	4	4	4	3	3	2			1	1	1	1	1
16	4	4	4	4	4	4	4	4	0	1	4	4	5	3	4
17	1	1	1	1	1	1	1	1	0	1	2	3	3	3	3
18	3	3	3	3	3	3	2	3	0	1	2	4	2	2	2
19	2	2	2	2	2	2	2	2	1	0	3	3	3	3	3
20	2	2	4	3	4	2	2	2	0	1	2	4	3	4	3
21	3	3	3	3	3	3	1	1	0	1	3	3	3	3	3
22	3	1	1	1	4	1	3	3			1	3	3	4	4
23	2	2	2	2	2	4	2	2	1	0	2	2	4	4	3
24	5	5	5	5	3	4	4	5	0	1	1	3	4	1	1
25	1	1	1	1	1	1	1	1	0	1	3	3	4	4	4
26	4			4	4	5	2	4	0	1	2	4	3	1	4

Survey #	Question Number														
	4.6	4.7	4.8	4.9	4.10	4.11	4.12	4.13	4.14	4.15	4.16	4.17	4.18	4.19	4.20
1	4	4	3	2	4	4	3	3	3	2	3	3	2	3	2
2	4	4	4	4	3	3	5	3	4	5	4	4	3	3	3
3	4	3	4	4	2	2	2	4	3	4	4	4	4	4	2
4	5	3	4	3	4	4	4	3	4	3	3	4	3	3	
5	2	3	2	2	3	3	2	2	2	2	2	3	2	1	1
6	4	4	4	4	3	3	3	2	2	4	3	4	4	3	2
7	4	4	4	4	4	3	4	4	4	3	2	5	4	5	4
8	3	3	3	2	4	4					2	4	4	3	2
9	4	3	4	5	3	3	3	3	4	1	3	4	4	4	4
10	3	3	2	1	3	3	2	3	2	2	2	3	2	3	2
11	4	4	4	5	3	3	2	4	4	4	4	4	3	3	4
12	3	3	3	2	4	3	3	4	2	4	2	4	2	4	3
13	4	4	3	4	3	4	3	4	4	4	4	4	2	3	2
14	4	3	3	4	4	4	3	2	4	1	2	4	2	4	2
15	3	3	4	4	2	1	3	4	4	4	2	2	3	1	1
16	4	4	4	4	4	5	4	3	3	3	3	4	4	4	4
17	3	3	3	3	4	4	4	3	3	5	3	4	3	2	2
18	3	3	3	4	3	2	4	4	4	3	4	4	4	4	4
19	3	3	3	3	2	2	1	2	4	4	2	2	3	2	4
20	4	3	3	3	4	4	5	4	3	4	4	4	3	4	3
21	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
22	3	3	3	3	3	4	4	5	4	2	2	2	2	3	4
23	4	4	4	4	4	4	4	4	4	2	3	2	3	4	4
24	4	1	4	3	1	4	3	4	1	1	1	3	1	1	1
25	4	4	4	4	3	3	3	4	4	4	4	4	4	4	4
26	4	3	5	4	4	2	3	2	4	1	4	4	2	2	4

Survey #	Question Number														
	4.21	4.22	4.23	4.24	4.25	4.26	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9
1	3	2	3	3	3	3	3	5	3	3	3	5	2	5	5
2	4	4	4	4	4	4	4	5	5	5	5	5	4	5	5
3	3	4	4	4	2	2	4	4	4	3	3	4	4	4	3
4	4	3	3	3	4	4	4	4	2	2	2	5	4	5	4
5	1	1	1	1	2	5	4	1	1	3	3	5	1	5	3
6	4	3	2	4	3	4	5	5	4	4	3	5	4	5	4
7	4	4	4	4	4	4	3	5	4	5	3	5	3	5	3
8	2	2	2	2	2	3	5	5	5	4	4	5	2	5	5
9	4	3	3	4	4	5	3	1	5	3	3	5	3	5	5
10	2	3	3	2	3	3	3	3	3	3	2	4	4	4	3
11	4	4	4	4	3	4	3	3	5	3	3	4	3	5	5
12	4	4	4	4	3	3	2	3	2	4	3	3	4	3	3
13	4	4	4	4	3	3	4	5	4	3	4	4	4	5	4
14	3	3	3	4	3	4		4	3	4	2	5	3	4	3
15	2	4	4	4	2	3	3	5	1	3	3	5	3	5	3
16	4	4	4	4	4	5	4	5	5	5	4	4	4	5	4
17	4	3	3	3	3	2	2	5	3	2	1	4	1	5	2
18	4	4	4	4	3	3	2	1	3	2	2	4	2	4	1
19	2	2	2	2	1	1	4	5	5	4	4	4	2	5	2
20	3	3	3	4	3	3	4	5	4	4	3	5	3	5	3
21	3	3	3	3	3	3	4	4	4	3	3	4	4	4	3
22	3	4	4	5	3	4	3	3	4	3	1	3	3	4	5
23	4	3	3	3	4	4	4	4	4	4	4	4	4	5	5
24	1	1	1	3	1	1	4	1	1	5	3	5	3	4	3
25	4	4	4	4	4	4	0	0	1	0	0	1	0	0	1
26	5	2	3	2	3	2	4	4	3	4	4	5	2	5	4

Survey #	Question Number											
	6.1.a	6.1.b	6.1.c	6.2a	6.2b	6.2c	6.3a	6.3b	6.3c	6.4a	6.4b	6.4c
1	0	0	0	1	0	0	0	0	0	1	0	0
2	0	0	1	1	0	0	1	0	0	0	1	0
3	0	0	1	0	0	1	0	0	1	0	1	0
4	0	0	1	0	1	0	0	0	1	0	1	0
5	1	0	0	1	0	0	1	0	0	1	0	0
6	0	0	0	1	0	0	1	0	0	1	0	0
7	0	0	1	0	0	1	0	0	1	0	0	1
8	0	1	0	0	1	0	0	1	0	1	0	0
9				0	0	1	0	0	1	1	1	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	1	0	0	0	1	1	0
12	0	0	1	0	0	1	0	0	1	0	0	1
13	1	0	0	0	0	0	1	0	0	0	1	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	1	0	0	0	0	1	0	0	1	1	0	0
16	1	1	0	1	1	0	1	1	0	0	1	0
17	0	0	1	0	0	1	0	0	1	0	1	0
18	0	0	1	0	0	1	0	0	1	1	0	0
19	0	0	1	0	0	1	0	0	1	0	0	1
20	0	0	1	0	0	1	0	0	1	0	0	1
21	0	0	1	0	0	1	0	0	1	0	0	1
22	0	0	1	0	0	0	0	0	1	0	0	0
23	0	0	1	1	0	0	1	0	0	0	0	1
24	0	0	0	1	0	0	0	0	0	0	0	0
25	0	0	1	0	0	1	0	0	1	0	0	1
26												

Survey #	Question Number											
	6.5a	6.5b	6.5c	6.6a	6.6b	6.6c	6.7a	6.7b	6.7c	6.8a	6.8b	6.8c
1	1	0	0	0	0	0	1	0	0	1	0	0
2	0	1	0	1	0	0	1	0	0	0	0	1
3	0	1	0	0	0	1	0	0	1	0	0	1
4	1	0	0	0	1	0	0	1	0	0	0	1
5	1	0	0	1	0	0	1	0	0	1	0	0
6	1	0	0	1	0	0	1	0	0	0	0	0
7	0	0	1	0	0	1	0	0	1	0	0	1
8	0	1	0	0	0	0	0	1	0	0	0	1
9	1	0	0	0	0	1	0	0	1	0	0	1
10	0	0	0	0	0	0	0	0	0	0	0	0
11	1	1	0	0	0	1	0	0	1	0	0	1
12	0	0	1	0	0	1	0	0	1	0	0	1
13	0	0	1	1	0	0	0	1	0	0	0	1
14	1	0	0	0	0	1	0	0	0	0	0	1
15	0	0	1	0	0	1	1	0	0	0	0	1
16	1	1	0	0	0	1	1	1	0	1	1	0
17	0	0	1	0	0	1	0	0	1	0	0	1
18	0	0	1	0	0	1	0	0	1	0	0	1
19	0	0	1	0	0	1	0	0	1	0	0	1
20	0	0	1	0	0	1	0	0	1	0	0	1
21	0	0	1	0	0	1	0	0	1	0	0	1
22	0	0	1	0	0	1	0	0	1	0	0	1
23	0	0	1	0	0	1	1	0	0	0	0	1
24	1	0	0	0	0	0	1	0	0	0	0	1
25	0	0	1	0	0	1	0	0	1	0	0	1
26												

Appendix 11 – Organisations' Survey – Comments Recorded on Questionnaire

1. **Comment from Survey No. 14** – Part 5- 5.1. Wrote was “Not applicable”. “We're a short term project only - operating until July-Oct 2006”
2. **Comment from Survey No. 15** – Wrote the word “None” for Part 3.

3. **Comment from Survey No. 19**

We strongly suggest you contact the following companies regarding your survey.

- XXXXX (Chemical Industry)
- XXXX (Animal Products)
- XXXX (Animal Products)

4. **Comment from Survey No. 21**

Markman was earmarked as an industrial area more than 15 years ago; and certain operations were asked to relocate due to environmental impact on the community. Banks and Financial Institutions still rate Markman as a red-zone area. Being situated here for the past 12 years the only remarks I can make are: The smells!!! of municipality to provide normal refuse removal, although charged for rates and taxes.

5. **Comment from XXXXXX (Did not return a completed survey questionnaire)**

This company did not fill in the questionnaire but wrote the following comment:

“Please note that we do not affect any part of the community or the environment. We are a building-material supplier. No manufacturing takes place. We buy and sell.”

6. **Comment from XXXXXX (Did not return a completed survey questionnaire)**

Regrettably, we will be unable to complete the survey questionnaire. I apologize for any inconvenience this may cause.

Appendix 12 – Community Survey of Raw Data Results

Survey #		Question Number							
1.1	Date Received	1.2	1.3.	1.4	Address	1.6	2.1	2.2	2.3
1	05-10-2006	E. Hallaby	38	1	16 Nautilus Drive, Bluewater Bay	2	4	4	2
2	05-10-2006	D.A.R. Burger	48		17 Bluewater View, Sara Avenue, Bluewater Bay	3	5	5	
3	05-10-2006		396	1		4	4		
4	05-10-2006	R.H. Van Breda	165	1	23 Sharon Place, Bluewater Bay	3	4	2	2
5	05-10-2006	A.J. Rump	36	1	17 Nautilus Drive, Bluewater Bay	3	5	4	2
6	30-08-2006	J. Askew	456	1	102 Maureen Circle, Bluewater Bay	3	5	5	5
7	30-08-2006		324	1	16 de Mist Circle	2	5	4	4
8	30-08-2006	van de Water	20	1	24 Punta Del Mar	3	4	2	2
9	30-08-2006	S. Hulne	26	1	77Whales Way	2	5		2
10	30-08-2006	K.J. Askew	432	1	29 Sara Avenue	3	5	4	5
11	30-08-2006	F.L.D.S. Sucena	114	1	21 Yale Road	4	5	5	5
12	30-08-2006	P.J. Bussey	60	1	2 Bluewater Close	3	5	5	1
13	30-08-2006	T.W. le Roux	96	1	28 Whales Way	2	5	5	5
14	30-08-2006	M.R. Shepherd	144	1	87 Amsterdamhoek Road	3	5	5	1
15	30-08-2006	E.J. Meintjies	56	1	46 Himeville Drive	2	4	4	4
16	30-08-2006	Nash	850	1	4 Sharon Road	3	4	4	4
17	30-08-2006	C.T. Pead	285	1	28 Himeville Drive	3	5	5	5
18	30-08-2006	M.S. Taylor	408	1	148 Amsterdamhoek	3	5	3	3
19	30-08-2006	P. Dicker	240	1	3 Clive Avenue	2	5	5	5
20	30-08-2006	P. Rudman	55	1	75 Bluewater Drive	3	4	3	4
21	30-08-2006		324	0	Jennifer Road	3	4	4	3
22	30-08-2006	S. Turkstra	42	1	8 Hillcrest Close	2	5	3	3
23	30-08-2006	K. Mgudlwa	144	0	20 Marock Crescent	1	4	3	3
24	30-08-2006	M.E. Landman	384	1	127 Bluewater Drive	2	5	5	5
25	30-08-2006	H.A. Grey	144	1	76 Sara Avenue	3	5	5	5

Survey #		Question Number							
1.1	Date Received	1.2	1.3.	1.4	Address	1.6	2.1	2.2	2.3
26	30-08-2006	M.E. De Souza	252	1	52 Sara Avenue	3	5	3	3
27	30-08-2006	De Villiers	30	0	10 Clive Avenue	3	5	3	4
28	30-08-2006	E.J. Le Roux	123	1	79 Hillcrest Drive	3	5	5	5
29	30-08-2006	C. Zeelie	7	0	1 Weinronk Way	4	5	3	4
30	30-08-2006	A. Barnard	72	1	139 Maureen Crescent	2	5	3	5
31	30-08-2006	N. Victor	3	0	1 Weinronk Way	2	5	5	4
32	30-08-2006		120	1		1	3	3	3
33	30-08-2006	S.J. Walland	312	1	109 Amsterdamhoek	3	5	3	1
34	30-08-2006	J.A. Kruger	48		29 Jocelynn Avenue	2	5	5	1
35	30-08-2006	J. Keller	74	0	1 Riverside Drive	3	5	5	5
36	30-08-2006		240	1	Claude Crescent	2	5	5	3
37	30-08-2006	T.L. Roberts	60	1	7 Sharon Road	3	5	3	4
38	30-08-2006	V. Hugh	188	1		3	4	3	2
39	30-08-2006	E.N. Roberts	180	1	146 Amsterdamhoek	3	4	3	4
40	30-08-2006	N.P. Bodisch	36	1	3 Poseidon Close	4	5	5	3
41	30-08-2006	A.J. Crane	120	1	1 Bluewaters View, Sara Avenue	3	5	4	4
42	30-08-2006	N.J. Vaughan	192	1	3 Sara Avenue	3	4	4	3
43	30-08-2006	R. Meyer	240	1	92 Amsterdamhoek Drive	2	5	1	2
44	30-08-2006	P.C. Edwards	72	1	27 De Mist Circle	3		5	5
45	30-08-2006	E. Erasmus		1		2	4	4	4
46	30-08-2006	J. Meistre	360	1	46 De Mist Circle	2	5	2	4
47	30-08-2006	M.W. Theron	247	1	34 Riverside Drive	3	4	4	3
48	30-08-2006						5	5	5
49	30-08-2006	R.P. Schmidt	345	1	20 Suburban Road	2	5	5	5
50	30-08-2006	S. Burnell	300		86 De Mist Circle	3	5	4	3
51	30-08-2006	L. White	60	1	8 Bluewater Close	3	5	4	4
52	30-08-2006	J. G. Horn	24	1	40 De Mist Circle	2	5	4	4
53	30-08-2006	N.C. Delport	192	1	23 Himeville Drive	3	5	3	2
54	30-08-2006	G.L. Pimm	110	1	36 Himeville Drive	3	5	5	3
55	30-08-2006	A. Muller	180	1	38 De Mist Circle	2	5	5	5
56	30-08-2006	R.D. Swinnerton	360	1	48 Riverside	3	5	4	4

Survey #		Question Number								
		1.1	Date Received	1.2	1.3.	1.4	Address	1.6	2.1	2.2
						Drive				
57	30-08-2006	L. Kilian	264	1	2 Settlers Steps, Amsterdamhoek	3	5	5	2	
58	30-08-2006	J. Jardine	139	1	126 Amsterdamhoek	3	5			
59	30-08-2006	C.R.N. Donaldson	217	1	20 Edinburgh Drive, Amsterdamhoek	3	5	4	3	
60	30-08-2006	L.M. Blazey	120	1	4 Sharon Place	3	5	5	3	
61	30-08-2006	J.L. Blazey	54	1	6 Riverside Drive	3	5	5	5	
62	30-08-2006	D.A. Le Roux	108	1	147 Amsterdamhoek Road	3	5	3	2	
63	30-08-2006	C.R. Knoesen	72	1	27 Sara Avenu	3	4	4	4	
64	30-08-2006		120	1	35 Sara Avenue	3	5	4	4	
65	21-08-2006	R.G. Longworth	192	1	3 Matlock Crescent	3	5	5	5	
66	21-08-2006	M.Taylor	24	0	10 Subyrna	3	4	4	4	
67	21-08-2006	B.C.T. Barkhuizen	120	1	112 Maureen Circle	3	4	4	4	
68	21-08-2006						4	2	2	
69	21-08-2006	G.F. Momsen	60	1	1 Cockscomb Place	3	4	4	4	
70	21-08-2006	S.C. North	120	1	97 Maureen Circle	3	3	3	3	
71	21-08-2006	F.J.T Garner	324	1	20 Claude Crescent	3	4	2	4	
72	21-08-2006	F.G. Le Roux	264	1	87 Maureen Circle	2	4	4	4	
73	21-08-2006	E.C. Venter	108	0	2 Vista Villa	2				
74	21-08-2006	T.C. Roux	240	1	7 Claude Crescent	3	4	3	5	
75	21-08-2006			1	27 Maureen Circle	3	5	5	4	
76	21-08-2006	T. Balfour	60	0	4 Amsterdam Mews, Claude Crescent	3	5	4	3	
77	21-08-2006	Coetzee	19	1	10 Riverside Drive	4	4	3	3	
78	21-08-2006	J.J. Meyer	72	1	71 Maureen Circle	2	4	3	3	
79	21-08-2006		564	1	2 Clive Avenue	3	4	4	3	
80	21-08-2006	B.W. Davidge	280	1	5 Barbara Avenue	3	4	2	4	
81	21-08-2006	M.M.C. Conrad	24	0	3 Riverside Road	2	5	3	4	
82	21-08-2006	A.M. van Niekerk	396	1	16 Edinburgh	3	4	3	4	

Survey #		Question Number							
1.1	Date Received	1.2	1.3.	1.4	Address	1.6	2.1	2.2	2.3
					Drive				
83	21-08-2006	B.S. Lake	8	1	33 Claude Crescent	3			
84	21-08-2006	W. Rudman	60	1	75 Bluewater Drive	3	4	3	3
85	21-08-2006	G.F. van Reenen	380	1	18 Suburban Road	3	5	5	5
86	21-08-2006	L.C. Notsne	15	1	6 Hilda Avenue	1	5	3	4
87	21-08-2006	J. Coetzee	18	0	10 Riverside drive	2	3	3	4
88	21-08-2006	P. Lotter	336	1	41 Yale Road	2	4	4	4
89	21-08-2006		468			3			
90	21-08-2006		94	1	25 Riverside Drive	3	3	3	3
91	21-08-2006	M.F. McCay	417	1	19 Maureen Circle	2			
92	07-09-2006	R. Fox	348	1	28 Hannah Road	3	5	3	3
93	07-09-2006	Rebel Jorg-Peter Hans	432	1	137 Bluewater Drive	3	5	4	5
94	07-09-2006	T.D. Cusens	432	1	12 Clive Avenue	3	4	3	4
95	07-09-2006	D.J. De Vaux	312	1	42 Bluewater Drive	3	4	4	2
96	07-09-2006	A.S. Barrow	324	1	108 Amsterdamhoek Road		4	4	4
97	07-09-2006		180	1		3	4	3	4
98	07-09-2006		130	1	7 Cockscorn Place	3	4	4	4
99	13-09-2006	A. Boshoff	60	1	21 Marock Crescent	3	4	5	2
100	13-09-2006	D.R. Petersen	72	1	109 Bluewater Drive	3	5	3	5
101	13-09-2006		36	1	De Mist	3	3	2	4
102	13-09-2006	T. Grobler	48	1	5 Yale Road	2	4	4	3
103	13-09-2006	K.R. Bosch	336	1	102 Amsterdamhoek	3	5	5	5
104	13-09-2006	H. Barras	216	1	70 Amsterdamhoek	3	5	5	5
105	13-09-2006	C. Summers	134	1		3	4	4	4
106	13-09-2006	L. Dorfling	133	1	8 Edinburgh Drive, Amsterdamhoek	2	5	4	2
107	13-09-2006	G.A. Halferty	15	1	13 Suburban Road	3	5	5	2
108	13-09-2006			1	8 Sharon Road	2	5	5	5
109	26-09-2006	B. Ashworth	15	1	Zephyr Avenue	3	5	3	2

Survey #		Question Number							
		1.1	Date Received	1.2	1.3.	1.4	Address	1.6	2.1
110	26-09-2006	P. Martin	228	1	30 Himeville Drive	3	5	4	4
111	26-09-2006		60	1	58 De Mist Circle	2	5	4	4
112	26-09-2006	E.S. Parkin	360	1	22 Edinburgh Drive	3	5	5	5
113	26-09-2006	E. Tuck	120	1	10 Edinburgh Drive	3	5	3	5
114	23-10-2006	K.A. Boucher	408	1	2 Galatea Close	3	4	4	2
115	23-10-2006		240	1	14 Suburban Road	2	3	3	4
116	23-10-2006	T. Peppeta		0	P.O. Box 29, New Brighton	1	3	4	3
117	23-10-2006		84	1	Maureen Circle	2	4	3	4
118	23-10-2006	S. Evans	13	0	13 Himeville Drive	3	3	3	3
119	23-10-2006		36	1	Himeville Drive	3	3	3	3
120	23-10-2006	C.M. Wiseman	14	1	90 Bluewater Drive	3	5	5	3
121	23-10-2006	P.M. Shergold-Smith	30	1	139 Amsterdamhoek Road	3	3	3	3
122	23-10-2006	G. Manyika	18	0	159 Amsterdamhoek	3	5	5	5
123	23-10-2006		264	0	Jennifer Road	2	3	2	2
124	23-10-2006	J.A.M. van der Mey	48	1	123 Amsterdamhoek Road	4	4	4	2
125	23-10-2006	G.A. van der Mey	49	1	123 Amsterdamhoek Road	3	5	5	5
126	29-10-2006	C.P. Clasen	144		40 Sara Avenue	2	5	5	4
127	29-10-2006		84	1	130 Bluewater Drive	2	5	4	4
128	29-10-2006		12		119 Bluewater Drive	1	4		5
129	29-10-2006	D.M. Macingwane	108	1	4 Poseidon Crescent	1	4	4	4
130	29-10-2006	C.P. Clasen	120	1	13 Poseidon Crescent	4	5	5	4
131	29-10-2006		72	1	3 Poseidon Crescent	1	5	3	2
132	29-10-2006	A.T. Nglongolwana	3	1	116 Bluewater Drive	1	4	5	4
133	29-10-2006	J. Heyns	108	1	136 Bluewater Drive	3	5	3	4
134	29-10-2006	L.C. Ndoshe	180	1	6 Hilda Avenue	1	5	4	4

Survey #		Question Number								
1.1	Date Received	1.2	1.3.	1.4	Address	1.6	2.1	2.2	2.3	
135	29-10-2006		48	0	13 Bluewater Close	2	4	4	4	
136	29-10-2006		24	1	3 Triton Way	3	5	3	4	
137	29-10-2006	L.G. Ntsepe	10	0	144 Bluewater Drive	1	3	5	4	
138	29-10-2006	R. van Zyl	2	0	148 Bluewater Drive	2	5	5	2	
139	29-10-2006	A. Joubert	60	1	1 Bluewater Close	2	4	4	4	
140	29-10-2006	Read	84	1	3 Bluewater Close	3	3	3	3	
141	29-10-2006	R. Barnard	12	0	8A Le Ann Street	2	4	3	3	
142	29-10-2006	Z. Maqula	96	0	10 Hilda Avenue	3	2	3		
143		R.B. Hawkins	12	1	5 Hilda Avenue	3	3	1	1	
144	04-11-2006	R.W. Beesley	3	1		4	5	5	5	
145	04-11-2006	D.C. Atkinson	120	1	7 Maureen Circle	3	5	5	5	
146	04-11-2006	J. D. Steyn	24	1	9 Maureen Crescent	2	5	3	3	
147	04-11-2006		144	1	4 Lynda Lane	1	3	3	3	
148	04-11-2006	T. Moorcroft	18	0	46 Hillcrest Drive	3	5	4	4	
149	04-11-2006	D.K. Prinsloo	18	0	53 Hillcrest Drive	3	4	3	3	
150	04-11-2006	K. McLachlan	30	1	58 Hillcrest Drive	3	4	4	4	
151	04-11-2006	C.O. Atkinson	600	1	60 Hillcrest Drive	3	5	5	5	
152	04-11-2006			1	10 Maureen Circle	3	4	5	5	
153	04-11-2006	C.C. Hess	240	1	62 Hillcrest Road	4	4	3	4	

Survey #	Question Number													
	1.1.	2.4	2.5	2.6	2.7.1	2.7.2	2.7.3	2.7.4	2.7.5	2.7.6	2.7.7	2.7.8	2.7.9	2.7.10
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Survey #	Question Number												
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Survey #	Question Number													
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Survey #	Question Number												
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Survey #	Question Number													
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Survey #	Question Number												
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Survey #	Question Number												
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38	4			2	4	4	2	2	2	3	3	4	3
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Survey #	Question Number												
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48	5	0	1	3	5	4	2	3	4	5	5	4	5
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51	4	0	1	2			2	2	4		5	5	3
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59	5	1	0	1	2	3	1	1	5	3	2	2	3
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72	4	0	1	2	4	3	3	3	4	4	4	4	2
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Survey #	Question Number												
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91													
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Survey #	Question Number													
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122	5	1	0	4	4	4	3	5	5	5	5	5	5	5
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Survey #	Question Number										
	1.1.	4.11.	4.12.	4.13.	4.14.	4.15.	4.16.	4.17.	4.18.	4.19.	4.20.
1	4	4	3	4	3	5	4	3	3	3	

Survey #	Question Number										
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4	2	4	4	4	4	5	4	3	4	4	
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6	4	4	5	4	4	5	5	4	5	4	
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15	4	3	4	4	5	5	5	5	5	4	
16	5	3	4	3	3	4	3	4	4	4	
17											
18	4	3	5	4	4	4	4	5	5	5	
19	4	4	5	4	5	5	5	5	3	5	
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21	5	4	4	4	3	3	5	4	5	5	
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34	3	5	5	5	4	5	5	4	1	5	
35	4	4	5	4	4	3	5	4	4	4	
36			4		5		5		4		
37	4	2	4	4	4	5	5	5	4	4	
38	2	3	3	3	3	4	4	2	3	3	
39	4	4	4	4	4	4	4	5	4	4	

Survey #	Question Number										
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42	4	3	3	4	3	4	5	5	3	2	4
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73	5	5		4		4	4			5	5
74	4	3	4	4	4	4	5	4	4	3	3
75	4	2	2	4	5	5	4	3	3	2	2
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Survey #	Question Number										
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82	4	3	4	3	4	4	5	5	2	2	2
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85	5	4	5	4	5	5	4	4	5	3	4
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91											
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94	5	2	4	3	2	4	4	4	4	4	4
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96	4	3	4	3	3	4	4	4	3	4	4
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118	2	2	3	4	1	4	4	4	4	4	4

Survey #	Question Number										
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122	5	2	5	5	3	2	2	4	4	4	
123	4	3	2	2	3	4	4	4	4	3	
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144	5	5	5	5	5	3	5	5	5	5	
145	3	5	5	5	5	5	5	5	5	1	
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153	5	3	5	3	5	5	5	5	5	1	

Survey #	Question Number											
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3							0	0	0	0	0	0
4	4	5	5	4	4	2	0	0	0	0	0	1
5	3	4	4	3	3	4	0	0	0	1	1	0
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7	5	4	3	3	4	3	0	0	1	1	0	0
8	5	2	5	2	2	2	0	0	0	0	0	0
9	5	5	5	5	4	2	0	0	0	0	0	1
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11	5	5	5	5	5	4	0	0	0	0	1	1
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14	5	5	5	5	4	5	0	0	0	1	0	1
15	5	4	4	4	3	3	0	0	0	0	0	0
16	4	3	3	3	3	5	0	0	1	0	0	1
17							0	0	0	0	0	0
18	4	4	5	3	3	3	0	0	0	0	0	0
19	5	5	5	5	4	4	1	0	0	0	1	0
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25	5	4	4	3	3	3	0	0	0	0	0	0
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27	4	4	4	4	4	5	0	0	0	0	0	0
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29	4	5	5	5	4	5	0	0	0	0	1	1
30	5	5	5	4	4	4	0	0	0	0	1	0
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32	4	4	4	4	4	3	0	0	0	0	1	1
33	4	4	4	4	4	4	0	0	1	0	1	0
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35	5	5	5	4	5	5	0	0	0	0	1	1
36	5		5				0	0	0	0	1	0
37	4	4	4	4	4	4	0	0	0	0	0	0

Survey #	Question Number												
	1.1.	4.21.	4.22.	4.23.	4.24.	4.25.	4.26.	5.1.	5.2.	5.3.	5.4.	5.5.	5.6.
38	4	4	3	2	3	3	0	0	0	1	1	1	
39	4	4	4	4	4	4	0	0	0	0	0	0	
40	4	4	4	3	3	3	0	0	1	1	1	1	
41	4	5	4	4	4	4	0	0	1	1	1	1	
42	4	4	4	3	4	4	0	0	0	0	1	0	
43	5	5	5	3	4	3	1	0	1	1	0	0	
44	4	4	4	4	3	3	0	0	0	0	0	0	
45	5	4	4	5	3	4	0	0	0	0	0	0	
46	5	4	4	5	5	3	0	0	1	1	0	0	
47	3	4	4	3	4	4	0	0	0	0	1	0	
48	5	3	4	3	3	5							
49	5	5	5	2	2	3	0	0	1	1	1	0	
50	4	5	4	3	5	5	0	0	0	0	1	0	
51	5	5	5	4	4	5	0	0	0	0	1	1	
52	4	5	5	4	4	4	0	0	0	1	0	0	
53	5	5	5	5	2	2	0	0	0	1	0	1	
54	5	5	5	5	5	5	0	0	0	0	0	0	
55	4	4	4	4	4	4	0	0	0	0	1	0	
56	4	5	5	4	4	5	0	0	0	0	1	1	
57	4	4	4	2	5	5	0	0	0	0	1	1	
58	4	4	4	4	5	5	0	0	0	0	1	1	
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60	4	4	4	4	4	4	0	0	0	0	1	1	
61	4	4	4	4	3	3	0	0	0	0	0	0	
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63	4	4	4	4	4	2	0	0	0	0	0	0	
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65	3	5	5	1	4	4	0	0	1	1	1	0	
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71	5	3	4	4	4	4	0	0	0	1	0	1	
72	4	4	4	4	2	3	0	0	0	0	1	1	
73	2	4	4	4	5	2	0	0	0	0	0	0	
74	4	5	5	3	2	3	0	0	0	1	0	0	
75	2	4	3	4	1	1							

Survey #	Question Number												
	1.1.	4.21.	4.22.	4.23.	4.24.	4.25.	4.26.	5.1.	5.2.	5.3.	5.4.	5.5.	5.6.
76	4	3	3	4	2	4							
77	4	4	4	4	4	4	0	0	0	0	0	0	0
78	5	5	4	5	3	3	0	0	0	0	0	0	0
79	3	3	3	3	3	4	0	0	0	0	0	0	0
80	5	4	4	4	4	4	0	0	0	0	0	0	1
81	3	4		4	2	3	0	0	0	0	0	0	0
82	3	4	3	3	3	3	0	0	0	0	0	0	0
83	5	4	4	2	1	2							
84	4	4	4	4	3	3	0	0	0	1	1	1	0
85	4	5	5	4	4	4	0	0	0	0	1	1	0
86	3	3	3	4	5	5	0	0	0	1	1	1	1
87	4	4	4	4	4	2	0	0	0	0	0	0	0
88	4	4	4	4	4	3	0	0	1	1	1	1	1
89		5											
90	4	5	5	4	4	3	0	0	0	0	0	0	0
91													
92	5	5	3	5	5	5	0	0	0	0	0	0	0
93	5	4	4	3	3	3	0	0	0	0	0	0	0
94	4	4	4	4	3	3	0	0	0	1	1	1	0
95	3	4	3	3	3	5	0	0	0	0	1	1	1
96	4	4	4	4	3	4	0	0	0	0	0	0	1
97	3	4	4	3	4	4	0	0	1	1	0	0	0
98	4	4	3	4	4	5							
99	4	4	4	3	4	3	0	0	0	0	0	0	0
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103	4	4	4	3	2	4	0	0	0	0	0	0	0
104	3	5	5	4	5	4	0	0	0	0	1	1	1
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109	3	4	4	3	4	5	0	0	0	0	1	1	0
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111	3	4	4	4	1	4	0	0	0	0	0	0	0
112	5	5	5	5	5	5	0	0	1	1	1	1	0
113	5	5	5	5	2	2	0	0	1	1	1	1	1
114	5	5	5	5	4	4	0	0	0	0	1	1	0
115	4	4	4	4	2	2	0	0	0	0	0	0	0

Survey #	Question Number												
	1.1.	4.21.	4.22.	4.23.	4.24.	4.25.	4.26.	5.1.	5.2.	5.3.	5.4.	5.5.	5.6.
116	4	4	4	4	3	40	0	0	0	0	0	0	0
117	5	5	5	5	3	3	0	0	0	0	0	0	0
118	4	4	3	3	3	3	0	0	0	0	0	0	0
119	4	5	5	5	4	5	0	1	0	0	0	0	0
120	5	4	4	4	3	3	0	0	0	0	0	0	0
121	5	5	5	5	5	3	0	0	0	0	0	0	0
122	4	4	4	4	5	5	0	0	0	1	0	0	0
123	3	4	3	4	3	2	0	0	0	0	0	0	0
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125	3	4	4	4	1	3	0	0	0	10	0	0	0
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127	4	4	4	3	4	3	0	0	0	1	1	0	0
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129	4	4	3	3	1	1	1	0	1	1	0	0	0
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131	4	4	4	5	4	50	0	0	0	1	0	0	0
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133	5	5	5	5	2	1	0	0	0	0	1	0	0
134	4	4	4	4	5	5	0	0	0	1	1	1	1
135	4	5	5	5	4	4	0	0	0	0	0	0	0
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137	3	4	3	4	2	2	0	0	0	0	0	0	0
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139	5	4	4	4	3	5	0	0	0	0	0	1	1
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142	2	3	3	4	4	3	1	1	1	1	1	1	1
143	1	1	1	1	1	3	0	0	0	0	0	0	0
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146	4	5	4	4	4	5							
147	4	3	3	3	3	2	0	0	0	0	0	0	0
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149	4	3	2	2	2	2	0	1	0	1	1	1	1
150	4	4	4	3	3	3	0	0	0	0	0	0	0
151	5	5	4	4	4	2	0	0	0	1	0	0	0
152	4	5	4	5	5	1	0	1	0	0	1	1	1
153	5	5	5	5	3	1	0	1	0	0	0	0	0

Survey #	Question Number												
	1.1.	5.7.	5.8.	5.9.	5.10.	6.1.	6.2.	6.3.	6.4.	6.5.	6.6.	6.7.	6.8.
1	0	0	1	1	2	5	4	2	2	3	3	4	3
2	1	0	0	0									
3	0	0	0	1	3								
4	0	0	0	1	2	4	4	2	2	2	4	3	3
5	0	0	1	1	2	5	4	2	1	3	3	4	3
6	1	1	1	1	2	3	5	1	1	4	2	5	5
7	0	0	0	0	2	5	5	2	2	2	2	2	5
8	0	0	0	0	4	5	5	1	1	3	1	5	5
9	0	0	0	1	5	5	5	1	2	5	5	5	5
10	1	1	1	1	2	3	5	1	1	4	2	5	5
11	0	1	0	0	1	5	2	1	1	3	2	2	2
12	0	0	1	1	2	5	4	1	1	3	2	4	2
13	0	0	1	1	2			1	1	2	1	1	1
14	0	0	1	1	2	5	5	1	2	2	2	4	3
15	0	0	0	0	3	3	3	3	3	3	3	3	3
16	0	0	1	1	5	5	5	2	3	3	4	4	3
17	0	0	1	0	2	4	5	1	2	3	4	5	4
18	0	0	0	0	3	3	3	3	3	3	3	4	3
19	0	1	0	0	4	3	5	2	2	3	2	5	3
20	0	0	0	0	2	3	3	2	2	3	2	3	3
21	0	0	0	1	4	5	4	3	3	3	3	4	4
22	0	0	0	0	2	2	2	2	3	3	3	3	3
23	0	0	0	0	5	5	5	3	2	4	4	5	3
24	1	1	1	1	3	5	5	1	1	3	2	4	3
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26	1	1	1	1	3	3	3	1	1	3	1	3	3
27	1	0	1	1	1	1	1	1	1	1	1	1	1
28	1	0	0	1	2	3	3	2		3	2	4	2
29	0	0	0	1	4	4	5	1	2	2	4	3	4
30	0	0	0	0	4	4	3	3	3	3	3	4	3
31	0	0	0	1	2	2	3	1	1	3	2	2	3
32	0	1	0	0	4	4	4	4	3	3	4	4	3
33	0	0	0	1	4	5	3	1	1	2	2	5	5
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35	0	0	0	1	2	5	4	1	2	3	3	4	4

Survey #	Question Number												
	1.1.	5.7.	5.8.	5.9.	5.10.	6.1.	6.2.	6.3.	6.4.	6.5.	6.6.	6.7.	6.8.
36	0	0	0	1	4	5	4	1	2		4	5	4
37	0	0	0	0	3	4	4	2	2	3	3	3	3
38	1	0	1	1	4	4	4	2	2	3	3	3	3
39	0	0	0	0	4	4	4	3	3	3	3	4	4
40	1	1	1	1	4	5	5	1	1	2	4	4	4
41	1	1	1	1	2	5	4	2	2	1	3	4	3
42	0	1	0	1	3	3	3	2	2	3	3	3	3
43	0	0	0	10	2	5	4	1	3	3	4	4	4
44	0	0	1	1	2	2	2	2	2	2	2	2	2
45	0	0	0	0	3	3	3	3	3	3	3	3	3
46	0	0	0	1	3	5	3	1	2	3	2	4	3
47	0	0	0	1	2	1	1	1	2	3	3	2	2
48					2	5	5	2	2	3	5	5	
49	0	1	0	1	1	2	5	1	1	1	3	3	5
50	0	0	1	0	4	5	4	3	3	4	3	5	4
51	0	0	1	1	5	4	3	4	5	4	5	5	4
52	0	0	1	1	3	4	4	2	2	2	4	4	5
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54	0	1	0	0	5	1	1	1	5	1	3	1	1
55	1	0	1	1	1	1	3	1	1	1	1	1	3
56	1	1	1	1	2	5	5	2	1	2	2	4	3
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58	0	0	1	1	1	5	5	1	1	2	2	5	2
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61	0	0	1	1	3	4	3	2	2	3	2	4	3
62	0	0	0	1	1	4	3	1	1	3	4	5	4
63	0	0	0	0									
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67	0	0	0	0	3	5	5	4	1	3	3	5	3
68	0	0	0	0	4	4	3	3	3	3	3	3	3
69	0	0	0	0	3	4	3	2	2	3	4	4	4
70	0	0	0	0	4	5	3	4	4	4	4	4	4
71	0	0	0	0	4	4	5	5	4	4	4	5	5
72	1	0	1	1	3	2	2	2	4	2	4	2	2
73	1	0	0	0		4		4		4	4	4	4
74	0	0	0	0	4	5	5	2	2	2	4	4	4

Survey #	Question Number													
	1.1.	5.7.	5.8.	5.9.	5.10.	6.1.	6.2.	6.3.	6.4.	6.5.	6.6.	6.7.	6.8.	6.9.
75					4	5	5	3	4	4	4	4	5	5
76														
77	0	0	0	0	5	5	5	3	3	3	4	4	4	4
78	0	0	0	0										
79	0	0	0	0	3	4	3	3	5	3	4	3	3	3
80	0	0	1	1	1	1	1	1	1	2	2	2	2	2
81	0	0	0	0	5	4	4	5	4	5	4	4	4	5
82	0	0	0	0	4	4	4	3	3	3	3	3	4	4
83														
84	0	0	1	1	3	3	3	2	2	3	2	3	3	3
85	0	0	1	1	4	5	5	4	4	4	5	5	5	5
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87	1	0	1	0	3	5	5	3	3	4	3	4	4	4
88	1	1	1	1	2	5	5	1	2	3	2	4	4	4
89														
90	0	0	0	0	3	4	4	3	3	3	3	3	3	3
91														
92	0	0	0	0	3	3	3	1	3	3	3	3	3	3
93	0	0	0	1	4	5	5	2	3	4	3	5	4	4
94	0	0	1	0	2	5	5	2	2	4	3	5	5	5
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96	0	0	1	1	4	4	4	2	2	2	4	2	2	2
97	0	0	0	1	4	5	5	2	2			4		
98														
99	0	0	1	1	4	3	3	2	2	2	2	2		
100	1	1	1	1	3			2	2					
101	0	0	1	0	4	2	3	4	3	2	4	2	2	2
102	0	0	0	0										
103	0	0	0	0	2	4	4	2	2	3	3	4	4	4
104	0	1	1	1	1	5	5	1	1	3	2	5	3	3
105	0	1	0	1										
106	0	0	1	1	2	4	4	1	1	2	3	4	2	2
107	0	0	0	0	2	5	5	2	1	2	3	5	4	4
108	0	0	0	1										
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110	0	0	0	0	3	5	4	3	3	4	3	5	4	4
111	0	1	1	1	3	4	5	2	3	4	2	4	5	5
112	0	0	0	1	1	5	3	1	1	3	1	3	3	3
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114	0	0	0	1	2	5	4	1	2	2	4	4	4	4

Survey #	Question Number													
	1.1.	5.7.	5.8.	5.9.	5.10.	6.1.	6.2.	6.3.	6.4.	6.5.	6.6.	6.7.	6.8.	6.9.
115	0	0	0	1	4	5	5	3	3	3	4	3	3	
116	0	0	0	0	5	4	3	4	3	3	4	4	4	
117	0	0	0	0	3	4	3	3	3	4	4	4	4	
118	0	0	0	0	3	3	3	3	3	3	3	3	3	
119	0	0	0	1	3	3	3	3	3	3	3	3	3	
120	0	0	0	0	5	5	5		4	4	4	4	4	
121	0	0	0	0	3	4	5	1	4	3	3	3	3	5
122	1	1	1	1	5	5	5	1	3	3	4	5	5	
123	0	0	0	0	3	4	5	3	3	3	4	5	4	
124	0	0	0	0	3	3	3	3	3	3	3	3	3	3
125	0	0	0	1	5	5	5	2	3	3	3	5	3	
126	1	0	0	1	3	4	4	2	2	3	3	4	5	
127	0	0	0	1	4	5	3	1	1	2	4	4	4	
128	0	0	0	1	5	4	4	1	2	3	2	3	4	
129	0	0	0	1	4	4	3	3	3	2	3	4	3	
130	1	0	0	1	3	4	4	2	2	3	3	4	5	
131	0	0	0	1	3	5	4	1	2	3	4	3	3	
132	0	0	1	0	2	5	5	1	1	3	2	4	3	
133	0	0	1	1	4	5	5	1	2	3	2	5	4	
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135	0	0	1	1	4	5	4	4	5	4	5	5	5	
136	0	0	0	1	3	4	4	1	2	3	2	2	1	
137	0	0	0	0										
138	1	1	1	1	3	4	3	1	2	3		2	4	
139	0	0	0	1	3	3	3	3	3	3	3	3	3	
140	0	0	0	1	4	4	5	1	1	1	1	1	1	
141	1	1	1	1	1	1	1	1	1	1	1	1	1	
142	1	1	1	1	4	3	4	5	5	5	4	5	5	
143	0	0	0	0	1	1	1	1	1	1	1	1	1	
144	0	0	0	0	4	5	5	4	4	5	5	5	4	
145	0	0	1	1	5	5	5	5	4	5	3	5	5	
146					5	5	5	3	3		4	4	4	
147	0	0	0	0	3	4	2	4	3	2	3	3	3	
148	0	0	0	0	4	5	4	4	4	5	4	4	5	
149	1	1	1	1	2	3	2	4	1	3	1	3	5	
150	0	0	0	0	4	5	5	2	2	2	3	4	3	
151	0	0	0	1	3	4	4	2	3	3	3	4	4	
152	0	0	1	1	5	5	4	5	5	4	3	4	5	
153	0	0	0	0	5	3	4	3	5	3	3	5	5	

Appendix 13 – Community Survey – Comments Recorded on Questionnaire

1. Comment from Survey No. 2

The root of all evil is money. People want money in their pockets and will not spend it to save our environment.

2. Comment from Survey No. 75

- a. Feedback is vital to groups i.e. Monitoring Groups, NGOs etc.
- b. Direct feedback to general public is not an option due to apathy as well as a lack of knowledge regarding environmental issues and legislation
- c. Environmental awareness should feature highly in any mission statement and vision of any company

3. Comment from Survey No. 83

Sorry I have NOT been very helpful, as I have only been living here since Dec 2005 and have NO idea what Markman is. I only know how burning at the municipal rubbish dump has affected our health. I have completed the form where I can.

4. Comment from Survey No. 92

- Pollution levels are ridiculous. At least twice a month Bluewater Bay (my house) is filled with a terrible sulphur-like smell.
- The emissions are not consistent; sometimes we wake up in the night with this polluted air and even at times have had to travel to Summerstrand to get a good nights' sleep with fresh air.
- I sincerely hope that something is done about this and fully support you in your efforts to maybe doing something about the problem as this is not acceptable and is of extreme concern.

5. Comment from Survey No. 104

NB There is not one Markman Industry that will support the Swartkops Trust except:

1. Enviroserv
2. Corobrik
3. Algorax
4. Nqura Brick
5. C.D.C.

Hon. Treasurer

Z. Trust

6. Comment from Survey No. 120

Note: We have lived in Bluewater Bay for just over a year and the water is very poor.

- I have a 4 ½ month old baby and I wanted to use the cold water sterilising solution for her bottles, yet when I put the solution in the water it does not change colour, it is supposed to turn pink.
- Bathing is also not nice, as you itch when you get out.
- It is a worry to even drink the water!

7. Comment from Survey No. 124

Comments written after various questions.

Part 2

Note: Realise that industry is an important group of employers in an area with high unemployment.

Part 4

- 4.10 & 4.11 By industries concerned?
- 4.16 By whom?
- 4.20 What organization?
- 4.26 With whom?

Part 5

Really I have no objective information. You really should have included the Aloe Community in your survey, and targeted those who do have personal experience.

Part 6

Again, I have no objective information.

Appendix 14 – Community Survey –Letters Attached to Questionnaire

Letter No. 1

Dear Brett,

Congratulations on your research with regard to “pollution” in our area.

My husband and I have been living in Bluewater Bay for 4 years, prior to that we were farming in Zimbabwe. We live in a complex of 18 Town Houses.

I have observed the following problems:

1. We all seem to have problems with sinus infections, coughs and general allergies – I have spoken to our doctor, and he claims it is common in Bluewater Bay – due to the pollution. We never had this problem before.
2. The smells we have to endure are revolting.
 - Sewage – on the N2
 - Skins – pelts
 - If you walk under the bridge on the N2, it smells of sewage – dreadful
 - Turn on the tap and you are knocked out by the chlorine fumes!
 - Fumes from vehicles on the N2

The industrial grime is frightful – the windows, curtains and walls are covered in black grime – I believe from XXXX.

Thank you for your help – save our beautiful bay.

Yours sincerely,

XXXXXX

Letter No. 2

Dear Brett Williams,

Should you be able to spare the time, please contact me on my home telephone no: XXXXX. I feel I might be able to impart some information on confronting air pollution (pungent odour) which was addressed and overcome at the fishmeal producing plants in Hout Bay Harbour (Cape Town) during the years 1940 -1950.

Yours truly,

XXXXXXXX

Letter No 3

Hi Brett,

Very pleased that you are surveying the problem.

We have a factory in Markman (XXXX) and can speak from experience.

1. The smells coming from the tannery (XXXX) are the worst I've experienced.
2. 'Green foam' has been seen coming up from manhole covers in the vicinity of the tannery. (ref. Mr XXXX, XXXX)
3. The owner of the tannery, XXXXX, is often quoted as saying 'It's the smell of money!'
4. XXXXX. park their vehicles nearby at XXXXX. You will notice that all chromed parts are covered in tape to prevent corrosion. (No other XXX needs to do this.)
5. About a year ago, a new stinking enterprise began. "XXXXX" next to XXXX, make XXXXXX out of animal XXXXX. The smell is horrific. When the XXXX management asked the Health Department to investigate, a lady visited XXXXX and declared "She's not going in there..., the stench is too much...!" Nothing further happened.
6. The local primary school organized a petition regarding the pollution problem about 3 years ago – no effect.
7. We have been advised by the local municipality that there is nothing they can do, but the newly formed "Green Scorpions" have been informed, and new legislation is awaited.
8. I have offered to shoot Mr. XXXXX at a community forum meeting!
9. We are moving out of Bluewater Bay in the interest of our health.

Best of luck,

XXXXX