ENVIRONMENTAL REPORTING DISCLOSURE IN SOUTH AFRICA, A COMPARATIVE STUDY OF THE EXPECTATIONS OF KEY STAKEHOLDER GROUPS

by

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Preface

The research described in this mini-dissertation was carried out at the Centre for Environment and Development, University of Natal, Pietermaritzburg, under the supervision of Dr Nevil Quinn.

This mini-dissertation represents the original work of the author and has not otherwise been submitted in any form for any degree or diploma at any university. Where use has been made of the work of others, it is duly acknowledged in the text.

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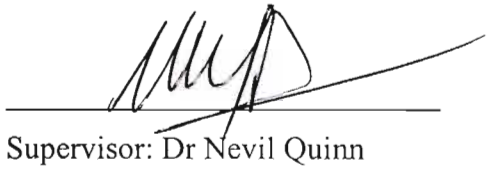

Supervisor: Dr Nevil Quinn

Abstract

Part A of this dissertation, represents the literature review and project outline for this study, and includes the definition of the research problem, aims, objectives and the proposed methodology. The literature review considers the emergence of environmental accounting and reporting in the context of the escalating environmental crisis. It reviews the role of accounting prior to the development of the concept of sustainable development, and subsequently focuses specifically on the rise to prominence of environmental reporting and accounting thereafter. It reviews major academic works in this field as well as major international guidelines, standards, protocols and charters on environmental reporting. In addition, the study also reviews the limitations and problems associated with traditional and environmental accounting, and environmental reporting. It proposes a framework that considers the forces influencing environmental reporting, and briefly examines the previous evidence of the contrasting attitudes and perceptions of both preparers and users of such environmental reports.

Arising out of this literature review, a study was developed that would measure and compare the expectations of three key stakeholder groups with regard to environmental accounting and reporting, namely:

- The companies responsible for preparation
- Environmental professionals, who assist in the preparation of these reports or attest as to their validity, and
- Environmental activists, pressure groups and non-governmental organisations (NGOs) that rely on such reporting to assess the impact of a company's activities.

The study would look at the perceived importance of environmental reports, the areas that are reported on, and the levels of disclosure. It would then contrast the expectations of the above three groups and compare these to the minimum reporting levels required by the only officially endorsed international reporting guideline in South Africa, the Global Reporting Initiative (GRI).

The second part of this dissertation (Part B), is presented in the form of a research paper, and is presented in the specific format required by the academic journal

Corporate Social Responsibility and Environmental Management, a *Wiley InterScience* publication, to which it will be submitted for publication, (after final editing to reduce its overall length). This second part includes a brief review of key literature, the aims, objectives and hypothesis of the study. It then details the methodology and the findings, which are discussed in depth. These findings include significant differences that were found between the expectations of the three groups, and differences between these expectations and the reporting specifications of the GRI. The environmental activists and pressure groups were found to expect greater levels of disclosure than professional environmental consultants, who in turn expected higher levels of disclosure than companies and their representatives. There were also significant differences between the responses of the three groups with regards to the importance of specific areas of environmental disclosure. The responses were more skewed towards considering most specific areas of disclosure as very important or extremely important, by the environmental activists and pressure groups. This was more so than for the environmental professionals or company respondents who also considered most of these areas as important or very important.

Acknowledgements

I would like to express my appreciation to my supervisor Dr Quinn, and thank him for his patience, time and commitment to guiding this study, and particularly for reading the lengthy preliminary drafts.

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Abbreviations

AAA:	American Accounting Association
ACCA:	Association of Chartered Certified Accountants
AFS:	Annual Financial Statements
AICPA:	American Institute of Certified Public Accountants
BS:	British Standards Institute
CERES:	Coalition of Environmentally Responsible Economies
CEO:	Chief Executive Officer
CICA:	Canadian Institute of Chartered Accountants
CICA:	Canadian Institute of Chartered Accountants
EIA:	Environmental Impact Assessment
EMAS:	Eco Management and Audit Regulation
EMS:	Environmental Management Systems
ESAP:	Environmental Assessment Programme
FASB:	Financial Accounting Standards Board
GAAP:	Generally Accepted Accounting Practice
GATT:	General Agreement on Tariffs and Trade
GDP:	Gross Domestic Product
GEMI:	Global Environmental Management Initiative
GM:	Genetic Modification
GRI:	Global Reporting Initiative
IAIA:	International Association of Impact Assessment
IAS:	International Accounting Standards
ICAWE:	Institute of Chartered Accountants of Wales and England
ICC:	International Chamber of Commerce
ISO:	International Standards Organization
IUPN:	United Nations the International Union for the Protection of Nature
IUCN:	International Union for the Conservation of Nature
JSE:	Johannesburg Stock Exchange
King II:	The King Report on Corporate Governance in South Africa
LCA:	Life Cycle Analysis
MNE:	Multinational Enterprise

NEMA:	National Environmental Management Act
NGO:	Non-Governmental Organisation
SMS:	Safe Minimum Standard
UN:	United Nations
UN CTC ISAR:	United Nations Centre for Transnational Corporations Intergovernmental Working Group of Experts on International Standards
UNEP:	United Nations Environmental Programme
UN SEEA:	United Nations Satellite Environmental and Economic Accounts
WCED:	United Nations World Commission on Environment and Development
WTO:	World Trade Organization

Part A

CHAPTER 1. INTRODUCTION

1.1. The environmental crisis, business and the role of environmental accounting

The earth is currently facing a major environmental crisis, often referred to as the sixth great extinction (Ehlrich 1986), whereby species of fauna and flora are becoming extinct at a rate not seen since the dinosaurs became extinct 65 million years ago. These extinctions are not being caused by any natural phenomena, but rather by mankind's ever increasing exploitations of natural resources, the destruction of natural habitat to meet the needs of the ever increasing human population, and as a result of the by-products of human activity, which is commonly referred to as pollution (Dewar 1994).

As pollution and the destruction of natural resources progressed over the last century, so did the objection of society (McCormick 1989). Environmental problems are recognised as a direct consequence of economic activity, specifically industry and agriculture (Kneese 1977). In fact the entire present economic world order is by its nature, unsustainable (Gladwin, Krause & Kennely 1995). Although in developed countries business and industry were largely seen as the perpetrators of this destruction, the pressures of the expanding human population as a whole can be considered to be the primary driving force (McCormick 1989). The environmental movement developed over the latter part of the last century as environmental issues became matters of public concern. Various pressure groups, agencies and international organisations were created to address these problems (McCormick 1989).

The concept of sustainable development as a necessary response to this environmental crisis, was highlighted in the Brundtland Report (United Nations World Commission on Environment and Development (WCED) (1987), and became the overarching principle of Agenda 21. In 1992 165 countries became signatories to this agreement at the Rio Conference. The concept of sustainable development embodies the principle that all development should be such, that it meets the needs of current populations without depriving future generations of the ability or resources to meet their needs (WCED 1987). Agenda 21 focuses largely on development issues such as land use, agricultural practices, and the provision of services and potable water, which are primarily the domain of governments, the United Nations (UN) and various other international agencies. However,

the impact of industry on the environment cannot be overlooked and hence the need for sustainable business and the measurement thereof. Although the direct impact of industry is very visible in developed western nations, it also impacts significantly both directly and indirectly, in less developed countries. It is common practice for multinational enterprises (MNEs) use such countries as production sites due to cheap labour, cheaper or under-priced natural resources, and leniency or unenforceability of environmental regulations (Ellwood 2001).

The indirect impact of industry on the environment however is often far greater. Trade barriers and subsidies encourage the over-use and extraction of natural resources from such less developed countries (Ellwood 2001), and do not allow for an equitable return of funds to facilitate economic growth and sustainable development in such countries. This perpetuates the cycle of poverty and exploitation of the natural resources in such countries.

The power of such multinational corporations cannot be underestimated. Hert (2003) determined that of the worlds largest 100 economies, 51 are corporations and that the turnover of General Motors and Ford combined is greater than that of the whole of sub-Saharan Africa. Several multinational enterprises are far more powerful and control more economic resources than most countries in the world (Kaufman 2002), including developed countries such as Norway and Sweden and developing countries like South Africa and India.

The power and influence of such businesses is not only felt by the less developed nations but also impacts on the more developed western nations. In such countries the activities of these corporations are controlled through self-regulation, government intervention, legislation, and the free market mechanism (Randall 1987). Clearly, self-regulation will never be self-defeating when such organisations are run by a profit motive, and will always remain within the bounds of competitive advantage. Governments cannot effectively regulate the activities of industry without the required information that effective environmental accounting and reporting could provide. The free market system, as a regulatory mechanism, has to date been ineffective in regulating the utilisation of natural resources (Dewar 1994). For some time it has been known that natural resources have been priced too cheaply, and have consequently been exploited at too rapid a rate (Hotelling 1931) to be sustainable. Thus the provision of data on utilization of natural resources and

the impact on the environment, which is the function of environmental accounting and reporting, could be essential in providing sufficient data for effective government regulation and the proper functioning of the free market mechanism, appropriately pricing these limited, scare and / or non-renewable resources.

Companies could be held financially accountable for any pollution they caused in the past, despite being legally and technologically acceptable at the time of such pollution. This was clearly illustrated by the Love Cannel incident in upper New York State (Dewar 1994) which Rubenstien (1991) summarises as the past being judged by present (future) standards. In the light of this precedent, potential investors in companies should be fully aware of all potential environmental liabilities of companies, not only as they may give rise to losses in such companies and hence result in a diminution in the value of their investment, but because it is also conceivable that the shareholders themselves could ultimately be held accountable.

1.2. Problem statement

While environmental accounting and reporting was firmly established by 1973 (American Accounting Association (AAA)), it has only recently begun to develop since the transference of the concept of sustainability to business in the 1990s. Although leading countries such as Canada and the United Kingdom (Canadian Institute of Chartered Accountants (CICA); Institute of Chartered Accountants of Wales and England (ICAWE)) have environmental accounting standards, there are no equivalent international accounting standards. Various voluntary international environmental reporting protocols and guidelines do however exist (Coalition of Environmentally Responsible Economies (CERES) 1989; Global Environmental Management Initiative (GEMI) 1992; Eco Management and Audit Regulation (EMAS) 1995; Global Reporting Initiative (GRI) 1997)[1].

If the existing reporting guidelines, protocols and standards do not provide full or effective disclosure[2] to the users of these reports, then these users cannot make meaningful assessments of the activities of the reporting companies, and are thus unable to take any

[1] Refer to section 2.4.2. for more details on these initiatives.
[2] Disclosure refers to the presentation of information, facts or data in any form of public report, specifically including annual corporate reports and the annual financial statements (AFS).

appropriate action. The corollary of this, is that if these existing reporting guidelines, protocols and standards only provide partial or irrelevant information, the full impact of the activities of these companies would be hidden (Laughlin 1999).

Various international bodies are working on comprehensive environmental reporting guidelines (United Nations Centre for Transnational Corporations Intergovernmental Working Group of Experts on International Standards (UN CTC ISAR) 1991). Should a final standard emerge with weak reporting criteria, it will either:

- Be rejected by companies, who will continue to use the multitude of guidelines that already exist, or
- Be adopted and hence defeat or impede any further attempts to bring more comprehensive standards into play

Thus it is essential in considering the composition of any comprehensive international standard to establish the requirements and expectations of the users and preparers, and to be aware of any existing expectation gap with respect to current guidelines, so that this may be addressed in any future international environmental reporting standard. Differences are not only likely to exist between user expectations, and existing guidelines, but more importantly between users and preparers' expectations of environmental reporting (Gray, Owen & Adams 1996). It is these differences, and the direction of these differences that this study will focus on, as being important influences on the future directions of environmental reporting.

The hypothesis of this dissertation is that the existing reporting standards do not promote full sustainability, by not providing full or effective information to the users of these reports. It follows from this that existing reporting, by providing partial or irrelevant information, serves to hide the impact of the activities of these companies (Laughlin 1999) and deny the users the right to accurate information.

This study will try to establish whether an expectation gap does indeed exist between select user and preparer groups, and how important they consider specific areas and levels of environmental disclosure to be. In this study, companies (as a group) and environmental professionals (as a group) will represent the preparers (in total), whereas environmental activists and pressure groups will exclusively represent the user group.

The research questions that will be addressed in this dissertation with respect to the above three selected groups, will be:

- What are key stakeholder and preparer's expectations for areas of disclosure and level of detail of environmental reporting?
- How do these differ?
- How do these differ from the requirements of the Global Reporting Initiative, (the only officially endorsed international standard used in South Africa)?

The overall approach used in this study is consistent with the conditional-normative approach as proposed by Mattessich (1995) for accounting research, that allows for empirical techniques to statistically evaluate data, set in the normative context of the relative importance of environmental reporting.

1.3. Research Aim

To determine whether expectations, with regard to areas and levels of environmental reporting disclosure, differ between the selected key stakeholder and preparer groups and the requirements of the GRI.

1.4. Objectives

- To determine what constitutes generally accepted areas of environmental reporting disclosure (that can be used for comparisons listed below), with reference to various standards, guidelines and indices.
- To determine what (potential) levels of reporting are possible.
- To determine and compare the expectations of the three selected groups with respect to the following:
    - Levels of disclosure necessary
    - Importance of various areas of disclosure
    - Format of environmental reports
- To assess what the requirements of the GRI are with respect to the areas of disclosure determined above.
- To determine through comparison, if any significant differences exist between expectations of users and preparers and the GRI guidelines.

CHAPTER 2. LITERATURE REVIEW

2.1. The origins of the environmental crisis and the birth of accounting

The world's biodiversity is being lost at an alarming rate. Other prehistoric extinctions have occurred from natural occurrences, but this current mass extinction, know as the sixth great extinction, is solely due to humankind's often deliberate but otherwise careless destruction of the natural environment (Ehlrich 1986).

Humans have existed on earth as a distinct species for the last million years, where they have competed with other creatures as hunter-gatherers. However it is their dominance and efficiency as hunters that have contributed to their significant impact on the survival of other species (Goudie 1993), and it is certain that over the last several millennia, the extinctions of numerous species of animals and ground birds in North America, Australia, New Zealand and the Polynesian Islands can be directly attributed to arrival of humans (McCormick 1989).

The accepted origins of present human civilisation have been attributed to Mesopotamia 8000 years ago (Mattessich 1995). It has been suggested from studies of clay tokens and purses that writing, counting and accounting arose from the need to record commercial activities, initially orientated around livestock (Mattessich 1995). Records and accounting for goods and taxes played a key role in the success of great ancient civilisations from the Egyptian to the Roman Empires. From the development of modern accounting by Pacioli in the 15th century, accounting and record keeping also played a key role in the great mercantile age from the 16th century onwards as the European nations colonised the Americas, Africa, Australia, and many eastern countries, leading to wholesale abuse of the environment.

2.2. The industrial revolution to the 1980s

McCormick (1989) identifies the industrial revolution as being characterised by the introduction of large-scale mechanised production and the emergence of the chemical industry. The consequences were enormous for the environment, both in the resulting pollution that occurred and the increased extraction of raw materials from the environment, not only in Europe and America, but also throughout the colonies (McCormick 1989). The growth of industries saw a proliferation of companies and a separation of ownership from management. It was at this stage that accounting began to assume its present significance in business. In terms of the Agency Principle (Ross, Westerfield, Jordan and Firer 1996), the appointed management of a company should strive to serve the interest of the owners (the shareholders). Accounting serves to report on the performance of the company so that the shareholders can determine to what extent their interests are being served. These goals have been simplified over time into one over-arching principle of business and financial management, namely, "to maximise shareholders wealth" (Ross *et al.* 1996:8).

The effect of this industrialisation on the environment did not go unnoticed. Early naturalists played a key role in awakening an appreciation and respect for nature (McCormick1989). The theories of Darwin helped establish the concept that humankind was a product of nature, and hence was not above it and thus should respect it. The abuse of animals, forests and nature in general, in colonies such as Australia, India and South Africa lead to initial protection measures being put in place including laws and reserves (McCormick 1989). Up to that stage there was a thriving industry in animal hides, ivory and forest products. However, the sudden scarcity of these resources prompted a reaction to protect future supplies. A similar situation developed in America in the 1860s, and laws were passed and land was protected (McCormick 1989).

The British government also noticed the effect of the industrial revolution and chemical industry on the environment, and responded by passing the Alkali Act in 1863. The period from 1860 to early 1900s saw a multitude of environmental societies being formed throughout Europe and America. These groups played a key role in bringing environmental issues to the public agenda (McComrick 1989). During this period, academic accountants focused exclusively on technicalities of recording financial transactions (Mattessich 1995). However, by the early 20th century, several accountants began to question the purpose of

business (and the role of accounting therein), suggesting that it should not be solely about maximising profits (Mattessich 1995). Hotelling wrote in 1931 (cited by Dewar 1994: 48), the "contemplation of the world's disappearing supplies of minerals, forests and other exhaustible assets has led to demands for regulation of their exploitation. The feeling that these products are now too cheap for the good of future generations, that they are being selfishly exploited at too rapid a rate, and that in consequence of the excessive cheapness they are being produced and consumed wastefully has given rise to the conservation movement".

The devastation of the great depression of the 1930s and subsequent World War II, gave rise to an opportunity for industry to rebuild itself, which ultimately led to an economic boom in the 1950s and 1960s (Ellwood 2001). This massive period of growth and development had a major impact on the environment. Civil society responded, and the environmental movement emerged as a powerful force. McCormick in his 1989 book, *The Global Environmental Movement,* suggests that the environmental revolution started in earnest in 1962. During the 1960's a combination social protest, the emergence of environmental organisations, and several environmental disasters played a key role in raising public awareness and adding strength to the environmental movement (McCormick 1989). It was against this backdrop, and as a response to these growing environmental concerns, that environmental accounting first emerged.

Environmental accounting can be defined as all aspects of accounting that relate to environmental issues and the company's response thereto (Gray & Bebbington 2001). It incorporates traditional techniques, in the accounting for environmental issues in:

- Contingent liabilities
- Capital budgeting decisions
- Cost analysis, and
- Cost benefit analysis

Environmental accounting also includes the development of new accounting techniques to account for the environment, such as converting ecological expenses, assets and liabilities into financial terms. These developments have impacted on accountants working in a variety of roles (Gray & Bebbington 2001) such as

- Financial accountants
- Management accountants
- Systems accountants
- Project accountants, and
- Auditors (both internal and external)

Environmental accounting and reporting is thus a relatively new concept in the field of accounting, which has, as a discipline, remained relatively unchanged for several centuries. The first significant report on environmental accounting, was published in 1973 by the American Accounting Association (AAA). The impact of this report was far reaching in that it suggested that companies should report on:

- Identifiable environmental problems
- Specified abatement goals
- Progress towards meeting such abatement goals
- Disclose all material effects on current and future financial performance (Income Statement) and position (Balance Sheet).

The AAA report (1973) also suggested that the above-mentioned environmental data should be independently verified. These recommendations were not, however, translated into standards (for compliance) for almost another 20 years.

Since this initial AAA report (1973) and up until the 1990s, environmental accounting has remained largely a sub-field of social accounting. Social accounting was defined by Ramanathan (1976 cited in Dewar 1994: 49) as "the process of selecting firm-level social performance variables, measures and measurement procedures; systematically developing information useful for evaluating the firms social performance; and communicating such information to concerned social groups, both within and outside the firm." Among the objectives of social accounting as defined by Ramanathan (1976 cited in Dewar 1994: 75) was "to identify and measure the periodic net social contribution of an individual firm", which implies that such social cost should be quantified in monetary terms. The Accounting Framework[3] AC000 (South African Institute of Chartered Accountants (SAICA) 1996) upon which all other accounting standards in South Africa are based, clearly identifies the public and interest groups as users of financial statements.

Various studies have been conducted to determine the impact of social disclosure on the market price of the shares of the reporting companies. Anderson and Frankle (1980) found that the market values social disclosure positively (Dewar 1994). Belkaoui (1976) found that disclosure of pollution control expenditures had a large positive, but temporary effect on share price. Spicer (1978) found a similar relationship when comparing to a wider range of value indicators, that is, not just the share price. Ingram (1978) found that the value of the information content of social disclosures varied per industry segment. Wiseman (1982) found that there was in fact no relationship between disclosures and independently assessed social performance, which is consistent with the notion that environmental and social disclosures are presented largely to improve the corporate image of the organisation and not to reflect the reality of its performance. Shane and Spicer (1981) found that there were predictable share price movements in relation to independently monitored social performance, by the Council on Economic Priorities. Mahapatra (1984) found that investors considered pollution control expenditure to be a drain on the company's resources and hence such disclosure adversely affected the long-term share price. Freedman and Jaggi (1986) found that the extensiveness of the environmental disclosure had no impact on investor's decisions. There were however, several subsequent studies that criticized the methodology of Freedman and Jaggi's study (Cooper 1988; Haw & Ro 1988).

Corcoran and Lieneger (1970) suggested that companies should produce environmental exchange reports considering inputs and outputs of physical and human resources (Dewar 1994). Beams (1970) suggested creating an 'Industrial Site Deterioration' account (debit = expense) and a contra account the 'Allowance for Industrial Site Deterioration' (credit = balance sheet provision[4]). Marlin (1973) suggested that companies should report on pollution output, comparing with legal standards and also possibly to best available technology standards. Marlin also noted that if environmental liabilities were not being accrued, this would imply that these costs were not being incorporated into the determination of profits. Seidler (1973) developed social income statements for profit and non-profit organizations (Dewar 1994). Estes (1976) developed a comprehensive social

[3] An equivalent international framework exists (International Accounting Standards (IAS)) and a similar framework applies in the US (Financial Accounting Standards Board (FASB))
[4] The equivalent of accumulated depreciation on plant and equipment

accounting model that accounted for all the impacts of a company, its directors, shareholders and employees activities. This was (and still is) a very powerful model. Subsequent to the emergence of the concept of sustainable development (refer to section 2.3), Rubenstien (1991) proposed the creation of a natural capital account, which could be separately disclosed in the financial statements, and Gray (1992) suggested the use of non-financial accounts to account for the biosphere.

During this period (up to 1987), limited environmental and social reporting became popular amongst leading companies. The Ernst and Ernst (1979) study of Fortune 500 companies in the United State found that 90% of these companies had some form of environmental disclosure. At the same time Brockhoff (1979) found that 70% of German companies had some form of social disclosure.

Any study on corporate environmental reporting would not be complete without considering the effectiveness of corporate social reporting (CSR), which includes both social and environmental aspects. This has been done in two different manners, namely:

- A reputation index monitored by external bodies and experts. The Council of Economic Priorities maintained such indices in the 1960s and 1970s. However such indices were criticized as being subjective (Dewar 1994).
- Content analysis. In this approach, reports are rated on whether they contain specific disclosures or not. Although the selection of which types of disclosures to be considered is subjective, the remaining application of these techniques is entirely objective (Dewar 1994). Independent research studies use content analysis, typically to compile a disclosure index. These disclosure indices are based on the selected items that need to be disclosed, then are given an appropriate weighting. This weighting is often established by surveying users needs and preferences to establish the relative importance of the specific items of disclosure.

Prominent examples of the latter, that is social reporting indices, from academic literature (prior to the emergence of sustainable development) are included in the following table:

Table 1: Significant use of social reporting indices, to evaluate the corporate reports of companies

Year/s	**Person/s credited with development**
1971	Singhvi and Desai
1974	Buzby
1976	Barret
1982	Wiseman
1978, 1984	Firth. Adapted for South Africa in 1986 by Firer and Meth.

The validity of these indices is a function of their meaning (Dewar 1994). However it must be borne in mind that despite their wide acceptance, that they are not without problems, such as they might not be applicable to certain types of companies.

The emerging environmental crisis in the 1960s not only resulted in society responding in the form of the environmental movement, but governments also responded by promulgating various legislation, (initially in the US and UK), enacting key acts to protect the water, sea, land and air (McCormick 1989). This legislation was soon replicated around the world in various forms by other developed and developing nations. In 1980 the US issued the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), which was designed to require those companies responsible for polluting specific sites to pay for the clean-up costs of these sites. Where such a company was not in a financial position to do so, the funds could be obtained from a state fund, which was maintained by levies charged on all businesses. This US legislation was structured so that costs could also be recovered from related parties, including any banks that financed the activities of the defaulting companies. Of the 27000 polluted sites identified by the Environmental Protection Agency (EPA) by 1988, only 43 had been cleaned up while 124 were still being rehabilitated (Wheatley 1991). Wheatley (1991: 208) suggests that, " the situation in the US is so serious that it threatens the solvency of the whole insurance industry as well as the solvency of many of the major corporations in the US. The EPA has estimated that the cost of cleaning up the 27000 waste disposal sites in the US would approach one trillion dollars".

The oil crisis of the 1970s, the subsequent abandoning of exchange controls and the massive financial aid (in the from of conditional debt) provided to struggling third world countries, were key factors which contributed to the beginning of the present globalisation crisis (Ellwood 2001). Ironically this crisis, and the enormous suffering and devastation in the undeveloped world, it contributed towards, lead to the Brundtland Report (WCED 1987) and the promotion of the concept of sustainable development as the answer to the social and environmental problems of the world.

2.3. Sustainable development

2.3.1. Defining the concept

Central to the notion of the environment and business is the concept of sustainability and sustainable development. Sustainable development is defined as:

> "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987:8).

Pezzey (1989) raised the following questions regarding the meaning of sustainability:

- What does the term mean?
- What is ideologically and politically acceptable?
- And how can it be practically applied?

Other concerns regarding the concept have been raised by others authors (Rubenstein 1989; Gray & Bebbington 2001).

The following table is adapted from Rubenstein's book *Environmental Accounting for the Sustainable Corporation* (1989), and is known as the three 'Es' of sustainability:

Table 2: The 3 'Es' of Sustainable Development

Economically sustainable	• Costs competitive • Demand sustainable • Profits sustainable
Equity of demand and distribution	• Equitable distribution of wealth • Equitable distribution of product
Ecologically sustainable	• Natural capital sustainable • Stress load sustainable • Web of life sustainable

Source: Rubenstein (1989: 39) *Environmental Accounting for the Sustainable Corporation*

Conceptually, sustainability consists of three core principles, (Gray & Bebbington 2001: 296), namely:

- Eco-justice: "the equality between people and generations"
- Eco-efficiency: "reducing inputs of material and energy per output"
- Eco-effectiveness: "reducing mankind's overall environmental impact (footprint)"

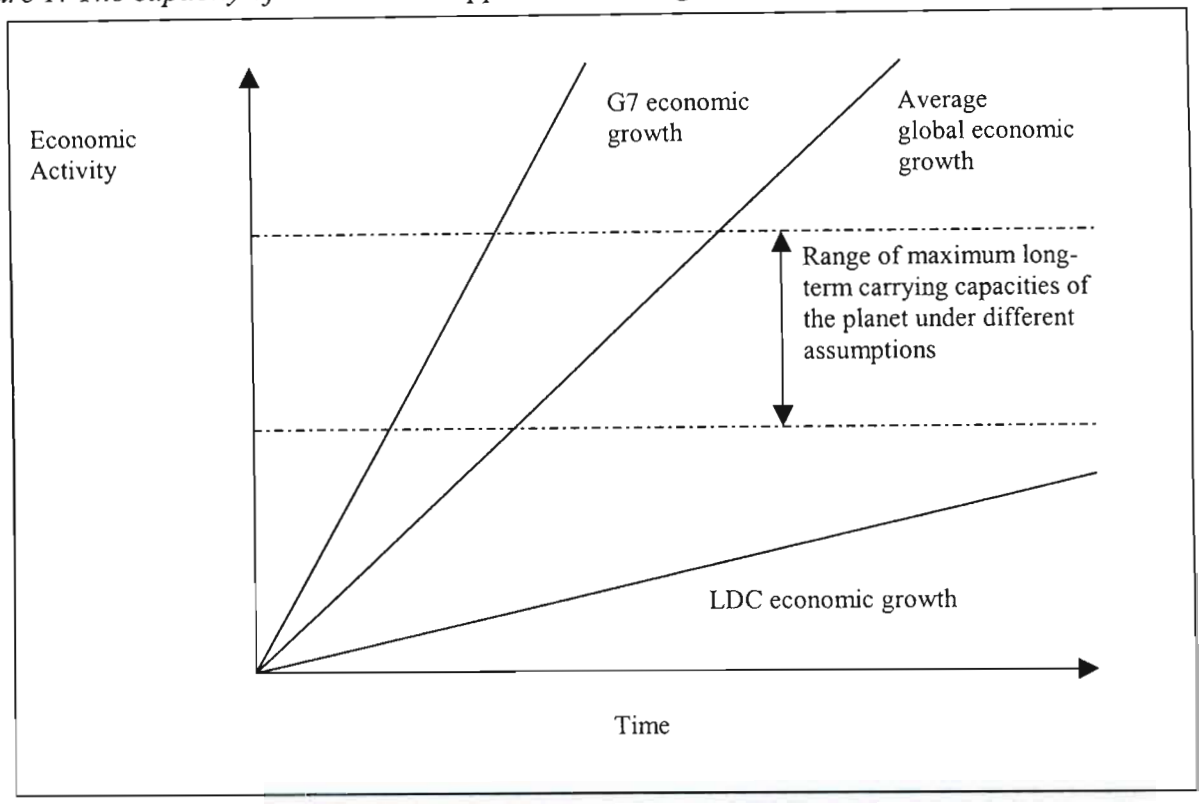
Gray and Bebbington (2001) argue that all three of these principles need to be attained to achieve sustainability. However, of the three 'ecos' the only one that might be considered practically achievable by industry is eco-efficiency. This would be achieved through the reduction of inputs, waste and energy usage per unit of production, technological development and production process improvements.

Although the WCED (1987) definition is widely accepted as standard, there is much confusion as to exactly what it means and the realities embodied in true sustainability. This has given rise to widely differing uses of the term, in a variety of contexts, which are sometimes not only misleading, but incorrect. This abuse, although not necessarily all deceitful has been used in a variety of business and development ventures to gain acceptance by the public (Gray & Bebbington 2001).

The question of what needs are to be met, (present or future), requires investigating as to what these needs are and how they are to be met. To maintain western lifestyles and standards, requires continuous economic growth to support development, in order to meet consumption (i.e. needs) and generate capital for future growth (Randall 1987). However, there is no evidence to suggest that any future reduction in consumption or degradation will occur, and it is likely that only economic growth will be pursued. It is argued by Gray and Bebbington (2001), that it is this western growth ideology that caused the current economic crisis, and hence the premise of growth and development is contradictory to the concept of sustainability. The implication of this assumption is that in order to achieve sustainability, present western lifestyles (replicated throughout the world) need to fundamentally change (Ellwood 2001). It is suggested that such an idea would be untenable to most people from developed nations and completely contrary to the interests of business. Rubenstein (1989) notes that for an individual person, most forms of transport are unsustainable, as are appliances and utensils, (since these all use limited resources, even with partial recycling being possible). Energy consumption for heating, lighting or

entertainment, is largely from unsustainable sources. Food, as currently grown, with Genetic Modification (GM), herbicides and pesticides cannot be sustainable in the long term. Thus the core components of the lifestyles of developed countries are unsustainable (Rubenstein 1989). Figure 1 illustrates the constraints to economic growth.

Figure 1: The capacity of the earth to support economic growth



Source: Gray & Bebbington (2001: 299) *Accounting for the Environment*

Clearly, current trends are not only unsustainable, but the planet is heading rapidly to the collapse of its' ecological systems. In developed countries, standards of living are rising while in developing countries the swelling populations are plunging deeper into poverty (Ellwood 2001). The question of how long until ecosystems crash and where the 'point of no return' is, has not been concretely established by science, and probably can only be determined by trial and error. Such an error would be the final fatal error for humankind (Ehlrich 1986).

2.3.2. The economic and accounting interpretation of sustainable development

There are three pioneers in this field, Daly, Pearce and Turner. They have extended the rather vague concept of sustainable development into a more precise academic form. Pearce's definition is that sustainable development means maintaining "constancy of

natural capital 'stock'. More strictly, this equates to the requirement for non-negative changes in the stock of natural resources such as soil and soil quality, ground and surface waters together with their quality, land biomass, water biomass, and the waste assimilation capacity of the receiving environment." (Pearce, Markandya & Barbier 1989: 48)

Turner (1988) classifies the capital available to humankind into three categories:

- Critical Natural Capital: which represent those parts of the biosphere, which are essential to support life, i.e. life would fail without such.
- Other Natural Capital: this includes other elements of the biosphere which are renewable, sustainable or for which substitutes can easily be found.
- Artificial Capital: this represents products produced by man from elements of the biosphere, which are non-naturally occurring e.g. machinery and equipment.

The premise of Turner's (1988) work is that the production of artificial capital implies a reduction in natural capital unless it stems from a sustainable source. Reductions in critical natural capital theoretically cannot be allowed to occur (Pearce *et al.* 1989) although they do, and reductions in other natural capital should be replaced, renewed or substituted for. The problem we face now is to identify which are the critical natural assets and what are their thresholds (Hamilton 1997). This has lead to the concept of safe minimum standards (SMS), i.e. the use of resources beyond which will cause irreversible damage to be done (Farmer & Randall 1998).

Gray and Bebbington (2001) argue that the problem with the current economic and financial systems of the world is that they only report on artificial capital, for example the gross domestic product (GDP) that shows success and growth, and hides reduction and loss of the natural capital. Clearly, the measures of income (increases in artificial capital) have been incorrectly reported, since they do not take into account the reduction in natural capital. It is proposed that in almost any foreseeable situation in most business sectors, it would be theoretically impossible to generate an income, since the reduction in natural capital would almost always exceed the increases in artificial capital (Gray & Bebbington 2001). The only exceptions might be in natural produce based industries for example forestry, agriculture and perhaps fishing. Only where natural capital is self-renewing (or can be easily regenerated) would a true profit be possible. The implications of this idea are enormous, as it is implies that only if 'industrial manufacturing' were to cease and people

were to resort to a pastoral existence (with a peasant's lifestyle) would true sustainability be achievable (Gray & Bebbington 2001).

This concept is likely to be rejected by most people of developed countries who enjoy comfortable lifestyles with electricity, cars and appliances. However, since the resources (which are not being renewed), of the world are diminishing, the implications are that in a world with an ever-increasing human population (Ellwood 2001), the following would occur:

- Natural resources will decrease at ever-increasing rates
- Possibly fewer people will be able to enjoy the same levels of 'developed nation lifestyles' as in the past, and
- The resources left for the poor and developing countries will diminish rapidly, increasing the poverty of their people.

Three main methods have been developed experimentally, which account for the implications of sustainability, and based on these principles of natural capital (Bebbington & Tan 1996). These are:

- The inventory approach: The inventory approach focuses on the recording and monitoring of all forms of natural capital impacted upon by a company. The company will then report all changes therein i.e. depletion or enhancement. The problem with this approach is that amounts need to be classified by non-financial standards.
- The sustainable cost approach: To be truly sustainable an organization must leave the environment no worse off at the end of a period than at the beginning. Thus this approach tries to estimate the costs of restoring the environment to its former condition at the end of each period. The implications of this however, are that in the case of the depletion of even the smallest amount of critical natural capital, the costs are theoretically infinite.
- The resource flow-through/input-output approach: This is known as the Mass Balance System ('Oboblianz' system). All inputs are accounted for (normally in non-financial terms) as outputs, wastes, losses or emissions. This model has been extensively developed and described by Schaltegger (1996). The

problems of confidentiality and disclosure present obvious obstacles to the full-scale adoption of such a model.

2.4. The response of industry to sustainable development and the environmental crisis in the 1990s

2.4.1. Internal responses

2.4.1.1. The role of Environmental Management Systems (EMS)

EMS represent industry's initial and perhaps most effective response to date, to the emerging environmental crisis. This system arose out of three separate needs:

- To minimize the potential risks, from possible incidents such as spills, which could give rise to environmental liabilities in terms of standing legislation
- To respond to public pressure and to improve the company's environmental profile, or
- As part of the certification requirement for an environmental audit.

The typical steps in an EMS programme would include:

- An environmental review, assessing the impacts
- Development of a company policy
- Translation of policy into overall objectives, followed by subsidiary targets and objectives
- Implementation of the system, putting controls and procedures in place to ensure compliance
- Measurement and reporting, and
- Continuous improvement, response and adjustment

2.4.1.2. The role of environmental auditing

Gray and Owen (1993: 37) suggest that the environmental audit has "become synonymous with organizational response to the green agenda". Newton and Hart (1997) contend that many businesses view a successful response to environmental issues as simply adopting appropriate new technology and an environmental management system, which normally incorporates an environmental audit. The International Chamber of Commerce (ICC) (as noted in 2.4.2.3 below) has played a key role in promoting the concept of the

environmental audit. The ICC (1989) has stated that they perceive the environmental audit as a key management tool.

2.4.1.3. Life cycle analysis (LCA)

No discussion on environmental management and protection would be complete without mentioning LCA. LCA considers all inputs and outputs, through the various stages of production from materials acquisition, manufacturing, distribution, use and reuse, and waste management. It is a useful tool to assist in identifying where the greatest environmental impacts occur, and hence where attention needs to be placed in order to have the greatest potential benefits. It has also been a key element in corporate responsibility programmes where manufacturers have identified, for example, their suppliers as being the largest culprits with respect to environmental impacts, and hence these programmes have resulted in the purchasing power of these multinationals being used to pressurize their suppliers into adopting cleaner production technology and processes.

2.4.2. Industry initiatives

Largely as a result of continued public pressure, business and governments began responding to environmental concerns by developing a series of international reporting guidelines and environmental management systems in the 1990s. Several of these key standards and systems are discussed briefly in the following sections. Except where specified below, these initiatives were developed independently of each other, but all in response to the pressing environmental agenda and the emergence of sustainable development.

2.4.2.1. The CERES principles

The Coalition for Environmentally Responsible Economies (CERES) principles were developed in response to the Exxon Valdez accident in 1989 when 11 million tons of oil spilled into the Prince William Sound off Alaska, with a clean up cost of $3 billion. These principles, as developed by the Social Investment Forum in the US, are used extensively by ethical fund investment organizations (Miller 1992).

The basic principles of CERES are:

- Protections of the biosphere

- Sustainable use of natural resources
- Reduction and disposal of waste
- Energy conservation
- Risk reduction
- Safe products and services
- Environmental restoration
- Informing the public
- Management commitment, and
- Audits and reports

As seen from the above principles, public disclosure in the form of an environmental report is included in the requirements of this standard. This standard is considered to be one of the most stringent of all environmental protocols and charters (Holcroft 1999), and has wider acceptance by corporations in the US than in the European Union (Brophy 1996). These principles have subsequently been incorporated into the Global Reporting Initiative (referred to in section 2.4.2.7.).

2.4.2.2. Global Environmental Management Initiative (GEMI)

This non-profit organization was founded in 1990 to address environmental management issues (GEMI 1992). Its objectives include:

- The provision of principles of business ethics for EMS
- The improvement of environmental performance of businesses
- The facilitation of communication between business and interested stakeholders

GEMI also developed an Environmental Assessment Programme (ESAP), to evaluate the implementation of EMS, which has found widespread acceptance (Holcroft 1999).

2.4.2.3 International Chamber of Commerce Business Charter for Sustainable Development

The ICC (International Chamber of Commerce) is a non-governmental organisation (NGO) established to represent businesses from over 100 different countries. From as early as 1974, it established environmental guidelines. Its current charter, passed in 1991, is considered to be one of the most widely internationally supported charters, with over 1000

adoptees (Brophy 1996). The charter's principles have however been criticized (Gray & Bebbington 2001) as being somewhat vaguer than other protocols, such as the CERES principles (referred to in 2.5.10). Furthermore, the principles do not mandate disclosure nor other specific measures, and they do not have compliance or monitoring mechanisms.

2.4.2.4. BS 7750 and EMAS (Eco Management and Audit Regulation)

The BS 7750 standard, was developed by the British Standards Institute's 'Environment and Pollution Policy Committee' (BS 7750 1992). This standard encourages the implementation of environmental management systems. It does not have specific standards regarding performance, nor does it require compulsory reporting.

The EMAS programme, which is based on the BS 7750, was developed by the European Union and is aimed at increasing the sustainability of industry. It became effective in 1995. Its aims are to (Holcroft 1999):

- Promote continuous environmental performance improvements in industrial activities by encouraging the adoption of policies, programmes, environmental management systems and the audit of such systems, and
- Provide reports thereon to the public.

Gray and Collison (1991) have noted that the audit (specifically the environmental audit), upon which the EMAS programme is based, is a poorly defined concept. Further they suggest that the EMAS scheme was weakened by industrial lobbying which firstly made the scheme voluntary, and then secondly allowed companies to focus only on selected sites.

2.4.2.5. Public Environmental Reporting Initiative (PERI)

This initiative was set up in 1993 by nine major American businesses to guide businesses when producing environmental reports. Included in these guidelines (UNEP 1994) are:

- Environmental management systems
- Environmental management risk
- Life cycle management, and
- Continuous improvement

The guidelines also suggest that companies include details of their profile and environmental policies. However, as these are guidelines they are not prescriptive, nor are they binding on participating companies, and are hence not enforceable.

2.4.2.6. ISO 14000

ISO 14000 was established under the auspices of the International Standards Organization, with negotiations beginning in 1991 and the final standard being adopted in June 1996. It includes the following elements (ISO 14000 1995):

- ISO 14001, EMS (specification standard)
- ISO 14010, Environmental Auditing
- ISO 14020, Environmental Labelling
- ISO 14030, Environmental Performance Evaluation, and
- ISO 14040, Life Cycle Analysis

Only ISO 14001 is a specification standard, all the rest (including those not show) are merely guidance standards.

This standard has become one of the most widely accepted international environmental standards. It's wide acceptance in Europe and America has established it as the baseline for business. Companies in developing countries are being encouraged to adopt this standard to enable them to compete in international markets. Advocates of this standard suggest that market forces will make it a prerequisite for doing business globally (Krut & Gleckman 1998).

In a book entitled *ISO 14001: A missed opportunity for sustainable global industrial development*, Krut and Gleckman (1998) raise the following six issues regarding the basic standard:

- They argue that public-private partnerships, participation and transparency are missing from ISO 14001.
- They submit that very few major environmental stakeholders were involved in the conceptual process until after the first draft was accepted in 1995. Hence their views and priorities would not have been incorporated, and hence these authors raise questions about the legitimacy of the standard.

- As the World Trade Organization (WTO) in their General Agreement on Tariffs and Trade (GATT) rules, recognize the authority of the ISO, and therefore ISO 14001 could be challenged by developing countries as an unfair trade barrier.
- The ISO 14001 is perceived as a ticket to market access and as a result, it could encourage rapid adoption without companies taking proactive measures towards responsible environmental management.
- ISO 14001 will not of its own accord, bring about improved environmental performance. Rather it will depend upon how successfully its principles are integrated into public law and policy.
- Krut and Gleckman (1998) propose that the initiative towards global sustainable industrial development has lost momentum, and that many may see ISO 14001 as representing the end of the road. They suggest it might be used to stall future progress. However, newer versions of the ISO 14001, known as 'ISO 14001 Plus' have been developed. These place stronger emphasis on sustainable development and corporate responsibility.

2.4.2.7. Global Reporting Initiative (GRI)

CERES initially developed the Global Reporting Initiative (GRI) in conjunction with the United Nations Environmental Programme, in 1997. Since then it has been developed further and still continues to do so, with the input of several large MNEs as well as other key players such as the:

- Association of Chartered Certified Accountants (ACCA)
- Canadian Institute of Chartered Accountants (CICA)
- Council of Economic Priorities
- Green Reporting Forum
- Institute of Social and Ethical Accountability
- Investor Responsibility Research Centre
- New Economics Foundation
- World Business Council for Sustainable Development, and the
- World Resources Institute.

It is perhaps the significance of these contributing parties that adds credibility to this initiative and makes it possibly the most widely acceptable environmental reporting

initiative in the world. The present form of the document was released in June 2000. The GRI is characterized by its flexible nature that encourages the use of certain sections and formats, as well as the use of independent verification. The suggested report contents (as detailed by the GRI), encourage disclosure of both 'aspects' e.g. greenhouse gas emissions, and 'indicators' e.g. the number of tons of CO_2 that were released, of the reporting corporation's performance.

The GRI specifies that the use of the guidelines is voluntary and can be applied flexibly and in an incremental manner. The suggested format of the guidelines (which is included in part 'C' of their guideline document) need not be complied with and organisations are given flexibility in adapting or selectively applying the suggested report format (GRI 2000). Furthermore the guidelines encourage, but do not mandate, verification. They also suggest that the company's policies and management systems should be disclosed and that the chief executive officer's (CEO) report should be included, and the company's profile be detailed together with its performance.

With regard to a company's environmental performance, they suggest that the following broad areas ('aspects') are covered:

- Energy
- Materials
- Water
- Emissions, effluents and waste
- Transport
- Suppliers
- Products and services
- Land-use and biodiversity, and
- Compliance with legislation, protocols and treaties

The GRI (2000) provides specific details for each of the above categories regarding what they expect disclosed.

The significance of the GRI is not only it's wide international acceptance, but that it has been endorsed by the *Report on Corporate Governance in South Africa* (King II 2002). Thus theoretically all companies listed on the Johannesburg Stock Exchange (JSE) are

required to report on social, economic and environmental aspects of their business activity, namely the triple bottom line (GRI 2000).

2.4.2. Legislative responses

The 1990s saw the worldwide establishment of overarching environmental legislation, such as:

- United Kingdom's Environmental Act 1990
- New Zealand's Resource Management Act 1991
- South Africa's Environment Conservation Act 1989, and National Environmental Management Act (NEMA) 1998.

International treaties have also played a key role in fostering the development of environmental law, since the signatory countries undertake to incorporate these principles into the legislation of their respective countries (Kidd 1997). Thus, there has been a proliferation of similar laws throughout the world, in developing and developed countries. However, it must be noted that these laws do not guarantee environmental protection, and the lack of capacity to enforce such laws, particularly in developing countries, has inhibited their effectiveness.

All these laws have developed over time and in line with new thinking on environmental issues culminating for example, in the UK, with the Pollution Prevention and Control Act of 1999, which requires companies to (Gray & Bebbington 2001):

- Invest in pollution prevention equipment
- Develop or invest in cleaner technology
- Improve products and production processes
- Engage in waste minimization
- Review assets in terms of latest technologies, and
- Actively treat and dispose of waste

It is unlikely that voluntary action alone will be enough to address the growing environmental crisis, and legislative measures will be necessary. Hence Gray and Bebbington (2001) suggest that it is likely that we will face increasing clashes between short-term business needs and legislated environmental protection measures.

2.4.3. Environmental accounting and reporting as an external response

Although there were a few significant papers in the 1980s in this field it was not until the 1990s after the transference of the principles of sustainable development to business, that the sub-discipline became truly established, with a proliferation of papers (Hart and Owen 1991; Power 1991; Gray 1992; Cooper 1992; Bebbington & Gray 1993; Tilt 1994; 1996; Collison & Gray 1997; Deegan & Rankin 1997, 1999; Laughlin 1999) and the publication of several books (Schaltegger 1996; Welford 1997; Gray & Bebbington 1999) on the subject. These initial studies focused largely on the quantitative and qualitative aspects of financial statement reporting. There have been a few such studies conducted in South Africa[5] (Dewar 1994; Savage 1994; Vorster & Lubbe 1994; De Villiers 1996; De Vries & De Villiers 1997; Roberts 1997; De Villiers 1998; Ernst & Young 1998; KPMG 2000; Griffith 2002), however due to the lack of local standards and guidelines (until recently, King 2002), environmental reporting has been limited and voluntary.

Traditional accounting methodologies ignore environmental issues (Gray & Bebbington 2001) and hence are in conflict with the concept of green business and sustainable development. Central to environmental accounting is the concept of full cost accounting, which is, "accounting for an entities internal and external costs generated as a result of its economic activities" (Canadian Institute of Chartered Accountants 1997:4). External costs are those costs imposed as a by-product of an entity's activities on third parties. This concept of full cost accounting "provides a comprehensive framework for evaluating corporate economic activity" (Atkinson, Dubourg, Musasinghe, Pearce & Young 1997:157). Where possible, full cost accounting does not only report on a variety of indicators but also tries to incorporate the estimated financial cost of those activities.

Dierkes and Antal (1985) determined that that the usefulness of specific information in financial statements varies per user group, thus also for environmental concern groups. Rubenstien (1991) outlines what the information needs might be for four groups of 'invisible' stakeholders, namely:

- 'Green' consumers
- Environmental activists

[5] Vorster and De Villiers have been running annual surveys with KPMG since the late 1990s

- Employees, and
- Communities living in affected areas

Current thinking tends to focus on green accounts (refer to section 2.3.2) and environmental indicators to be prepared by companies. These micro-accounts can then be summated and compared with the macro-accounts of districts and entire countries. These are also the principles that are being used for the greenhouse gas quotas (Kyoto Principles 1995) and are being applied in Europe and elsewhere in the world. Currently the United Nations Satellite Environmental and Economic Accounts (UN SEEA), serve the overall coordinating function of collating and synthesizing all the national green accounts (Atkinson *et al.*1997). One of the leading bodies in the development of environmental accounting has been the United Nations Centre for Transnational Corporations Intergovernmental Working Group of Experts on International Standards (UN CTC ISAR), which has been working on the standards of what environmental disclosure companies should be presenting in the annual corporate reports. The following are some of the items that are specified for disclosure (UN CTC ISAR 9th Session 1991):

- Environmental issues relevant to that industry
- The company's environmental policy
- The company's emission targets and performance
- Material environmental litigation the company is involved in
- Effect of environmental protection with respect to earnings and investments
- Costs incurred
- Costs capitalized
- Policies for recording environmental provisions
- The amount of provisions and liabilities raised
- The amount of contingent liabilities, and
- Tax effects and government grants

The ISAR have issued guidelines, (for measures of best practice), for the recognition and measurement of costs and liabilities. Much of these have been reflected in relevant standards in many leading developed nations. Leaders in this field are the United States, Canada, United Kingdom, Netherlands, Australia, New Zealand, and the European Union, making the guidelines legally enforceable within their accounting standards. Many other

countries worldwide are following suit, if not to such a strong degree (Choi 1998). Various accounting bodies in the American Institute of Certified Public Accountants (AICPA) (US), CICA (Canada), the ICAEW (UK) and the International Accounting Standards (IAS) have brought out either one or both accounting standards for the recognition and disclosure of environmental liabilities, and / or auditing standards for the verification thereof.

Standards of best practice with regard to environmental accounting and reporting are emerging, but have not been widely adopted (Gray & Bebbington 2001), and have been criticized for 'falling short of the mark'. Traditional accounting ignores the natural capital or common property, and hence it ignores sacrifices of 'capital' outside the entity, hence ignoring such costs (and overstating its profits) and any associated potential liabilities (Dewar 1994). The role of environmental management accounting is seen as assisting with the calculation of flows of energy and materials, emissions and wastes (Schaltegger 1996). It is contended that theoretically, accounting for changes in the environment should not be dissimilar to traditional accounting, i.e. reflecting these changes as costs, income and changes in assets and liabilities. Only if these changes are material, should they be accounted for separately. One problem in environmental accounting is that most of these changes are isolated and individually appear to be immaterial, however their cumulative effect is significant (Gray & Bebbington 2001).

Accounting has a critical role to play in reporting full costs to management and shareholders. Industry, specifically multinational enterprises (MNEs) are rapidly using the limited natural resources of the planet, destroying habitats, polluting the air, water and earth, and disrupting communities (Ellwood 2001). These organizations show a profit (as determined by accounting), signalling to management that the organisation is doing well, since the sole purpose of management is to maximise the shareholders wealth, reflected in short-term profitability. The accountants who are supplying management with this limited information, which is seriously flawed in that it is incomplete since it ignores true costs, are generating false signals. Hence accountants are responsible for misleading management (or rather providing evidence to support managements decisions). For example, Maunders and Burrit (1991) examined land degradation in Australia and inferred that traditional accounting and reporting resulted in misinformation and subsequently misguided business decisions. Hence there is an indisputable link between accounting, business and environmental degradation (Gray & Bebbington 1993).

One of the major concerns driving the various initiatives on environmental reporting is the need for more information. Randall (1987) noted that the free market system works only if information is freely available. The market mechanism cannot respond to scarcity of natural resources unless this becomes known. Most developed nations work on mixed economies where government intervention is expected when the market mechanism fails (Randall 1987). However, this again requires that information to be available to the respective governments to respond to. It is questioned whether many powerful western governments, who are supported in the form of campaign funding by industry, are likely to pressurize their sponsors into releasing such information. In the case of the wholesale lack of such environmental information, neither a truly pure nor mixed market economy can work. Furthermore, the public are being denied the information they require in order to respond appropriately. The perpetrators of the environmental destruction, (namely industry), retain this key information and are not currently required to disclose it. In this context, and considering the influence industry has over governments, it is questioned whether this information will ever be made freely available by industry. Puxty (1986) suggests that the voluntary disclosure of selected environmental data would not necessarily result in increased legislation, or increased disclosure. It is also questioned whether or not governments will respond, until such time as environmental degradation becomes so extreme, impacting so significantly on the overwhelming proportion of people that it would force governments to act. However at that stage it will most likely be too late[6], as the carrying capacity of the earth would have been exceeded.

The 1996 KPMG International Survey on Environmental Reporting found that less than 20% of large international companies reported environmental costs. However on a national scale (considering the top 100 companies), the results differed per country, from a modest 39% in New Zealand, to 95% in Norway, referring to environmental issues in their annual reports. It is argued that the majority of companies, particularly the smaller and medium ones, will not voluntarily report such information (Bebbington *et al.* 1994). Gray and Bebbington (2001) contend that environmental reporting in annual reports will largely remain the domain of the larger companies, being standard in the top 100, but scarce below the top 300. It is questioned whether international standards setting bodies, are perhaps unwilling to set and enforce meaningful and comprehensive standards, as industry is so strongly represented in such bodies, and any comprehensive standards, would be against

[6] Refer to Figure1 on page 16, with respect to the carrying capacity of the earth

the wishes of industry. However, without such information, the public is unaware of the consequences of the activities of such companies. Without such public knowledge the market mechanism (Randall 1987) (such as using product boycotts and selective buying to influence such companies to improve their performance, and change their production techniques), cannot work.

Research in the UK has shown that increasing numbers of accountants in the larger firms are becoming more aware of environmental issues (Collison 1996; Collison & Gray 1997). Thus accountants working in the auditing field (the attest function), are becoming concerned with potential or contingent liabilities; and procedures to test for such liabilities are now commonly built into most auditing procedures. Many auditing firms, of which KPMG is the most notable, are becoming involved in environmental reporting. thus extending the range of their traditional services. This correlates with the fact that environmental reporting is now considered to be part of normal business activities (Gray & Bebbington 2001), whether as part of the statutory reports or as stand-alone reports.

Significant research has been conducted using indices[7] to establish the relationships between environmental disclosure and performance. In a study of Swedish corporations, Cooke (1989) found a correlation between asset size and extent of the disclosure. He also found that listed, as opposed to unlisted companies, presented better disclosure. Barret (1991) found a correlation between quality of disclosure and efficiency of the markets in seven different countries. Wiseman (1981) determined that there was no relationship between the company's disclosure and its actual environmental performance, (not financial). Cooke (1989) established that there was a relationship between environmental disclosure and financial performance.

In the absence of statutory requirements, environmental reporting in most countries is largely a voluntary matter. Thus the standardization, comparability, relevance and even reliability (in the case of a lack of audit verification), have become major issues. Organizations choosing to present such voluntary information need to compare the costs against potential benefits such as (Gray & Bebbington 2001):

- Legitimising their activities

[7] Refer to work done in the 1970s and 1980s in Table 1 on page 13

- Improving corporate image ('green washing'[8])
- Distract attention for other areas ('green washing')
- In anticipation of impending legislation
- Creating goodwill and a competitive advantage
- Manipulating share price ('green washing')
- Possible political advantages

According to Gray and Bebbington (2001) some companies have chosen not to become involved in such voluntary disclosure, either because of:

- What they have to hide
- The costs involved
- Lack of knowledge and expertise, or
- Hoping the 'fad' would fade away

Recent trends have firmly established Internet reporting as a norm for listed companies. Unfortunately this has been unregulated (Fairhurst 2001), resulting in selective disclosure of both financial and non-financial data. The implications of this are similar to that of unregulated environmental reporting, namely, both suffer from a lack of validity.

No commentary on environmental reporting would be complete without mentioning two of the most cited pioneering companies, both of which produced innovative and comprehensive public environmental reports as early as 1990. The first to produce such a report was Norsk Hydro, a Norwegian based company with a UK subsidiary. The second was BSO / Origin a Dutch company (Huizing & Dekker 1992), which made use of the value added statement as the basis of its social reporting. Although it produced its first such report in 1981, it was only by 1990, that its report could be claimed to be exceptional, incorporating the principles of life cycle analysis (LCA) and attempting to cost outputs such as air emissions. In northern America other widely reported innovators include Ontario Hydro and Baxter Chemicals (Savage 1994).

[8] Green washing is a term that is loosely used to indicate where companies provide selective environmental related information in order to intentionally mislead or manipulated users of environmental / annual reports.

CHAPTER 3. CRITICISMS AND LIMITATIONS OF ENVIRONMENTAL ACCOUNTING AND REPORTING, TOWARDS A CONCEPTUAL FRAMEWORK

3.1. Positivist approach

Accounting is a powerful instrument not only in the business world but also in politics, development and just about anything that involves the use of funds and the recording of costs, budgets, and fund allocations (Ross *et al.* 1996). The strength of accounting has been its independent, neutral and unbiased nature, upon which all can rely, due to its objectivity. However the principles upon which accounting rely on are based on 'positivist', 'descriptive' and 'empirical' theories. Watts and Zimmerman (1980) propose that accounting research can be divided into two types of theories: those that commit value judgments (normative), and those that do not (positivist), and suggest that all accounting policy should be based on the latter. Such theory is supposed to be more relevant, factual and realistic than normative approaches. However Tinker, Merino and Niemark (1982) argue that in fact such positivist approaches are normative and value laden, and serve to hide the conservative ideological basis of accounting. They suggest that the terms 'positivist' and 'empirical' are part of a 'realist' theory, which is inappropriate as a basis for accounting, which as a discipline impacts so significantly on the way in which world economies and governments are run. The 'realist' theory is based on the principle that reality objectively exists and can be reliably measured. This is clearly flawed since it can only be measured through the perceptions of the measurer (Mattessich 1995). Even in the case of the recorder, he or she is operating in a shared reality. And if they are accountants by profession, this qualification has been achieved only through seven years of rigorous training and examination to demonstrate that they think exactly per the discipline norms, which in accounting is encompassed by the principles of generally accepted accounting practice (GAAP). These accounting principles are founded on economic philosophies, which have been based on positivism or realism since Keynes (1891) and subsequently, by Friedman (1963) who in his paper *Capitalism and Freedom* states that "there are no value judgments in economics" (Friedman 1963:85). This foundation has become the basis of all subsequent accounting theory.

An alternative to 'realism' is 'materialist' theory. It differs from 'realism' (Tinker, Merino & Niemark 1982) in that it recognizes that the theory will come to form part of the reality it is trying to describe. Accounting theory is also interlinked with 'value' theory, and Tinker, Merino and Niemark (1982) argue that 'value' theory has been central to the development of accounting. Since the Middle Ages 'value' theories have developed into two distinct and separate lines, namely labour based and utility based. They suggest that accounting has aligned itself with the latter.

In the 1970s there was significant criticism of the accounting profession, financial accounting and corporate responsibility (Brilof 1972). However this criticism was tempered by the belief that the state was an independent and 'well meaning body' that could act freely (Nadar, Green & Seligman 1976), to control such aforementioned activities. It is questioned whether such a view is valid in most circumstances, due to the influence business has on such states (refer to conceptual framework in section 3.7).

Research in environmental accounting and reporting has in the past largely adopted a positivist paradigm and has researched only what is there, (not what is not shown), looking at for example, the statistical relationships between corporate disclosure, characteristics and performance (Gray & Bebbington 2001). Since the United States has lead the way in such disclosure, the bulk of such research has been conducted on United States corporations and multinationals. However, in recent years these studies have been mirrored in other countries such as South Africa (Dewar 1994; Savage 1994; Vorster & Lubbe 1994; De Villiers 1996).

3.2. Managerialist bias

'Managerialist' research supports the social ethical and economic rightness of the corporate perspective (Gray & Bebbington 2001:186), which is to make profits and achieve economic growth. However this managerial perspective and the notion of sustainability as noted previously, are clearly in conflict. Thus most previous research has had a 'positivist' and pro-managerial bias, and needs to be questioned (Tinker *et al.* 1982; Arnold & Hammond 1994).

Accounting serves many purposes such as reporting, control and the support of decision-making. These are all the domain of management. Thus accounting can be considered to be 'managerialist' (Gray & Bebbington 2001) in that is supports the function of management and the objective of business organizations, which is the pursuit of profits. In fact it can be considered to be instrumental to that function, since businesses can neither function nor achieve their objectives, without accounting support. It is assumed in most literature on environmental accounting and reporting that the status quo, namely the pursuit of profits, is the norm and is acceptable. Gray and Bebbington (2001) argue that this premise needs to be questioned. They question if the generation of profits and economic growth is in fact 'good'. Clearly from most ethical perspectives it is not, since the greatest benefits are not generally for all humans, but are reserved for the rich and powerful, to the exclusion of all other living creatures, and further it is suggested that 'harm is done' in the pursuit of such profits (Des Jarkins 1993).

3.3. Criticisms of current traditional accounting and reporting

It is acknowledged by most accountants operating in the auditing field, that verifying the existence of potential environmental liabilities (Collision & Gray 1997) is a very difficult and onerous task, and most financial auditors recognize that they lack the knowledge and understanding to adequately perform this task. At the same time, there is growing pressure on financial auditors to verify environmental data in their attest function and there has been a global trend of increasing numbers of companies, providing more environmental data in their annual financial statements (De Villiers 1996). This increase in data does not necessarily improve anything but rather if anything, it represents an attempt to 'green wash'[11] (Welford 1997) both investors and the public into believing that they are contributing positively to the environment. It forms part of the concept that the environment is 'safe in the hands of business' (Gray & Bebbington 2001).

Much accounting research supports this notion, largely by the incorrect application of the concept of sustainability, applying it solely to mean eco-efficiency[9] (Gray & Bebbington 2001). What has been lacking is a critical approach. Laughlin (1999), suggests three limitations of traditional accounting, namely:

[11] Refer to footnote 11 on page 32

[9] As defined under section 2.3 to mean reducing inputs of material and energy per unit of output

- Accounts / financial statements are only a partial reconstruction of the real world, and hence by making some things visible the rest becomes invisible and effectively hidden.
- Since environmental reporting as it now exists is voluntary, corporations only disclose what they want others to see, and that they are willing to release, consequently establishing it merely as a legitimisation mechanism, not a accountability exercise.
- The voluntary nature of such reporting brings the role of law in society into question i.e. for justice for all or to impose the will of the powerful on the rest.

Essentially the approach to date has been to use existing accounting conventions and principles to determine the framework for environmental accounting. However this is criticised by leading academics (Gray & Bebbington 2001) as being inadequate. These inadequacies are twofold:

- Firstly, they do not convey the full potential costs that companies could face, as they are based on only existing legislation and the extent to which this legislation has been enforced. The full and retrospective costs are indeterminable, should the companies ever become accountable for all pollution and damage done.
- Secondly, they inadequately convey the effect of the impact of the company's activities on the environment, where these impacts are not or cannot be converted into financial terms.

Rubenstein (1999) proposes that traditional accounting suffers from six limitations, namely:

- First, traditional accounting only accounts for legislated social and environmental costs e.g. where fines / taxes have been imposed. It does not account for the full costs of the use of natural resources, as companies do not have to pay for these.
- Second, it discourages (actually disallows) accruing for provisions for environmental restoration, unless an existing legal obligation exists. Hence there can be no matching of these costs.
- Third, it does not deal with inherent limits to economic activity i.e. for the environment to support this.

- Fourth, although new trends in accounting take a forward view (e.g. in valuing assets based on present value of future cash flows), these are constrained to existing rules and conventions, hence future environmental implications and possible obligations are ignored. They are also limited in the case of assets, to only those a company legally controls.
- Fifth, it only accounts for the legal bounds of the entity, ignoring the environment and common property e.g. air, water etc.
- Sixth, profit is viewed as a return on risk, but environmental and other social risks are ignored unless they are accidentally encountered e.g. as Exxon discovered when the Valdez crashed. Rubenstein (1999) refers to Walker Stone's (unpublished) theory on this single most significant limitation. Profit is a return on risk together with rental on capital used. This is where the problem lies. Rental on the artificial capital is accounted for, but the rental for the use of natural capital is ignored, hence increasing the apparent return on risk, which as noted above, is significantly understated.

3.4. Limitations of environmental reporting

Internationally the ISO 14000 and GRI systems have perhaps been the most widely adopted of any guidelines. However, specifically in the case of the ISO 14000 series, these amount to essentially environmental management systems (EMS), and the reporting thereof. These systems are concerned with minimizing the company's impacts within the constraints of their commercial activities. They are voluntary and self-implemented without predefined standards, and are essentially about self–improvement. The problem with this is that they have established themselves at the lowest 'denominator' (Krut & Gleckman 1998) i.e. at the lowest acceptable level of performance. They have also missed the critical element for sustainability in world of limited resources, that is eco-effectiveness. Traditionally these EMS systems merely strive for eco-efficiency[10] (Gray & Bebbington 2001).

The last decade has seen a proliferation of reporting guidelines. This in itself has forestalled any attempt to establish comprehensive and binding international standards, by reducing any apparent need for such standards. Gray and Bebbington (2001) conclude that

[10] Refer to section 2.3.1 on page 15 for discussion of these terms.

the substance of such reports is fundamentally similar and essentially differs on whether they report on social dimensions of sustainability, and the degree of completeness. They postulate that on the basis of this concurrence, there are no legitimate arguments as to why a fundamental framework common to most of the guidelines cannot be incorporated into legislation since, they are generally accepted[11].

It must be noted that there is a significant debate about the advantages and disadvantages of voluntary initiatives as opposed to enforceable legislative intervention. Power (1991) advocates that legislative or compulsory interventions may abdicate industrialists of responsibility from pursuing the fundamental objective of environmental improvement. It might also lead to a mindset of developing ways to counter and avoid regulatory initiatives (Cannon 1994). Jorgenson (2002) supports this notion and highlights the following aspects of a voluntary approach:

- It encourages insight and understanding, in identifying significant impacts
- It allows for stakeholder involvement
- It does not face the logistic difficulties of legislative enforcement
- It encourages innovation, and
- It can ensure compliance (if only in applying a EMS) in such cases where industrialists opt for ISO 14001 certification.

However Jorgenson (2002) does acknowledge some shortfalls of voluntarism, such as:

- Difficulties in getting free-riders on board
- The obligation of governments to protect their citizens, and
- There are inherent difficulties with degrees of compliance, improvement and standards of implementation, and quality of certification.

Bronner (1994) questions the efficacy of relying upon voluntarism since the regulatory agencies are dependant upon the information and expertise of the very industries they seek to regulate. Gray, Bebbington, Walters and Thompson (1995) also point to the significant shortcomings of a voluntary approach. Held (1988) suggests that in the present age of the domination of transnational enterprises, the markets are 'anti-democratic', and hence one cannot rely on market forces. Gallhofer and Haslam (1996) suggest that it is the lack of

[11] Gaap, generally accepted accounting, once common practice it becomes legally acceptable

global democracy and bureaucratic structures that has lead to limited progress in the international regulation in this area, and they advocate an interventionist approach. It is suggested that pressure groups, activists, researchers and educators should play a leading role in trying to influence transnational practice (Bailey & Poteau 1994).

However without legal backing or regulation, what mechanisms can guide and influence the effectiveness of environmental reporting? Many companies can choose to have their reports externally verified, defending their accuracy but not however their completeness and hence validity. Ultimately the process is left to the public domain. Various monitoring initiatives play a key role here, such as the United Nations Environmental Programme's (UNEP) Sustainability Monitoring Process, ACCA's Environmental, Reporting Awards Scheme (ERAS), and KPMG's awards programme. The UNEP's initiative (above), was started in 1994 has subsequently grown in size, and in 1997 developed into 'The 50 Reporting Criteria' (Gray & Bebbington 2001).

3.5. Specific criticisms of environmental accounting

Very little accounting research, and few companies, have ventured to investigate possible directions corporate reporting might take in the future (Bennet & James 1997). Brown and Goulding (1993) suggest that this can be ascribed not only to researchers and companies not wanting to look at these difficult and unpleasant issues, but also to a more fundamental fault in the accounting education system, in which little or no attention is paid to promoting critical thinking and consideration of social or environmental issues.

In the 1992 European Union plan *Towards Sustainability* it was noted that for effective and meaningful responses from business, it would be necessary to change 'accounting concepts, rules, conventions and methodology' in order to enable businesses to account for external environmental costs (Bebbington 1993). Such changes would require active participation of professional and academic accountants in this process. It is suggested that accountants are resistant to such fundamental change (Bebbington *et al.* 1994).

Newton and Harte (1997) suggest that environmentalism is viewed as a 'feel good' matter, with most literature on the matter filled with missionary zeal, and an 'evangelic' tone trying to convince readers of the 'rightness' of the 'environmental cause'. They attribute

much of this to the work of Peters and Waterman's (1982) best-selling book *In Search of Excellence*, which revolutionized business thinking in the 1980s. In their book *The Green Capitalists*, Elkington and Bruke (1987), refer to this stating; "many of the 'excellent' companies highlighted by Peters and Walterman have also built up a reputation for environmental excellence. For while environmental excellence many not be a sufficient condition for business success in today's world, it is a necessary one" (Elkington & Bruke 1987:14).

3.6. Attitudes and perceptions

It has been established that various user groups do expect environmental reporting and do rely, in part, on corporate reports for partial information on the environmental practices of specific companies (Epstien & Friedman 1994; Deegan & Rankin 1997). This information can be used to decide whether to invest in that company, purchase its products, work for them or interact with them in other ways.

The key issue for many companies is what levels and areas of environmental disclosure, do they provide. This is largely determined by the individual attitudes of the senior management of such companies towards the environmental agenda. This has been incorporated into the following table:

Table 3: Business attitudes towards the environmental agenda, their response and the implications for the business)

Business Response	**Managements Attitude**	**Passing 'fad', not really a problem**	**Environmental issues are important, but not a crisis**	**Environment is in crisis, needs urgent response**
Do nothing		OK	Dilemma for management, not doing anything, could loose business	Dilemma for management, not doing anything, will loose business
Follow law and public opinion		There are costs, but also competitive advantages	OK	Dilemma for management, not doing enough, could loose business
Aim for sustainable business		Crisis, unnecessary costs and extra work	There are costs, but also competitive advantages	OK

OK: Appropriate response Source: Gray & Bebbington (2001: 37) *Accounting for the environment*

There have been increasing trends in environmental disclosure. Deegan and Gordon (1996) reported that 36% of their sample of Australian companies reported environmental data in their 1991 financial statements. Deegan and Gordon's (1996) studies determined that most of the reports were descriptive or qualitative in nature and commented on positives ignoring the negatives. Gibson and Guthrie (1995) undertook a study of 1994 annual reports of Australian companies and found that 53% of their sample reported environmental data, suggesting an increasing trend[12]. Similar studies in the US (Gamble, Hsu, Jackson & Tollerson 1995) and the UK (Harte & Owen 1991) have noted significant increases in the amount of environmental disclosure in annual reporting in this period.

Tilt (1994) surveyed pressure groups and found that they use annual reports as an important source to access environmental and social data on companies. She found that 82% of lobby groups used social disclosure in corporate reports, and 52% actively sought such social information. These findings are supported by a study by Deegan and Rankin (1997), which surveyed users who believed that environmental data was material to their decisions, and that looked to annual corporate reports for such information.

Within the accounting profession, evidence has been found to suggest that a significant proportion of accountants support the view that accounting should address environmental issues and that users of annual reports need such information (Bebbington *et al.* 1994). However despite all this agreement there has been little change or response by the accounting profession (KPMG 1992; Gray & Owen 1993).

Until recently, society considered economic performance as the sole criterion to assess the legitimacy of an organization (Heard & Bolce 1981), however this no longer holds true. Modern society now also expects business to " make outlay to repair or prevent damage to the environment, to ensure health and safety of consumers, employees and those who reside in communities where products are manufactured and wastes are dumped" (Tinker, Merino & Niemark 1987: 173). The premise of corporate social reporting is based on the legitimacy theory where "an organization must appear to consider the rights of the public at large, not just those of its investors"(Deegan & Rankin 1996: 565). Deegan and Rankin (1999) found that most shareholders and individuals within an organization consider

[12] These studies were not however conducted on the same sample

environmental information material to decisions that they make. However, external users still considered financial data to be the most important to their decisions.

In a study in 1999, Deegan and Rankin found significant differences in factors that influenced users and preparers of environmental data, including the following:

- Users considered the information more important to their decisions
- Users did not believe that environmental disclosure should be voluntary, and
- Users also believed that the government and the accounting profession should provide guidelines on such reporting

These differences amongst others, give rise to an expectation gap, that is, the difference in expected disclosure by users and preparers.

The concept of an expectations gap is not a new concept (Liggo 1974) nor is it peculiar to environmental reporting. It is most commonly encountered when auditors explain the differences between the functions that they perform and what the users and general public expect of them i.e. the degree of reliability that their report adds to the statutory accounts (Power 1991).

Gray and Bebbington (2001) suggest that the causes of the expectation gap include:

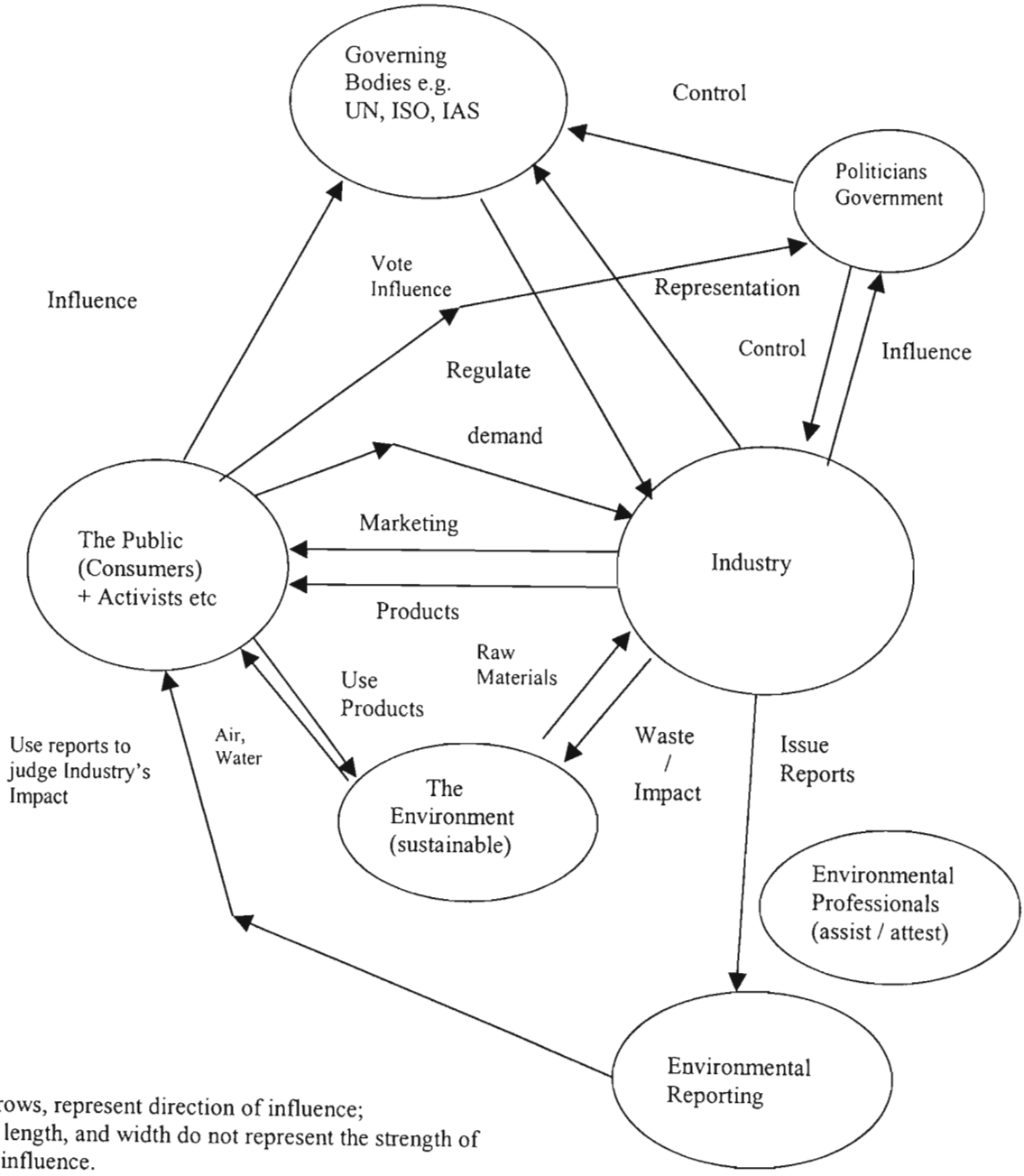
- Users having greater knowledge of what information they need
- Users having greater expertise in terms of what information may reasonably and affordably be presented (which is what they would expect), and
- Some preparers have far less knowledge, and present less than others

Users have more specialised knowledge, and it asserted by Gray and Bebbington (2001), that people's attitude towards the environment is shaped by their knowledge and how they think.

3.7 Conceptual Framework

The following diagram represents a conceptual framework of the forces driving and affecting international environmental accounting and reporting standards:

Figure2: Conceptual framework of the driving forces of environmental reporting



Note:
1) Arrows, represent direction of influence;
the length, and width do not represent the strength of the influence.
2) Driving forces, represent the influences, or control that the respective parties, effect over each other and over environmental reporting, as produced by industry

Figure 2 encapsulates various principles and issues identified earlier in this dissertation, namely:

- Existing international environmental accounting and reporting standards, have been developed by various international governing bodies such as the UN, ISO, IAS, GRI, and the ICC.
- These bodies have representation from governments, business and other influential parties or experts.
- Governments are run by politicians who, in democratic countries, are elected by campaigns which are often funded by businesses. Thus these bodies can be significantly influenced by business, and hence the standards themselves often represent largely what business leaders think should be reported on, and are prepared to disclose.
- The public has significant power to influence these international standard setting bodies through the governments that represent them, and directly through elected representatives.
- However, the public themselves are influenced by the marketing campaigns of business and the commercial bias of the media.
- Actual environmental reporting can influence the public, but due to it's existing limited nature it tends to present an 'all is well' signal.
- The public is also part of the problem, since they buy into the marketing campaigns of business purchasing the products and services, the production and consumption of which, ultimately impacts on the environment.
- A stronger, enforceable and externally verified reporting standard could make the public more aware of the impacts of industry on the environment. This could lead to the public both directly through campaigns, and indirectly through governments, tightening up on the regulation and monitoring of these industries.
- A more 'aware' public could also influence industry into adopting more sustainable production techniques and materials, utilising their purchasing power by shifting their product demand.

3.8. Summary of problem and hypothesis

Environmental accounting and reporting has been an established discipline for over 30 years (AAA 1973), however it has only begun to really develop significantly in the last decade. The 1990s have seen:

- Annual financial statements which begun to include increasing amounts of environmental data, which auditors are being expected to verify.
- The development of a multitude of international environmental reporting guidelines, charters, protocols and standards. Such reporting guidelines are voluntary and are often not based on any minimum standards. The most widely used of these international reporting guidelines and standards, report primarily on internal environmental management systems (EMS).
- Compulsory disclosure in annual financial statements (by accounting standards) is limited to defined and verifiable environmental liabilities.
- The increase in environmental reporting can be attributed to greater concern and public pressure together with pressure from within industry. Such reporting is perceived to increase competitive advantage and improve corporate image. Hence companies often report under the name of an international guideline, to increase their credibility.
- As reporting is voluntary and guidelines are not specific nor do they prescribe any minimum standards, many companies report only selective (self–censored) items that show them in a favourable light. Some companies show intentionally misleading information, which is known as 'green washing'.
- Many users of these reports would be unable to obtain specific and comprehensive data, which they require in order to make a realistic assessment of the environmental performance of specific companies, and the environmental risks to which such companies are exposed.

The underlying hypothesis of this dissertation is that the existing reporting standards do not promote full sustainability, by not providing full or effective information to the users of these reports. Hence these users cannot make meaningful assessments of the activities of companies, and are thus unable to take appropriate action. The corollary of this is that existing reporting, by providing partial or irrelevant information, serves to hide the impact of the activities of these companies (Laughlin 1999) and deny the users the right to accurate information.

Future reporting standards need to gain acceptance by users and preparers alike, to be effective. Therefore it is essential in considering the composition of any future comprehensive international standard to determine the requirements and expectations of the users and prepares worldwide, and to be aware of the extent of any expectation gap with respect to existing guidelines, so that this may be addressed and hopefully remedied in future standards. This study will highlight significant differences between the expectations of key stakeholder groups and existing mandated reporting guidelines, namely the GRI. No such study has been previously conducted in South Africa.

CHAPTER 4. METHODOLOGY

4.1. Introduction

This section presents the methodology that was developed to achieve the aim of the study, which is to determine whether stakeholders' expectations, with regard to areas and levels of environmental reporting disclosure, differ between the selected key stakeholder and preparer groups and the requirements of the GRI. The methodology below is presented in subsections that provide the specific measures necessary to achieve the research objectives of this study, as given in section 1.4. on page 5 of this dissertation.

4.2. To determine what are generally accepted areas of environmental reporting that can be used for comparisons

Relevant literature will be reviewed to assess what criteria (i.e. areas of reporting) are being used and what is suggested. Several major environmental reporting standards will be reviewed as well as the basis of several environmental reporting indices. The results of the literature review will be used to compile a list of disclosure criteria, which will, form the basis for section three in the questionnaire (included as Annexure 1).

4.3. To determine what range of theoretical reporting levels are possible

Relevant literature will be reviewed to assess what levels of reporting disclosure are currently being used and what recommendations are given. This range of possible levels of disclosure will be used as the basis of testing the expectations of the users and preparers in section two of the questionnaire.

4.4. To determine for the three selected groups, their expectations with regard to levels of disclosure necessary, importance of various areas of disclosure and format of environmental reports

To access the sample groups, which are widely distributed across South Africa, and to address potential concerns of the subjects regarding confidentiality, the most appropriate research techniques is to use self-administered questionnaires. This approach is consistent with that used in South African PhD studies on environmental reporting (De Villiers 1996) and other aspects of corporate social reporting (Stainbank 2000) and general corporate

reporting (Flynn 1987; Peebles & Stainbank 2003). Major international studies on environmental and corporate social reporting have also exclusively used questionnaires (Deegan & Rankin 1997; Gray, Owen & Adams 1996). Although questionnaires suffer from limitations, such as low return and respondent bias (Durrheim & Terreblanch 2000) they allow for larger samples, provide easier access and are easier to administer, than say direct interviews.

The questionnaire for this study will incorporate features of those used in previous studies that focussed on the usefulness of annual reports (Flynn 1987: Peebles & Stainbank 2003). This data will be collected by means of self-administered questionnaires sent to each member of the three selected groups:

- ***Preparers (industry)***

  The top 300 listed companies in South Africa will be surveyed, as it is envisaged that they would most likely to respond (Deegan & Rankin 1997). It must be noted that this (convenience) sampling method may add some bias to the results, as these companies are also most likely to have responded to the environmental agenda, and taken progressive measures. However, previous studies have accepted this bias (Deegan & Rankin 1999).

  It must be noted that as a result of significant increase in listing requirements on the Johannesburg Stock Exchange (JSE), as of 11 December 2002 only 468 companies were trading on the main board of the JSE (Singh 2003). Thus the sample of 300 represents the major portion of formal business activities in South Africa, and is therefore representative, and the results may accordingly be generalised.

  The names of the top 300 companies will be obtained from the 2002 Financial Mail's annual top companies listing ranked on turnover. Company addresses will be obtained from the JSE (Johannesburg Stock Exchange) website. The questionnaires will be addressed to the group:

  - Financial directors, or where this could not be determined
  - Another director, or
  - The company's secretary (i.e. the person responsible for all legal matters and the financial statements).

The covering letter attached to the questionnaire, will indicate that another suitable employee could complete the questionnaire. Return paid envelopes will be included to assist the respondent in returning the document.

- ***Environmental professionals***

  The South African membership of the International Association of Impact Assessment (IAIA) will be used to represent this population. Due to confidentiality concerns the database cannot be accessed directly, but an electronic version of the questionnaire will be sent via the IAIA secretariat to all members.

- ***Activists and pressure groups***

  The population of this group will be determined using the *Enviropedia – South Africa* (Hoogervorst & Hoogervorst 2001). This group will be sent a hard copy of the questionnaire together with a return paid envelope.

The questionnaire (as attached in Annexure 1), will obtain data with regard to the respondent's expectations of:

- ***Levels of Disclosure***

  The respondents will be asked to choose (in section 2) between ranked levels of disclosure as determined in 4.3. above.

- ***Importance of areas of disclosure***

  The respondents will be asked to indicate their opinion as to the relative importance of the various areas of disclosure (as determined in 4.2. above), on a five point Likert scale.

- ***Format of report***

  The respondents will be asked to respond to a variety of questions regarding the format and backing of environmental reports. Most of these questions will be answered on a five point Likert scale.

- ***General***

  The questionnaire will also contained questions on demographic details, which will collect certain basic information on the respondents, in order to determine if any of these factors influenced the respondent's opinions.

4.5. To assess the minimum levels and areas of reporting of the GRI

The GRI (GRI 2000) will be reviewed in detail and all specified areas of disclosure will be compared to the areas as determined in 4.2. above. Since the GRI is a voluntary guideline, and there are no compulsory disclosures, where specific areas are identified for disclosure by this document, these will be considered to have been ranked, as very important.

4.6. To determine if any significant differences exist between expectations of users and preparers and the GRI guidelines.

For each of the reporting criteria, the results of the three groups, were compared with:

- Each other, and
- The actual reporting specifications of the GRI

This comparison will be done using the Krustal-Wallis analysis of variance, which is the standard statistical test for non-parametric data[13]. Comparisons of the medians will indicate the direction of the differences, while the Krustal-Wallis test will indicate if there are significant differences in the levels and areas of expectations. Significant differences between levels and areas indicated by the users and preparers would confirm the existence of an expectation gap.

4.7. Assumptions, limitations and anticipated problems

4.7.1. Underlying assumptions and limitations

This study acknowledges the following assumptions and limitations:

- That respondent's views are representative of their group, that is, the users or preparers.
- That a review of the selected international standard, the GRI, is sufficient to establish it's specified minimum reporting requirements, if any.
- Many of the issues raised in this study are complex and can only be briefly dealt with in this dissertation, due to time constraints, and will need to be addressed by further studies. For example social issues will be ignored in this initial study.
- Only one of the most relevant international guideline, namely the GRI, will be reviewed.

[13] The data collected on the Likert scale is ordinal but not interval, and is hence non-parametric

- In the case of listed companies, only the top 300 will be tested, i.e. none of the remaining public or private companies. Of these only those with a physical presence in South Africa will be surveyed.
- The full population of activist and concern groups could not be reliably determined since they are not required to be registered or listed in a publicly available format. Hence only those listed in the *Enviropedia – South Africa* (Hoogervorst & Hoogervorst 2001) will be included in the sample.
- A cut-off date of 30 May 2003 will be used for inclusion of responses in the analysis.
- Since the population of environmental professionals cannot be directly accessed, it will not be possible to identify non-respondents, nor follow up on these. Hence none of the other two groups will be sent follow up letters, to ensure consistency. However this may contribute to a lower overall response.
- The limitations and bias inherent in questionnaires is considered acceptable, as this is the most widely used instrument for stakeholder surveys on corporate reporting. Given the scope and time limitations of this research project, this was also the most appropriate selection of instrument to reach the number of respondents intended.

4.7.2. Anticipated Problems

- A low response rate to the questionnaires sent to listed companies is expected. This is as a result of the sensitive nature of the questionnaire, and the time it would demand from the busy executives to complete it.
- The anticipated low response rate may raise validity concerns regarding comparisons between different groups and will prohibit comparisons between industry sectors, as well as comparisons between the responses of the different levels of management represented by the respondents.
- The small sample of activist and pressure groups may raise concerns regarding the validity or generalisable nature of the responses from this group, or whether comparisons can be drawn with the other groups.

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Questionnaire: **Environmental Reporting** *Annexure 1*

- Thank you for taking the time to complete this questionnaire
- Please tick (or cross) the appropriate box
- There are only four sections which should take you less than 10 minutes to complete

Part 1

a) Shareholders and other users of a companies annual report should have access environmental information relating to that companies activities.

☐	☐	☐	☐	☐
Strongly Disagree	Disagree	indifferent	agree	strongly agree

Any additional comments you wish to make e.g. why or why not

b) An environmental report, (either as a separate report, or a separate section of another report), should be included in the annual report of all companies i.e. together with Directors and Auditors reports, and the AFS (Annual Financial Statements).

☐	☐	☐	☐	☐
Strongly Disagree	Disagree	indifferent	agree	strongly agree

Any additional comments you wish to make e.g. why or why not.

c) The full cost of the environmental impacts / activities of companies should be quantified and disclosed included in the Annual Financial Statements (i.e. Income Statement and Balance Sheet etc) of companies.

☐	☐	☐	☐	☐
Strongly Disagree	Disagree	indifferent	agree	strongly agree

Any additional comments you wish to make e.g. why or why not.

d) Environmental Disclosure should be primarily a matter for Government and legislators to decide upon, and is not the responsibility of individual companies or other organizations to determine.

☐	☐	☐	☐	☐
Strongly Disagree	Disagree	indifferent	agree	strongly agree

Any additional comments you wish to make e.g. why or why not.

e) Where governments fail to set comprehensive standards for environmental disclosure, bodies such as the JSE and SAICA (SA Institute of Chartered Accountants) should be proactive in setting such standards of reporting for companies.

☐	☐	☐	☐	☐
Strongly Disagree	Disagree	indifferent	agree	strongly agree

Any additional comments you wish to make e.g. why or why not.

Part 2

What levels of disclosure / presentation would you like to see in an environmental report (be that a stand alone report or part of a companies annual report)?

☐ Silent: No disclosure, except where required by existing law

☐ Policy only: Should disclose the company's policies on environmental matters

☐ Details of Controls, EMS (environmental management systems):
Should present an overview of the companies controls / procedures to minimize environmental impacts, and EMS in place

☐ Selected quantitative disclosures:
In addition to disclosure of policies, controls, EMS etc, the company should disclose selected key outputs / indicators (industry based)

☐ Quantitative disclosure of all outputs:
In addition to disclosure of policies, controls, EMS etc, the company should disclose all outputs per predetermined (by standard setters) categories e.g. emissions, effluent, waste, and all points of emission.

☐ Quantitative and qualitative disclosure of all outputs and impacts:
All outputs per category should be disclosed, including points of emissions, and should be compared against best practice / industry standards as well as performance with respect to the companies own internal policies, targets and EMS. Qualitative disclosure should also be given regarding the impacts of all outputs on health, safety and the environment.

☐ Quantified monetary cost of all activities:
In addition to disclosure of policies, controls, EMS etc as well as performance with respect to these internal standards, the company should give disclosure of all outputs and impacts, indicating estimates of financial cost of these outputs and impacts, by using widely accepted valuation techniques based on traditional and environmental economic principles.

Part 3

How **important** do you believe disclosure is of the following areas in the environmental reports of most companies, (in whatever form these may take)?

Degrees of importance
(Tick the most appropriate column)

Area of Disclosure	**Not at all**	**Little**	**Moderately Important**	**Very**	**Extremely**
Measures and expenditures (Capital and Operating): Emission Control					
Waste management: solid					
Waste management: effluent					
Recycling					
Energy efficiency					
Emergency Management					
Research (pollution control etc)					
Outputs: Air emissions					
Water / effluent discharge					
Solid Waste					
Noise					
Packaging					
Products /byproducts					
Inputs: Energy, sources, efficiency					
Raw materials					
Recycled inputs					
Other: Land, biosystems, impacts					
Life Cycle Analysis					
General: Awards					
Penalties, fines, litigation					
Complaints, media coverage					
EMS, Audits, Certification					
Contributions, memberships					

Part 4

Demographic Details, of you and your company

JSE Code:

a) Your position in the company

☐ **CEO/MD** ☐ **Executive Director** ☐ **Non-Executive Director** ☐ **Financial Director** ☐ **Company Secretary** ☐ **Senior Manager**

☐ *Accountant* ☐ *Administrator*

b) Your companies Environmental Profile

Tick if yes	**Feature present in your company / group**
	Has environmental policies
	Has environmental Management Systems (controls and procedures)
	Has regular external environmental audit
	Has Certification e.g. ISO 14001
	Produces an annual environmental report (on public record)

Further information

If you would be prepared to comment further on any of the above matters please leave contact details

E-mail	
Telephone number	
Designation	
Name	

Part B

ENVIRONMENTAL REPORTING DISCLOSURE IN SOUTH AFRICA, A COMPARATIVE STUDY OF THE EXPECTATIONS OF KEY STAKEHOLDER GROUPS*

ABSTRACT

This study measures and compares the expectations of three key stakeholder groups with regard to environmental reporting, namely:

- The companies responsible for preparation
- Environmental professionals, who assist in the preparation of these reports or attest as to their validity, and
- Environmental activists, pressure groups and NGOs who may rely, on such reporting to assess the impact of such company's activities.

The study considers the perceived importance of such environmental reports, the areas that are reported on and the levels of disclosure. Thereafter, it contrasts the expectations of the above three groups a compares these expectations to the minimum reporting levels required by the only officially endorsed international reporting guideline as used in South Africa, namely the GRI.

The study found significant differences between the expectations of the three groups, which also differed from the requirements of the GRI. Predictably, the responses of environmental activists and pressure groups expected higher levels of disclosure than professional environmental consultants, who in turn expected higher levels of disclosure than companies and their representatives. There were also found to be significant differences between the

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responses of the three groups with regard to the importance of specific areas of environmental disclosure, with the responses of the environmental activists and pressure groups being most skewed towards considering these to be very important, followed to a lesser degree by the environmental professionals.

INTRODUCTION

Accounting serves many purposes such as reporting, control and supporting decision-making, all of which are the domain of management. Thus accounting can be considered to be managerialist (Bebbington & Gray, 2001), in that it supports the function of management and the objective of business organizations, which is the pursuit of profits. In fact it can be considered to be instrumental to that function, since businesses can neither function nor achieve their objectives without accounting support and the measurement of their success. However this managerial perspective and the notion of sustainability[1] are clearly in conflict. It is contended that there is an indisputable link between accounting, business and environmental degradation (Gray & Bebbington, 1993).

Gray and Bebbington (1991) propose that traditional accounting suffers from inherent inadequacies, which are twofold:

- Firstly they do not convey the full potential costs these companies could face, as they are based only on existing legislation and the extent to which this has been

[1] Sustainability is defined as utilizing the resources of the world to meet present needs in such a way as to ensure the needs of future generations will also be met (WCSD 1987)

enforced. The full and retrospective costs are unimaginable should the companies ever become accountable for all pollution and damage caused.

- Secondly, they inadequately convey the effect of the impact of the company's activities on the environment, where these are not or cannot be converted into financial terms.

Although environmental accounting and reporting has emerged as a response to the businesses environmental needs, the abovementioned inadequacies generally still persist. Environmental accounting according to Gray and Bebbington (2001) is all aspects of accounting that pertain to the impact of the environment on the business and the company's response thereto. Environmental reporting covers the reporting of environmentally related data in the annual reports of companies, including the annual financial statements and any other report produced by or for the company. Environmental accounting and reporting have over the last three decades emerged as well defined sub-disciplines of both accounting and environmental science. Environmental science is characterized in practice by a cross-over between 'hard' science and social science, as most issues are embroiled in social and development issues, and as such, progress in environmental issues is often a compromise between the expectations of environmentalists, communities, business and a variety of other stakeholders. Thus its is no surprise that most generally accepted standards and guidelines on environmental reporting as products of environmental science, are flexible instruments representing the result of extensive negotiations and lobbying (Krut & Gleckman, 1998).

There have been increasing trends in environmental disclosure. For example Deegan and Gordon (1996) indicated that 36% of their sample of Australian companies reported environmental data in their 1991 annual financial statements (AFS). In a study of 1994 annual reports in Australia, Gibson and Guthrie (1995) found 53% of their sample reported environmental data, suggesting an increasing trend. Deegan and Gordon's (1996) studies determined that most of the reports were descriptive or qualitative in nature and commented on positives only, whilst ignoring the negatives. Similar studies in the US (Gamble, Hsu, Jackson and Tollerson, 1995) and the UK (Harte & Owen, 1991) have noted significant increases in the amount of environmental disclosure in annual reporting leading up to and (particularly) during the 1990s. In South Africa there have been increasing levels of environmental reporting with Clulow (1991, cited in De Villiers, 1996:70) finding 40% of sampled companies, and Savage (1994) finding 63% of sampled companies giving some form of environmental disclosure. The early 1990s also saw the publication of what are considered to be the first truly comprehensive environmental reports by Ontario Hydro, BSO/Origin and Norsk Hydro (Huizing & Dekker, 1992). The 1990's also saw a proliferation of papers (Hart and Owen, 1991; Power, 1991; Gray, 1992; Cooper, 1992; Bebbington & Gray, 1993, Savage, 1994; Tilt, 1994, 1996; Collison & Gray 1997; Deegan & Rankin, 1997, 1999; Laughlin, 1999) and the publication of several books (Schaltegger, 1996; Welford, 1997; Gray & Bebbington, 1999) on the subject.

PERCEPTIONS, EXPECTATIONS AND ATTITUDES

It has been established that various user groups expect environmental reporting, and rely in part on corporate reports for information on the environmental practices of specific

companies (Epstien & Friedman, 1994; Deegan & Rankin, 1997). This information can be used to decide to invest in a particular company, to purchase its products, to seek employment with them or to deal with them in other ways. Deegan and Rankin (1999) found that most shareholders and individuals within an organization also consider environmental information material to decisions that they make.

Tilt (1994) surveyed pressure groups and found that they use annual reports as an important source to access environmental and social data on companies. She found that 82% of lobby groups used social disclosure in corporate reports, and 52% actively sought such social information. These notions are supported by a study by Deegan and Rankin (1997), which surveyed users who believed that environmental data was material to their decisions. Problems arise where insufficient environmental data is disclosed to enable users to make meaningful decisions, and what is provided is less than what is required by users, hence an expectation gap exists. The concept of an expectations gap[2] is neither a new concept (Liggo, 1974) nor is it peculiar to environmental reporting expectations.

The issue of what levels and areas of environmental disclosure companies currently provide, is largely determined by the attitudes of the senior management of such companies, towards the environmental agenda (Gray & Bebbington, 2001). De Villiers (1996) conducted a comprehensive study in South Africa on the willingness to support

[2] Expectation gap as applied here, is the difference between levels of disclosure 'expected' by users of annual reports and the actual level of detail; provided by the preparers of the annual reports

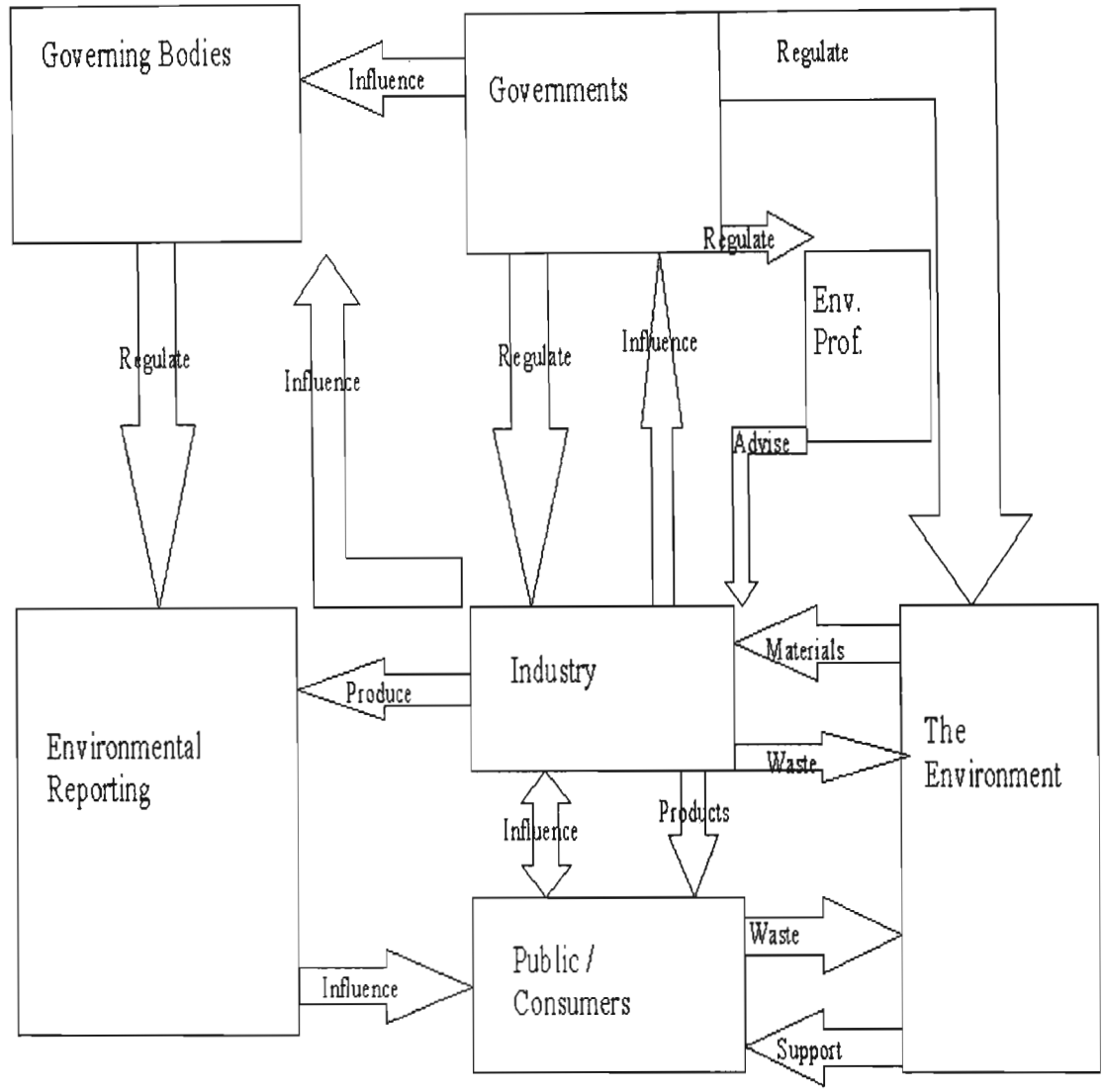
corporate environmental reporting, amongst three stakeholder groups, namely users of annual financial statements, managers and auditors. He found[3] that:

- Most (83%) supported the notion of increased voluntary disclosure of more environmental data
- Most (67%) agreed for the need for compulsory disclosure of environmental matters
- Most (80%) supported the concept of inclusion of environmental data in or as an addendum to the annual financial statements, and
- Most agreed that both more environmental disclosure of a financial (77%) and non-financial (84%) nature was needed.

The following model can be used to explain the significance of various stakeholder expectations of and attitudes towards environmental reporting, taking into consideration their respective influences:

[3] These results have been summarised from the tables provided in the results section of his PhD dissertation

Figure 1. Influences on and impacts of environmental reporting



Note: Arrows represent direction of influence and impacts of groups on each other and environmental reporting, length and width of arrows are not proportionate to strength of influence.

International environmental accounting and reporting standards have been developed by international governing bodies, which have representation from various governments, business, experts and other influential parties. As governments are represented by

politicians who can be significantly influenced by business, (through campaign funding), it is suggested that the standards themselves (as established by these bodies), often represent largely what business considers should be reported on, and is prepared to disclose. Although the public has significant power to influence these international standard-setting bodies through the governments and elected representatives, they themselves (the public) are influenced by the marketing campaigns of business and the commercial bias of the media. Although existing environmental reporting can influence the public, it is suggested that due to the existing limited nature of these reports they tend to present an 'all is well' signal.

It is further suggested that strong comprehensive international accounting and reporting standards, would better inform the public of the impact that industry was having on the environment. This could lead to the public both directly (through various campaigns) and indirectly (through elected governments), pressurising for improved regulation and monitoring of industry. A more educated and 'aware' public could also significantly influence industry by using their purchasing power to shift product demand.

Hence it is concluded, that without strong and comprehensive environmental accounting and reporting standards, little will be done to regulate the activities of industry, as those in a position to do so, will not be aware of the severity of the impact of industrial activities. Further, such standards themselves are unlikely to be forthcoming, since in their absence, the need for their existence and the detailed information they could provide, would not be apparent to those involved in setting such standards.

Thus critical to significant progress in the development of any such international environmental reporting standards, will be the understanding of existing expectations and attitudes towards such reporting, (and the extent of polarization between the respective views), of the users[4] and the preparers[5].

RESEARCH METHODOLOGY

The hypothesis of this paper is that there are significant differences between the expectations of the selected key stakeholder groups, with the environmental activists and pressure groups expecting greater levels of disclosure and considering more areas of specific disclosure important, than the environmental professionals or companies and their representatives.

The views of the preparers and the report users, were elicited by using a self-administered semi-structured questionnaire sent out by mail in January 2003, together with a return paid envelope, and a covering letter (on an academic departmental letterhead)[6].

Questionnaire Design

In designing the questionnaire reference was made to other relevant surveys by Bebbington, Gray, Thompson and Walters (1994) and Deegan and Rankin (1999). However in the

[4] Users, as defined in the accounting framework, AC 000 (SAICA 1996). In this study environmental activist and pressure groups were chosen represent the informed user group.
[5] For the purposes of this paper the preparers include the companies, directors, managers, and accountants within companies, as well as the external environmental consultants who play a dual role in assisting with the preparation of such reports, and attest to their fairness
[6] As noted below, one group was sampled by means of an electronic version of this questionnaire.

interests of facilitating a higher response rate, the questionnaire was limited to only three core aspects of environmental reporting, namely:

- General views on the significance and format of environmental reporting
- Levels of detailed disclosure expected
- Areas for which disclosure is considered important

A fourth section covered details of the respondent and their organization (and it's environmental response / service profile). The questionnaires sent to all groups were identical to facilitate comparability, except for the fourth 'demographic' section. Closed questions were used as the primary data source, requesting data on either a five point Likert scale, or as yes/no answers. Provision was made for additional comments. Since a Likert scale was used, which is not interval, the data was non-parametric. Thus in the analysis, medians as opposed to means were used, and other analysis such as determining if there were significant differences between responses, non-parametric tests such as the Kruskal-Wallis test were run. In the case of the Kruskal-Wallis test, a two-tailed[7] test was run, which did in itself not infer the direction of the difference. The latter was deduced based on the difference between the medians for the respective groups. Where the medians were the same, the direction of the difference was deduced from the skewness of the distribution[8].

[7] Two-tailed tests were used, as the writers could not presume knowledge of the direction of the differences
[8] The skewness as measured by the kurtosis, was in several instances misleading, so the frequency distributions were reviewed to infer the directions of the differences between the responses of the respective groups

Sample selection and respondents

Preparers. The population of preparers includes companies (as corporate entities) and their representatives, the latter of which includes directors, executives, managers, accountants, company secretaries, administrators and consultants, (specifically environmental professionals). For the purpose of convenience this population was split between companies (and their representatives), and consultants, for which environmental impact assessors were selected[9].

The top 300 listed South African companies were selected (on turnover) as the sample[10], although this was reduced to 284, after excluding companies operating primarily outside of South Africa. This might seem a small sample when compared to the 500 of Deegan and Rankin (Australia, 1999) and 1000 of Bebbington, Gray, Thompson and Walters (UK, 1994). However it must be considered that after the increased listing requirements of the Johannesburg Stock Exchange (JSE) were released in 1999, by April 2003 there were only 468 companies still listed on the main board of the JSE (Singh, 2003). Table 1 provides specific details of the range of companies sampled and the percentage of respondents.

[9] Professional environmental impact assessors were considered the most relevant and influential
[10] As reported in the 2002 survey, Financial Mail, 2002

Table 1. Summary of industry subjects and respondents

Industry	Number of preparers per sector in total sample of companies	Each sector as a percentage of the total number of companies sampled (%)	Number of respondents per sector replying (usable)	Respondents of each sector as a percentage of total respondents (%)	Respondents per sector as a percentage of total of each sector surveyed (%)
Media	12	4.2	2	3.8	16.7
Beverages	4	1.4	1	1.9	25
Banking & financial services	25	8.8	2	3.8	8
Education & personnel	4	1.4	0	0	0
Chemicals, oils & petroleum	6	2.1	2	3.8	33.3
Retail	46	16.2	7	13.2	15.2
Life assurance, short term insurance	12	4.2	2	3.8	16.7
Healthcare	5	1.8	0	0	0
Electronics & telecommunications	19	6.7	2	3.8	10.5
Furniture /appliances	5	1.8	0	0	0
Mining, gold, platinum, diamonds	23	8.1	8	15.1	34.8
Minerals & metals	8	2.8	3	5.7	37.5
Information tech.	28	9.9	2	3.8	7.1
Food	16	5.6	4	7.5	25
Packaging, printing & paper	8	2.8	1	1.9	12.5
Building & construction	15	5.3	5	9.4	33.3
Industrial	5	1.8	1	1.9	20
Transport	17	6.0	3	5.7	17.6
Service	8	2.8	0	0	0
Property	2	0.7	0	0	0
Clothing & textile	5	1.8	5	9.4	100
Hotels & leisure	9	3.1	2	3.8	22.2
Totals:	284	100	53	100	

Of the total sample of 284, 12 questionnaires were returned undeliverable[11], while responses were received from 60 companies. Of these 7 declined to answer either due to workload commitments or as part of their company's policy. This left 53 usable responses (19%). Questionnaires were completed either by financial directors (34 %), company secretaries (22,6 %), executive directors (11,3 %), senior managers (20,8 %), or accountants (5,7 %). Administrators also prepared responses (3,8 %).

The second group of preparers that were selected was the professional environmental consultants, (specifically impact assessors). It is acknowledged that other consultants, specifically accountants and auditors also play a role in assisting companies prepare such reports, however it was considered that environmental professionals would have the most professional input into the format and details of such reports. The South African Chapter of the International Association of Impact Assessment (IAIA) primarily represents this professional group and hence its South African membership was selected as the sample. Due to confidentiality requirements, the writers could not get direct access to the membership database. Thus an electronic version of the questionnaire (in Word format) was used and sent via the local secretariat. Of the 423 registered members, 46 members responded, of which 10 responses were unusable (as they were either incorrectly formatted or incomplete), leaving a useful sample of 9%.

This low response can be attributed in part to some of the following factors:

[11] Of these the majority (70%) were determined to have deregistered since the 2002 top 300 listing had been compiled.

- Indirect route, i.e. questionnaire had to be routed via the secretariat
- Unique electronic format, which many members had never encountered before, and
- Large proportion of members not actually working as independent consultants

Users. The users, as defined in the accounting framework (AC 000, SAICA, 1996), could foreseeably represent the entire South African population. However unlike the study conducted by Deegan and Rankin (1999), which focused on several representative groups, this study focused specifically on the user group actively involved in environmental protection, namely the activists and pressure groups. The latter groups was selected, as it would theoretically represent the extreme (but informed) view, and hence in terms of the study's objectives, reflect the maximum expectation gap[12].

In terms of establishing the extent of this population, certain difficulties were encountered, since no formal database of any form is kept of such persons / organisations in terms of any statute. Many individuals are involved in environmental protection in their private capacity. In South Africa, the most comprehensive listing of all environmental groups is considered to be the *Enviropedia – South Africa* (Hoogervorst & Hoogervorst, 2001). From this, all agencies and organizations involved in environmental protection were selected (a sample of 58 organizations), excluding government national / regional parks and their agencies[13]. A 29 % response was obtained (17) with 7% (4) undeliverable.

[12] None of the selected groups were deemed to be representative of the general South African population.
[13] The latter were excluded since in their official capacities they represent the views of government i.e. policy, which is a limited and delayed response to the expectations of the public they represent.

RESULTS AND ANALYSIS

Response bias and validity

From the results represented in Table 1 it can be seen that relatively high responses were obtained from the chemicals, oils and petrochemical (33,3%), mining (34,8%), and metal and minerals sectors (37,5%). Not evident from the table is that many of the respondents were from the larger listed companies. Four of the top five South African companies responded, whilst the average ranking was 118, indicating that is, that the average respondent was from the top 40% of companies. These results are consistent with the findings of Bebbington, Gray, Thompson and Walters (1994), in that there is a response bias towards larger companies and those in environmentally sensitive industries. This could suggest a positive bias, that is paint a more favourable picture of businesses attitudes toward environmental reporting, however it could also, in the case of environmentally sensitive industries, limit the amount of detail they would like disclosed i.e. a negative bias.

A reliability analysis was run on the data using SPSS. The results indicated reliabilities of between 90% and 95% for all variables, with an overall alpha of 91.52%.

Importance and regulation of environmental reporting

The first part of the questionnaire addressed the perceived importance of environmental reporting, its form and regulation.

Table 2. Responses to the first part of the questionnaire, the importance and regulation of environmental reporting

Question	Overall (median)	Companies (median)	Environmental Professionals (median)	Pressure Groups (median)	Kruskal-Wallis Chi-Square	Sig.
Users / stakeholders should have access to an ER	4	4	5	4	22.566	0.000
An ER should be included in the annual reports of companies	4	4	5	4	15.970	0.000
The full cost of environmental impacts must be included in the AFS	4	4	4	4	10.977	0.004
ER should be primarily for government to determine, not companies	2	2	2	2	3.365	0.186
Where no government standards of ER exist, the JSE or SAICA should set some	4	4	4	4	0.321	0.852

1: strongly disagree, 2: disagree, 3: indifferent, 4: agree, 5: strongly agree

The results of the first part of the questionnaire are surprising, with the medians for all three groups being similar, except for the first two questions where the environmental professionals felt stronger about these issues. The inter-quartile range (not shown in Table 2 above), ranges from 1 to 2, indicating a narrow distribution and hence suggesting consensus on these issues. The hypothesis of this paper suggests that the companies should feel less

strongly about the need for environmental data to be disclosed in an environmental report or in the annual financial statements, than users. Since most (69,8%) of the respondent companies had environmental policies, and most had environmental management systems (EMS), it is suggested that such a positive view towards environmental reporting could have been expected as these companies were already involved in addressing environmental issues. The possible bias due to the nature of these companies (i.e. many operating in environmentally sensitive industries) could also have influenced their answers. A further factor could have been *The King Report on Corporate Governance for South Africa* (King II) (King, 2002), which requires companies to report in terms of the Global Reporting Initiative (GRI), and which has been endorsed by the JSE and hence all listed companies should comply therewith. This would mean that such companies would have accepted environmental reporting (ER) as fait accompli. There were significant differences however between the responses of the three groups with respect to:

- Whether users / stakeholders should have access to ER (sig. > 0.001)
- Whether ER should be included in the annual report of companies (sig. > 0.001)
- Whether the full cost of environmental impacts should be included in the AFS of companies (sig. > 0.005)

Expected levels of disclosure

The second part of the questionnaire addressed the levels of disclosure expected by the three selected groups. The levels were structured as cumulative i.e. from no disclosure (1)

to maximum quantified (7) (including financial), disclosure of all outputs and impacts, and comparing these against internal and best practice standards (see Table 3).

Table 3. Expectations of levels of disclosure

Expected Level of disclosure	No	Whole sample %	Companies %	Environmental professionals %	Pressure groups %
None / silent	1	0	0	0	0
Company policy only	2	2.9	5.7	0	0
Details of controls / EMS	3	14.3	18.9	8.6	11.8
Selected quantitative disclosures	4	12.4	15.1	14.3	0
Quantitative disclosure of all outputs	5	17.1	22.6	14.3	5.9
Quantitative disclosure of all outputs and impacts, with comparison against best practice / industry standards	6	21.9	24.5	17.1	23.5
Quantitative disclosure of all outputs and impacts (including monetary cost), with comparisons against best practice / industry standards	7	31.4	13.2	45.7	58.8
Total		100%	100%	100%	100%
Median		6	5	6	7
Kruskal-Wallis, chi square	16,163				
Significance	0,000				

The results of the second part are consistent with the hypothesis of the paper, with the environmental professionals (median 6) and the pressure groups (median 7) expecting higher levels of disclosure than companies (median of 5). These results were significantly different at a 0.001 level. The relatively high expected levels of disclosure by companies, namely with a median of 5 and mode of 6, is somewhat surprising. Again this could be attributed to response bias, or acceptance of the JSE requirements. It may be possible that

some company respondents might not have been fully aware of the implications (time, cost and sensitivity), of such extensive disclosure.

Importance of various areas of possible disclosure

The third aspect the questionnaire examined was the perception of the importance of respective areas of disclosure in an environmental report. The results of this are included in Table 4 below.

Table 4: Perceived importance of respective areas of environmental disclosure

Area of Disclosure	Overall (median)	Companies (median)	Environmental professionals (median)	Pressure groups (median)	Kruskal-Wallis Chi-Square	Sig.	GRI
Measures and expenditures (Capital and Operating): Emission control	4	4	4	4	9.861	0.007	5
Waste management: solid	4	4	4	4	7,829	0.020	5
Waste management: effluent	4	4	4	4	7.561	0.023	5
Recycling	4	3	4	4	7.293	0.026	5
Energy efficiency	4	3	4	4	9.770	0.008	5
Emergency management	4	3	4	4	7.174	0.028	1
Research (pollution control etc)	4	3	4	4	14.104	0.001	1

Outputs: Air emissions	4	4	5	4	13.473	0.001	5
Water / effluent discharge	4	4	5	5	16.461	0.000	5
Solid waste	4	4	4	4	11.702	0.003	5
Noise	4	3	4	4	12.728	0.002	1
Packaging	3	3	3	4	16.632	0.000	5
Products / by-products	4	3	4	4	10.619	0.005	5
Inputs: Energy, sources, efficiency	4	3	4	4	20.710	0.000	5
Raw materials	3	3	4	4	13.602	0.001	5
Recycled inputs	3	3	4	4	15.084	0.001	5
Other: Land, biosystems, impacts	4	4	4	4	11.208	0.004	3
Life cycle analysis	3	3	4	4	18.577	0.000	5
General: Awards	3	3	4	4	9.017	0.011	1
Penalties, fines, litigation	4	4	4	4	7.481	0.024	3
Complaints, media coverage	3	3	4	4	8.188	0.017	1
EMS, audits, certification	4	4	4	4	9.357	0.009	5
Contributions, memberships	3	3	3	4	8.804	0.012	1

Respondents: 1= not at all important, 2= a little important, 3= moderately important, 4= very important, 5= extremely important

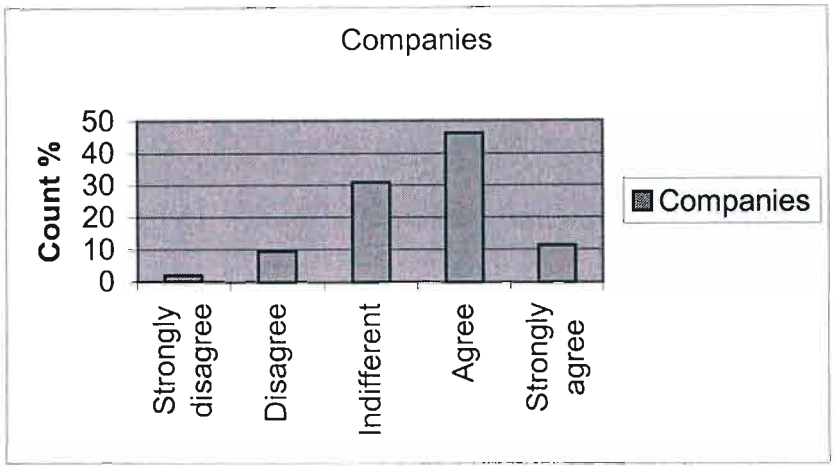
GRI: 1= not mentioned, 3= partially mentioned, 5= expected to be seriously considered for reporting

The results as presented in Table 4 above indicate that in many areas e.g. recycling (sig. >0.001), energy efficiency (sig. >0.01), emergency management (sig. >0.05), research (sig.

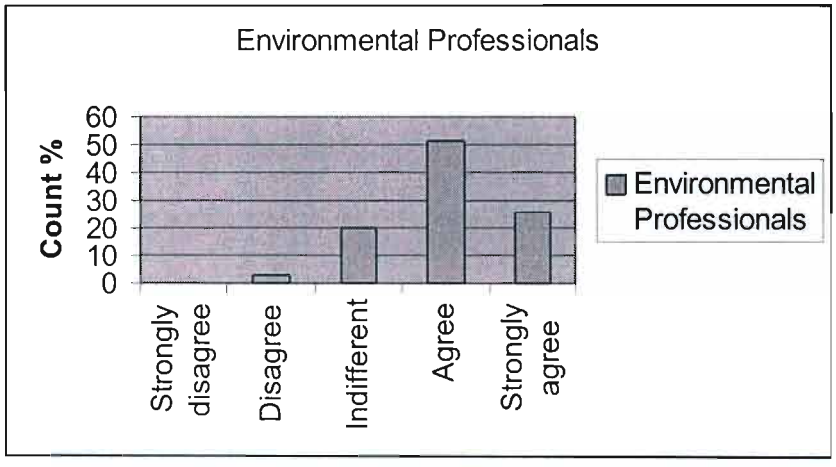
>0.001), effluent (sig. >0.05), noise (sig. >0.005), by-products (sig. >0.005), energy sources (sig. >0.001), raw materials (sig. >0.001), life cycle analysis (sig. >0.001), awards (sig. >0.05), media coverage (sig. >0.05); that respondents from companies would rate such disclosure as less important than environmental professionals and pressure groups. Environmental professionals considered air emissions more important than both the companies and pressure groups (sig. >0.001). Pressure groups considered packaging, contributions and membership (not surprisingly), to be more important than the other two groups (sig. >0.05).

Even where the medians for all three groups are the same, there are still significant differences between the responses of the three groups e.g. emission control (sig. >0.01), solid (sig. >0.05) and effluent (sig. >0.05), waste management control, solid waste output (sig. >0.005), impact on land and biomass (sig. >005), penalties, fines and litigation (sig. >0.05) and whether the company has EMS, environmental audits or certification (sig. >0.01). As an example to illustrate these differences, the frequency count (including the kurtosis for the distribution), for the relative importance of the disclosure of the impact on land and biomass, is reflected in Figure 2 below.

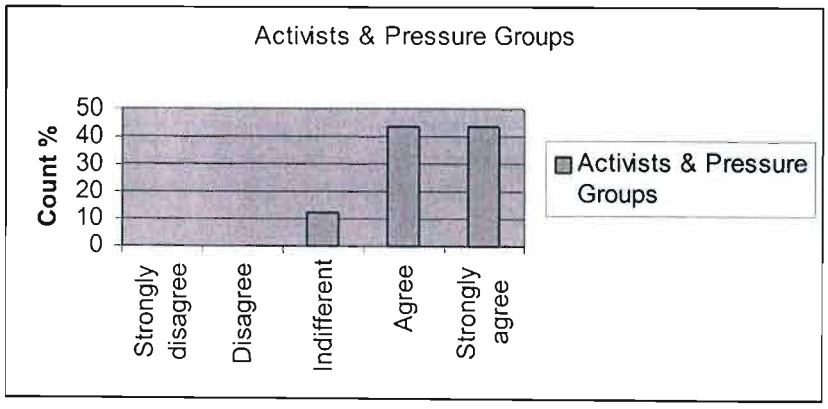
Figure 2. Frequency counts for perceived importance of disclosure of impacts on land and biomass, by three selected groups (including kurtosis for distribution)



Kurtosis: 0.280



Kurtosis: -0.343



Kurtosis: 0.164

As can be seen from these graphs that although the medians for all three groups fall into category 4 (important), the skewed distributions show greater tendency to consider this area of disclosure as very important, from companies to professionals to pressure groups[14]. This is consistent with the underlying hypothesis of this paper, and applies to a greater or lesser extent to the other results for this section.

Few inferences could be drawn between the overall or individual groups expectations and areas considered as key reporting or disclosure areas in terms of the Global Reporting Initiative (UN, 2000). All groups (based on medians) considered these key reporting / disclosure areas as very or extremely important, except for:

- Recycling
- Energy efficiency
- Products and by-product details, and
- Life cycle analysis

These were considered to be of only moderate importance by companies.

Company / organization and respondents' profiles

All questionnaires had a fourth component, which varied per group, which was designed to collect certain information regarding the respondents' positions in their respective organizations, the environmental profiles of their organizations activities or services, and contact details.

[14] Consideration of the kurtosis alone does not convey the greater tendency of environmental pressure groups respondents to consider this area as more important, hence the kurtosis has not been given for all variables in Table 4 (in fact the kurtosis as shown in Figure 2 is somewhat misleading).

Environmental professional respondents were, either directors (28,6 %), consultants (22,9 %), managing directors (20%), senior consultants (11,4 %), partners (8,6 %) or administrators (8,6%).

The following table reflects the percentages of the companies that had taken certain measures to reduce or limit their impact on the environment.

Table 5. Frequency count of distribution of companies involved in selected environmental measures

Environmental measures in place	Companies having this measure (%)
Has environmental policies	69,8
Has environmental management systems (controls and procedures)	50,9
Has regular external environmental audit	39,6
Has certification e.g. ISO 14001	39,6
Produces an annual environmental report (on public record)	34,0

A profile was also prepared of the services provided by the organizations to which the environmental professionals belonged. This is reflected in Table 6 below.

Table 6. Services provided / (involved with) by organizations to which environmental professional respondents belong

Services provided / (involved with)	Organizations providing (%)
EIA (environmental impact assessments)	80,0
Setting up / advising on environmental management systems	62,9
Providing environmental audits	57,1
Certification e.g. ISO 14001 and other	20
Producing environmental reports for clients	51,4
General SHE (safety, health and environment) assessments	37,1
Other specialized environmental and industrial services	60

Of all the services provided, most (80%) of the organizations undertook EIAs. The fact that not all of the organizations provided environmental services, can be attributed to the fact that 20% of the organizations for which the respondents worked, were either in industry or the public sector, and hence not specifically involved in environmental consulting.

Composite indexes were derived of the extent to which organizations had adopted environmental measures (in the case of companies), and provided or not provided different environmental services (in the case of the organizations to which the environmental professionals belonged). The various business sectors into which the respondent companies belonged, were also subjectively ranked on their environmental sensitivity i.e. from those industries suspected having the least impact on the environment (such as services), to those considered to have the greatest impact on the environment (such as chemicals, oils and petroleum). The two composite indexes, the sensitivity ranking, as well as the seniority ranking of the respondents (of both companies and environmental professionals) were

tested for possible correlation against the responses to the first and second parts of the questionnaire. The results of this are reflected in table 7 below.

Table 7. Nonparametric correlation test of composite indices, environmental sensitivity and seniority of respondents against responses given to parts one and two of the questionnaire

Question / Issue		Seniority of company respondents	Seniority of environmental professional respondents.	Composite average company's environmental profile	Composite average environmental professional's services	Relative environmental sensitivity of respondents industry
Users / Stakeholders should have access to an ER	CC Sig.	0.298* 0.030	0.022 0.901	-0.107 0.445	0.0237 0.171	-0.002 0.987
An ER should be included in the annual reports of companies	CC Sig.	0.158 0.258	-0.085 0.629	-0.323* 0.018	0.195 0.260	0.122 0.385
The full cost of environmental impacts must be included in the AFS	CC Sig.	-0.048 0.731	0.271 0.115	0.108 0.441	0.103 0.556	-0.104 0.458
ER should be primarily for government to determine, not companies	CC Sig.	0.314* 0.022	-0.077 0.660	0.152 0.279	-0.152 0.363	-0.163 0.242
Where no government standards of ER exist, the JSE or SAICA should set some	CC Sig.	0.083 0.556	0.281 0.102	0.243 0.080	0.375* 0.026	0.005 0.971
Expected levels of disclosure	CC Sig.	0.315* 0.022	0.484** 0.003	-0.019 0.895	0.186 0.286	0.040 0.775

CC: Correlation coefficient (Spearman's bivariate), Sig.: Significance (2-tailed)
**: Correlation is significant at the 0,01 level (two tailed).
*: Correlation is significant at the 0,05 level (two tailed).

The significant relationships highlighted by the above correlation test are:

(i) A positive correlation (at 0.05 significance) between the seniority of the company respondents and:

- Their view on the need for shareholders to have access to environmental information on companies
- That environmental reporting disclosure should be a matter for government to determine
- That a greater level of disclosure should be given to important environmental issues

(ii) A positive correlation (at 0.01 significance) was found between the level of seniority of environmental professionals and the extent of disclosure they would expect with respect to important environmental issues.

(iii) A negative correlation (at 0.05 significance) was found between higher environmental profiles of companies and their belief that the environmental report should be included in company's annual reports.

(iv) A positive correlation (at 0.05 significance) was found between the extent of environmental services provided by the respective professional environmental organizations / consultancies and their belief that bodies such as the JSE and SAICA should be proactive in setting environmental reporting standards, where these are not forthcoming from the government.

Potential explanations for these relationships include:

(i) That senior management's experience would perhaps give them greater insight into the needs of the shareholders they serve.

(ii) That senior management's experience would give them greater insight into the need for more extensive environmental disclosure, as well as being aware of the role that professionals could play in such reporting.

(iii) That greater experience that companies have had in addressing environmental issues and in environmental reporting would persuade them of the inherent difficulties of trying to quantify environmental impacts, and hence this could be a reason for their preference for environmental reporting to be separate from the financial reporting.

(iv) That the greater experience of the management of such environmental consultancies would give them greater insight into the need for more extensive environmental disclosure, as well as being aware of their role as professional consultants in such reporting.

The sample was also split into companies that did have or did not have EMS systems. The groups that had EMS systems, did not believe that the full cost of environmental impacts should be included in AFS, as strongly as the groups who did not, (median of 3 versus 4). They did believe that the impact of a firm on the biodiversity was more important (median of 4 versus 3), as was the impact of noise (median of 4 versus 3) and the impact of by-products and waste (median of 4 versus 3), however they did not believe that disclosure of fines and litigation was (median of 3 versus 4) as important.

DISCUSSION AND CONCLUSIONS

There are several inferences that can be drawn from the above analysis. These are:

- That high levels of expectations regarding environmental reporting and disclosure are apparent in both users and preparers
- That an expectation gap does however exist between the selected groups representing preparers and users
- That correlations exist between the perceived importance of certain environmental reporting and disclosure issues and the seniority (or experience) of the management of companies and / or environmental consulting organisations.

Regarding the first issue, (namely that of the relatively high levels of expected environmental reporting / disclosure), this was found to be common for all groups, including the representatives of companies with most respondents agreeing with key issues, expecting qualitative and quantitative disclosure, and rating almost all areas of possible disclosure as important, very important or extremely important. Several factors could have contributed to this positive perception. Amongst these factors is the JSE listing requirement that companies must comply with King II report (King, 2002), which requires companies to report on their triple bottom line[15] in terms of the GRI. Thus all listed companies should be aware of the principles and requirements of environmental reporting. A further contributing factor would have been that the survey was conducted in January 2003, a mere four months after the World Summit on Sustainable Development had been held in Johannesburg, South

[15] The triple bottom line is environmental, social and economic performance

Africa. It is suggested that the extensive media coverage of this event could have impacted favourably on perceptions regarding environmental issues.

The second issue concerns the expectation gap that exists between the users and preparers of environmental reports. This was clearly highlighted with regard to the expected levels of disclosure for environmental matters, where it was found that environmental professionals expected greater levels of disclosure than the companies (preparers), and that the pressure groups and activists (users) expected the greatest amount of such disclosure. This expectation gap may be smaller for companies in environmentally sensitive industries such as chemicals, oils and petroleum, as well as the mining sector. This was also encountered by Deegan and Rankin (1999) and has been explained in terms of the legitimacy theory (Deegan & Rankin, 1999; Gray *et al.,* 1994). However in this study (in this paper), when the environmental sensitivity of companies was tested for correlation against responses, no significant relationships were identified. The sample size was not large enough to split it into different industry sectors to test for statistically significant differences. Differences were however found between the expectations of companies that did or did not have EMS.

The third issue highlighted in this study was the positive correlations between the seniority of the respondents from companies and environmental consultancies and the degree to which they supported increased levels of disclosure or the importance of such disclosure. This could possibly be attributed to their greater experience and understanding of the importance of environmental reporting.

However in just about all areas covered in this study, significant differences were found between the expectations of the three selected groups. Despite apparent strong support for environmental reporting from companies, it is suggested that this has not translated into comprehensive disclosure of all details outlined in the GRI. Of the company respondents, 40% were accounting professionals (34% financial directors, 6 % accountants). Within the accounting profession, evidence has been found to suggest that a significant proportion of accountants support the view that accounting should address environmental issues and that the users of annual reports, do require such information (Bebbington *et al.*, 1994). However despite all this agreement there has been little change or response by the accounting profession (KPMG, 1992; Gray & Owen, 1993). It is suggested that perhaps accountants themselves do not want to change (Bebbington *et al.,* 1994). However Bebbington, Gray, Thompson and Walters (1994) concluded that volition factors such as internal constraints within companies could frustrate attempts to change and innovate. They also suggested that accountants are ill equipped in their training to respond to new challenges (Power, 1991; Bebbington *et al.,* 1994).

The proposals by the King II report (King, 2002) that companies must report on their triple bottom line in terms of the GRI, will play a significant role in the promotion of environmental reporting in South Africa. However it is speculated that the flexible and non-prescriptive nature of such reporting standards, is likely to result in the process remaining largely a legitimisation / compliance exercise for most companies, which leads to the question of whether this is likely to result in any increased levels of comprehensive, substantial or relevant disclosure in the foreseeable future.

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