



Advantages Associated with the Implementation and Integration of Environmental Management Systems in Small Manufacturing Businesses

By

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Thesis presented in partial fulfilment of the requirements for the degree of
Master of Engineering (Chemical Engineering), in the Department of
Process Engineering, at the University of Stellenbosch.

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December 2003

DECLARATION

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.


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25/11/2023
Date

SYNOPSIS

The South African economy is largely dependant on small enterprises as a valuable source of job creation, gross domestic product as well as product development and innovation. However, unfortunately there exists an extremely high failure rate among small business with 20% of start-up businesses failing within the first year of operation, and an almost 60% failure rate within the first 6 years of existence.

These statistics have initiated several research studies, and have been the focus of many business books, in itself, creating a vast industry of small business success tools and quick fix solutions.

When considering the high failure rates of small businesses, the concepts surrounding sustainable development come into question by pure method of association. Sustainable development issues have become a top priority globally and have moved up the corporate agenda in recent years. When trying to "marry" these two concepts, questions arise regarding the effect of integrating sustainability principles and management systems, with contemporary small business strategy.

The aim of this study is to investigate existing critical success models and to integrate some simple initial stages of sustainable development business strategy within these models. Expectantly, some of the principles contained in the formalisation of management systems that address sustainability issues, could be incorporated in traditional management

models in an attempt to identify possible interventions and tools that might positively impact on the success rate of small business enterprises. These concepts would be tested by means of implementing a formal environmental management system (based on the ISO 14001 standard) as an initial approach to addressing sustainability goals, as a case study.

The successful implementation of an ISO 14001 environmental management system at this small business enterprise, realised several advantages for the company, and have been used to adapt traditional management models to include for some of the simple concepts of sustainable development.

OPSOMMING

Die Suid Afrikaanse ekonomie is in 'n groot mate afhanklik van klein besighede as 'n waardevolle bron van werkskepping, bruto binnelandse produk, asook van produk ontwikkeling en innovasie. Des nieëensteinstande, bestaan daar ongelukkig 'n baie hoe falings syfer onder klein besighede, met 20% van aanvangsbesighede wat misluk binne die eerste jaar van bedryf en ongeveer 60% van besighede wat misluk binne die eerste 6 jaar van bestaan.

Hierdie statistieke het reeds verskeie navorsingstudies geïnisieer en was reeds die tema van verskeie boeke, wat opsig self 'n reuse industrie genereer van sake sukses handleidings en kits oplossings vir verskeie probleme.

Wanneer hierdie hoe falings statistieke onder klein sake ondernemings oorweeg word, bevraagteken mens die konsepte rakende volhoubare ontwikkeling, bloot as gevolg van assosiasie. Volhoubare ontwikkeling het in die laaste paar jaar baie aandag geniet op die prioriteitsagendas internasionaal, asook van verskeie korporatiewe agendas. As gepoog word om hierdie twee konsepte met mekaar te vereenselwig, ontwikkel daar verskeie vrae rakende die effek van die integrering van volhoubare ontwikkelingsbeginsels en verwante bestuurstelsels, met bestaande klein sake onderneming strategie.

Die doel van hierdie studie is om bestaande sukses modelle vir klein sake ondernemings te ondersoek, en om sommige van die begin fase beginsels van volhoubare besigheids strategie, met mekaar te integreer.

Daar sou verwag kon word dat sommige van die konsepte bevat in die formalisering van bestuurstelsels rakende volhoubare ontwikkeling, ook geïnkorporeer kan word binne bestaande tradisionele bestuurs modelle, in 'n poging om moontlike ingrypings en gereedskap te identifiseer wat 'n positiewe impak kan he op die sukses syfers van klein sake ondernemings.

Hierdie konsepte is getoets aan die hand van 'n implimentering van 'n formele omgewingsbestuurstelsel (gebaseer op die ISO 14001 standaard) as 'n gevalle studie, wat die begin benadering vorm om die doelwitte van volhoubaarheid aan te spreek.

Die suksesvolle implimentering van 'n ISO 14001 omgewingsbestuurstelsel by 'n klein sake onderneming het verskeie voordele vir hierdie maatskappy tot gevolg gehad, en is gebruik om tradisionele suksesmodelle aan te pas, om voorsiening te maak vir sommige van die konsepte rakende volhoubare ontwikkeling.

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude and appreciation to the following persons and institutions:

- The Department of Chemical Engineering at the University of Stellenbosch for their creative approach to the Chemical Engineering profession.
- My supervisor Professor Leon Lorenzen for his motivation and support for the duration of this study.
- My colleagues at Techpros, especially Niel Hayward and Neels Barnardt for making invaluable contributions in my professional and personal development.
- My friends and family who have always encouraged me in their own different way.
- Most importantly my wife, Carien, for her continual love, support, understanding and guidance. Without your encouragement, this thesis would never have been possible.

FORWARD

Some of the concepts contained in sections 2 and 3 of this thesis are derived from a section of an MBA study done by Anne-marie Maritz, Stellenbosch University Graduate School of Business, and entitled "Development of a critical success factor assessment for small organisations". This study poses to use her framework as a basis for integration and refinement, and full credit is given to Maritz for her work.

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INTRODUCTION OF STUDY

1 Introduction of Study

1.1 Background

The important role that small businesses have historically fulfilled, and would still perform in the future, provides a valuable source of national economic growth. It is somewhat surprising to note that Small businesses in South Africa employ almost half of the working population employed in the private sector and contribute to a third of the countries annual gross domestic product.

Having said this, there remains to be an exceptionally high failure rate in this sector and it has been noted that over 20% of new business ventures fail within the first year of operation while almost 60% of new business ventures fail within the first 6 years. [Timmons, 1994]

These are alarming statistics when considering the importance of small business development in a developing economy such as South Africa's, where job creation and relief of poverty are some of the most critical issues that need to be addressed.

1.2 Problem Statement

Consideration of these above mentioned statistics, arise several questions regarding the relationship between certain management aspects and competence and overall business success. Ms. Anne-Marie Maritz has developed a critical success framework, based on literature, as part of a MBA study that she completed at the University of Stellenbosch, Graduate School of Business [Maritz, 2001]. The framework developed relates to general management issues as depicted in literature, and does not take

sector specific factors into consideration (in for instance the production environment). Further consideration generates questions regarding the role of sustainable business strategies in sustaining small production companies. Research and companies have proven during the past couple of years that enhanced business performance arises from addressing the challenges of sustainable business in a proactive and integrated approach.

These perceptions form the backbone of this study and aim to integrate the critical framework developed by Maritz, with the concepts of Sustainable Business Development. The framework as developed by Maritz would be used as a reference to integrate the concepts of environmental management, and their role in the developed critical success framework.

Some of the initial stages of moving towards sustainable development, such as the development and implementation of environmental management systems are used as a starting point for integration. It must be noted that this study is not intended to create a framework for sustainable business (as we are only starting to understand these concepts, and developing systems to address them), but aims to use some of the simple concepts, in this case specifically environmental management systems, to develop a framework that would possibly enhance the general performance of small production companies.

To verify some of these principles, an ISO14001 Environmental Management System was developed and implemented at a small manufacturing company in Cape Town, to act as a Business Case for the developed framework. The developed environmental management system was integrated with all existing business systems and different

business functions, and forms the backbone of the general management system at the case study organisation. The development of ISO14001 Environmental Management Systems is discussed and a concise profile of the mentioned company is also included in this study.

1.3 Overview of Study

The study is divided into different chapters and contains information regarding the following topics respectively.

Chapter One: Introduction

This introductory chapter provides some background information as well as the general problem statement and purpose of this study.

Chapter Two: Small Businesses and Critical Success Framework

Chapter two defines small businesses and some of the issues surrounding small business failures. The management issues regarding general small business success are discussed and the framework as developed by Maritz is discussed.

Chapter Three: Sustainable Business

Some of the concepts of sustainable development are discussed in this chapter as well as the general approach towards sustainable development according to Global Sustainable Business Development.

Chapter Four: Development of Sustainable Business Framework

The requirements for a sustainable development framework are discussed as well as some of the tools or systems available for sustainable development.

Chapter Five: The Role of Sustainable Business

Even though this chapter does not make a real contribution towards the development of this study, the author decided to include some information on sustainability reporting in South Africa. Hopefully this would enhance the understanding of the state of sustainable development in South Africa. In addition this chapter outlines some of the interactions between general business activities and sustainable business, and provides some information on the role that sustainable business strategies can play in a success factor framework.

Chapter Six: Environmental Management Systems (ISO14001)

The heuristics about EMS's are discussed and an outline for the ISO14001 systems is provided.

Chapter Seven: Implementation of ISO14001: USA Raisins Case Study. This company was selected as a case study for this study due to the appropriateness of organisation. Even though several other case studies have also been developed, only one was selected for the purpose of this thesis, to keep it brief. It is suggested that further studies be initiated to analyse these case studies statistically to be able to develop an accurate and mathematically based model.

Chapter Eight: Provides a concise summary of the company used as a target for implementation of an Environmental Management System (EMS). The implementation of ISO14001 at USA Raisins is discussed.

Chapter Nine: References

1.4 Objectives of Study

The main objective of this study is to integrate the critical success factor framework developed by Maritz, with some of the initial concepts surrounding Sustainable Business Development. The framework as developed by Maritz is used as a reference to integrate the concepts of formal environmental management systems, and their role in the developed critical success framework. It is envisioned that by means of formalisation and integration of management systems within small organisations, several of the identified requirements should be addressed by means of the formalised management system.

The widespread adoption of formal management systems (quality, safety, environmental, accountability and social responsibility) by businesses and other organisations has the potential to alter profoundly both their environmental and economic performance, and their resulting relationships with suppliers, customers, employees and environmental regulatory policies and agencies. [Darnall et. al, 2000]

The hypothesis is tested by means of the development and implementation of a formal environmental management system, as a case study, within a small organisation. The system was integrated with all existing management systems within the company, and was used as a baseline management system. Even though several other case studies have also been developed, only one was selected for the purpose of this thesis, to keep it concise. It is suggested that further studies be initiated to analyse these case studies statistically to be able to develop an accurate and mathematically based model.

The thesis structure and approach is outlined in the following flow (logic) diagram:

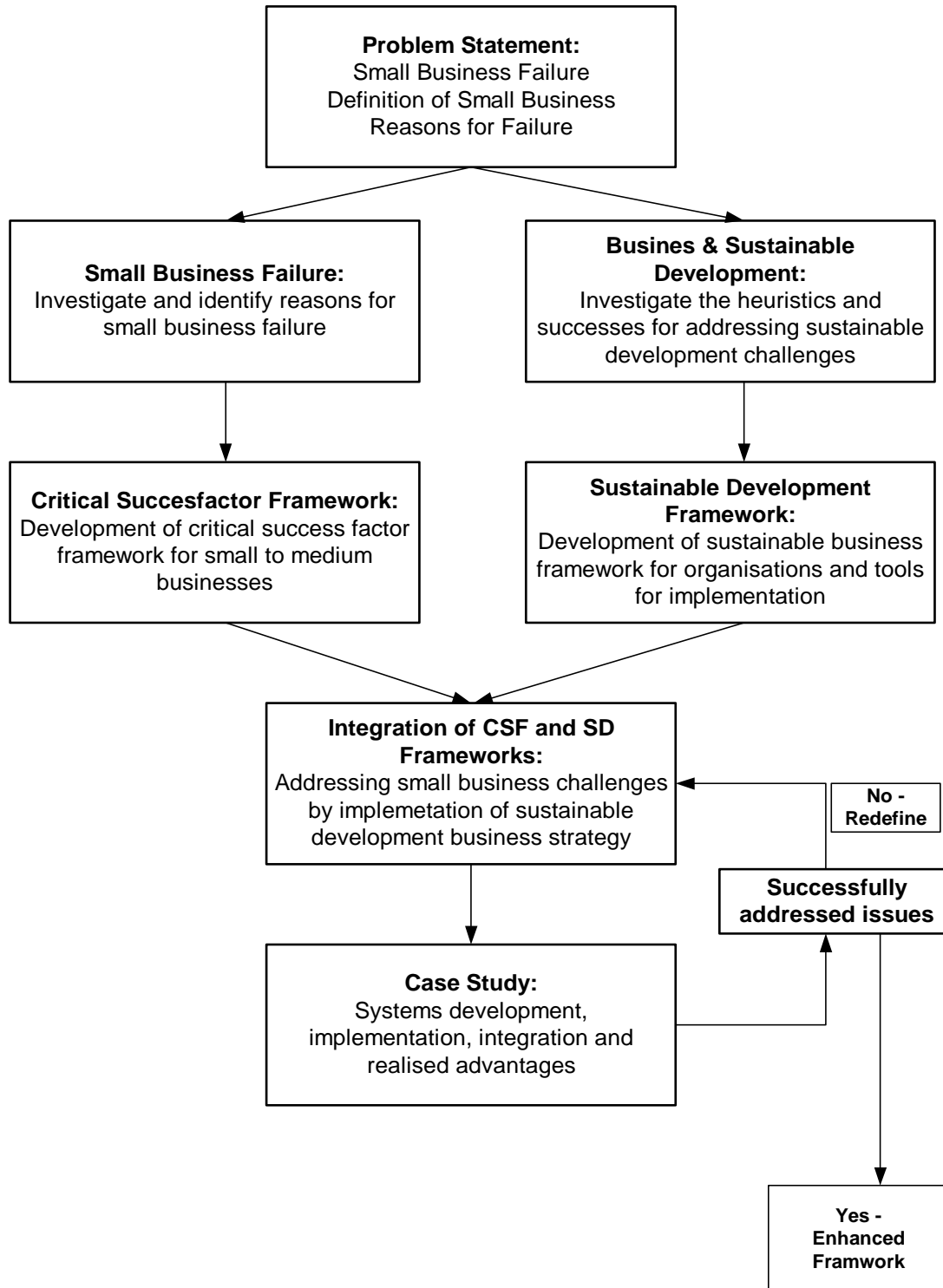


Figure i: 1.1 Thesis Approach

SMALL BUSINESSES AND CRITICAL SUCCESS FACTOR FRAMEWORK

2 Small Businesses

2.1 Introduction

When researching a topic such as sustainability, it is difficult to quantify any related information when you are working in such a broad framework. In an attempt to narrow the framework of this study, it has been decided to use small businesses when addressing the effect of sustainability on business in general. To narrow this framework further, businesses in the manufacturing or production environments, have been selected as suitable candidates. Experience has shown that small businesses are conventionally the source of local and national economic growth (Baumback, 1983). In South Africa, small businesses enterprises provide opportunities for almost half of the formally employed private sector and contribute nearly thirty seven percent to the gross domestic product of South Africa (SA Yearbook, 1998).

Taking the importance of small businesses into consideration, the high failure rate of small businesses can immediately be questioned. Research on small business failure suggests that the basic difficulty in small businesses is poor management (Baumback, 1983; Scarborough & Zimmerer, 1996; Hodgetts and Kuratko, 1998). Poor management has several associated effects and is substantiated by circumstances such as inventory or stock mismanagement, cash flow difficulties (partly due to the over-extension of credit), unnecessary overhead and operating costs, and competitive limitations due to poor decision making related to effectiveness and location.

When considering the high failure rates of small businesses the whole concept of business sustainability comes into question by just pure

method of association and definition. Hence, this study would pose to address the issues compiled in a successful business framework, and incorporate the principles of integrated management and sustainable business that lead to lower investment and production risk, lower operating costs, competitive and related marketing advantages, increased process and management control. It is perceived that the implementation of sustainable business principles into small production facilities, would contribute positively towards the success of small business.

2.2 Categorisation of Businesses

2.2.1. What is a Small Business?

The term “small business” can be defined by means of several different approaches. Businesses may be classified as “small” in terms of a number of parameters such as sales turnover, physical size, the number of people employed by the business, production capacity, etc.

The Bolton report written in 1971 by the Committee for Economic Development in the US, emphasised that three main characteristics should be taken into account when defining a small business:

- Firstly in economic terms, a small business should be considered as one that has a relatively small share of its market.
- Secondly, a small business should be managed by its owners or part owners in a personalised way, and not through the medium of a formalised management structure.
- Thirdly it is independent in the sense that it does not form part of a larger enterprise, and that the owner-managers should be free from

outside control in making their principal decisions. (Stanworth & Curran, 1973: 4).

In South Africa small to medium businesses are defined as companies with an annual turnover of between 0 and 50 million Rands. Even though this definition is relatively wide, this study mainly focuses on companies in the production environment, and typically falls into the “larger small” to “smaller medium” category i.e. with an annual turnover between 5 – 25 million Rands.

2.3 Small Business Failure

Many researchers have tried to identify the true reasoning behind the high failure rate among small organisations. Meaningful research studies on the causes of the failure are unfortunately fairly limited for a number of reasons, including, but not limited to:

- The challenges posed by financial analysis on failed small businesses, due to the lack of publicly available information,
- Previous owner-manager of failed ventures would also have to be located in the event that researchers would like to obtain some useful information, which also poses challenges.
- The unsuccessful entrepreneur might also be unwilling or hesitant to reveal any information regarding the reasons for the business failure.

Maritz has constructed a table from her research that summarises the most common causes for failure of small businesses. It is significant to note that although the research contained in her literature survey spans over a period of three decades, the causes of small business failure continues to remain similar in many instances.

Table i – 2.1: The most common causes of small business failure [Maritz, 2001]

Causes of Business Failure	Scarborough & Zimmerer (1996)	Meredith (1977)	Kubr (1996)	Baumback (1983)	D&B (1982)	GPM
Management incompetence	✓	✓	✓	✓	✓	✓
Lack of experience	✓	✓	✓		✓	
Poor financial & cash flow control	✓	✓	✓	✓	✓	
Lack of strategic planning	✓	✓	✓			✓
Uncontrolled growth	✓		✓			
Inappropriate location	✓		✓	✓		
Poor stock control	✓	✓	✓	✓		
Capital shortage	✓	✓	✓			
Lax credit granting	✓	✓	✓	✓		
Wrong work attitudes			✓		✓	

2.4 Critical Success Factor Framework

In the previous section the most common reasons for failure in small businesses have been identified (Maritz, 2001) and have been mentioned in brief. This section poses to summarise the critical success factors that

Maritz identified from her research, and would form the foundation of the critical success factor framework used for the duration of this study. Even though Maritz placed emphasis on the influence of each of the identified critical success factors in the framework, the aim of this study is to use her research as a baseline and not as a re-invention. Therefore, most of the factors would only be discussed superficially in this section, with detail provided on the factors that would eventually be interlinked to the proposed new model, incorporating the principles of sustainability and formalisation of management systems within an organisation.

2.4.1. Management Issues

"Leadership is not something that is done to people, like fixing their teeth. Rather, it is what unlocks people's potential, challenges them to become better, calls them to task for the lies they have told themselves."

[Bill Bradley, former New Jersey Senator]

Management is the process of getting things done through people. By definition, it presents the small business owner with a major problem, namely relying on others to do the work (Hodgets, 1982). Hodgets & Kuratko [1998] stated that "Successful owner-managers got where they are by learning that the individual they need to rely on most is themselves".

This fact emphasises the need for small business managers to familiarise themselves with all the different aspects of managing a business. Although the owner does not necessarily have to be an expert in every critical aspect of management, the owner should be able to see to it that he/she and the rest of the management team attend to all the managerial tasks. These skills can be obtained by means of several

interventions such as attending business courses, receiving of mentoring from experienced individuals, by building a deep and broad network of successful business contacts, etc.

It is important to note that the business environment change continuously, and that business owners' should keep up to date with all the changes and new philosophies that would achieve a competitive advantage over the business's competitors.

From research and literature the competencies identified concerning the general management of small businesses that are regarded as critical to the success of a business, are outlined in figure 2.1.

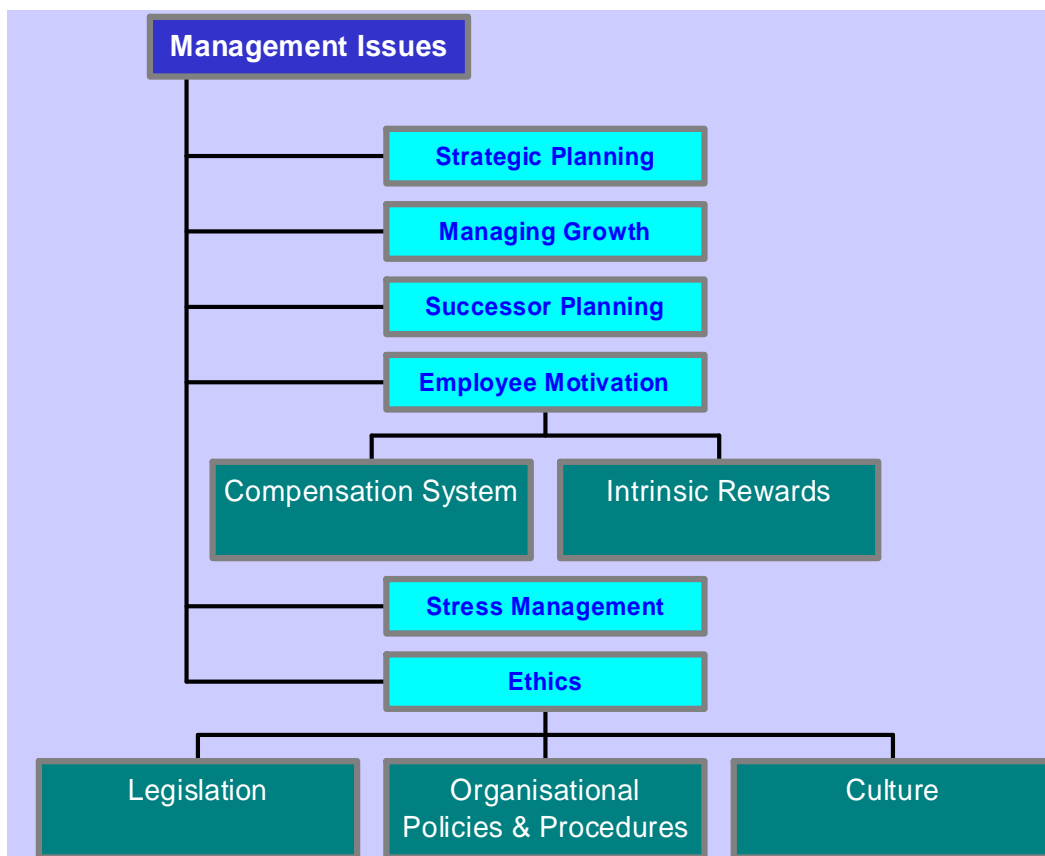


Figure ii - 2.1: Critical management competencies [Maritz, 2000]

2.1.4.1 Strategic Planning

Strategic planning is one of the critical elements that are often neglected by small organisations because owners think that it is something that only benefits larger organisations. But good strategy and good strategy execution are the most trustworthy signs of good management (Thompson & Strickland, 1998).

Without a clearly defined strategy (an overall plan of action which defines the competitive position of a firm), no business has a sustainable basis for creating and maintaining a competitive edge in the market. Strategic planning forces one to realistically assess the organisation's potential. As such, strategic management has shifted since the 1950s from a focus on long term corporate resource planning towards a focus on competitive advantage (Hendrickson & Psarouthakis, 1998).

Owing to Prahalad and Hamels' contribution in the late 1980's and early 1990's, strategic management started to focus beyond the contemporary product and marketing mix towards focusing on the underlying core competencies. These competencies are sets of skills or capabilities that make new product development and process improvements possible. Rather than encouraging organisations to build strategy exclusively around products or customers, they urged them to build around a central set of corporate skills (Hendrickson & Psarouthakis, 1998).

When defining a strategy for an organisation there are several avenues of which to progress. Usually, however, the first step in the strategic planning process involves the assessment of the current market characteristics and conditions.

Generally all businesses depend on consumers for their existence and it is understandable that the small organisation with a rapidly growing consumer base will and should plan differently from the organisation whose clientele is unwavering or in the process of following a decreasing digression. The successful completion of a market assessment provides for a more clear indication of what the organisation should do and where it should be focusing its vigour, and usually forms the basis of the organisation's mission and vision statements. The primary purpose of a vision statement is to provide a clear and concise answer on the question: "What business are we in?" (Maritz, 2001).

In the more holistic sense small organisations do not function entirely on their own, but form part of an external environment which influences the business and in turn has an influence on the external environment. This fact requires thus that to be able to initiate and determine an effective strategy, that even small organisations must first place itself in the context of its external environment through looking at the nature of the industry in which it operates, and at the competitive forces surrounding the organisation. This includes questions about the industry's life cycle, change drivers, impacts on drivers and other related key issues in industry (Thompson & Strickland, 1998).

2.1.4.2 Managing Growth

Managing the growth in small organisations is an aspect that usually challenges even some of the most experienced managers.

The corporate economist and chief statistician of Dun and Bradstreet, namely James W. Duncan, suggests that up to seventy five percent of small business failures are the direct or indirect results of overly ambitious

and negligent growth (Resnik, 1988). Michael Tishman, professor at the Columbia School of Business, believes that less than ten percent of owner-managers have the tools to guide a small business through substantial growth (Resnik, 1988).

Enough growth requires major changes in organisational procedures, personnel assignments and requires managerial expertise. As the organisation increases in size, it also increases in complexity and the manager must learn to deal with this. Growth often pushes the owner into areas where most entrepreneurs are not proficient (Scarborough and Zimmerer, 1996).

One of the aspects that can assist in managing the growth process is to emphasise the importance of create a sense of worker responsibility within the organisation. By enhancing employee responsibility several effects such as innovation and a supportive environment are established and contributes towards driving positive change. An enhanced perception of responsibility in addition causes employees to look beyond the everyday confines of their responsibilities and causes the growth stage to be better served by innovative activity and shared responsibility of all the organisation's members (Hodgetts and Kuratko, 1998).

2.1.4.3 Successor Planning

The important role that owner-managers fulfil in a small businesses have the effect that these organisations are especially susceptible to loss of vision and purpose during periods of transitions of Chief Executive Officers (CEO).

Leadership, values and abilities forms the culture of organisations and others who may not share the same values and abilities replace the leaders who helped shape the vision. Because it is such a critical stage in the life of a small business, plans for succession and intentions regarding changes in ownership should be developed and discussed openly years before the actual transfer of ownership (Maritz, 2001).

2.1.4.4 Employee Motivation

Small organisations can offer employees several advantages to other larger organisations such as a more personalised and flexible working environment, a more open approach towards family obligations etc. Even though, the importance of keeping employees motivated should not be underestimated.

In February 1999, Dun & Bradstreet conducted 649 twenty-minute interviews with owners, senior executives and key decision-makers of small businesses. Thirty two percent of these small businesses stated that finding qualified employees are their biggest business problem (Dun & Bradstreet, 2000).

High calibre employees, who prosper in a smaller team environment, can be a small organisation's biggest assets. This places in immense responsibility on owner managers to ensure that employees meet their own needs and requirements, while simultaneously fulfilling organisational goals and objectives.

Small organisations provide opportunities to their employees that should achieve a better rounded and balanced individual with more unique

development opportunities, than they would have been able to obtain from larger organisations.

Employees are provided with greater variety of learning experiences due to the need of diversifying skills in smaller organisations, whereas most larger organisations require that employees are more specialised. Due to the fact that employees are not provided the opportunity to climb the “corporate ladder” in a small business, other ways of motivation has to become an important part of managing employees (Maritz, 2001).

Due to the uniqueness of each organisation it is difficult to identify a fixed set of guidelines that would ensure highly motivated employees. However, several motivational tools are available to employers that include both cash and non-cash rewards like recognition, responsibility, and opportunity for growth, training and participation.

As already mentioned, the obvious advantage that small organisations can offer employees include both compensation and inherent rewards that are construed around each employee’s own special needs and requirements. The manager, who neglects his employees’ individuality, will not build a strong productive team (Maritz, 2001).

2.1.4.5 Ethics

Managers, owners, shareholders and directors of companies are subject to legislation. The institutionalisation of corporate governance in South Africa by the King Report II will also contribute towards the corporate responsibility of companies to pursue business in an environmentally friendly, socially responsible, ethically acceptable, legally compliant and honest nature.

In a survey conducted of senior managers, business school deans, and Members of Congress in the USA, sixty three percent said that a business enterprise actually strengthens its competitive position by maintaining high ethical standards (Vogel, 1988).

Generally there are three levels of ethical standards (Labrecque, 1990):

- Legislation – which defines for society as a whole, which actions are permissible and which are not. The law merely established the minimum standard of behaviour. Actions that are legal, however, are not necessarily ethical.
- The organisation's policies and procedures, which provide specific guidelines for people in making daily decisions.
- The moral stance individuals take when faced with a decision not governed by formal rules. The organisation's culture can either support or undermine the employees' concept of what constitutes ethical behaviour.

Small organisations form part of the community on a level that provides for more personal interaction with the stakeholders than in large organisations. The importance of ethical behaviour cannot be underestimated and generally earns the respect of two essential groups in an organisation namely, the customers and employees. A solid ethical framework guides employees as they cope with an increasingly complex network of external influence from government regulation, suppliers and the media. It also gives them self-confidence in their decisions.

2.4.2. Competitive Issues

The third broad category of the critical success factor framework for small organisations is construed round the issues relating to competitiveness.

Even though competitiveness encompasses several aspects relating to (including but not restricted to) operation, quality, customer service, marketing and location, the following factors forms the basis of competitiveness in a production environment.

2.2.4.1 Production and Operational Issues

Small and large organisations require cost effective and efficient production systems to remain competitive in our constantly evolving, global society/economy. The implementation of modern business processes and systems and integrating approaches such as total quality management into contemporary business processes, is an essential part of remaining competitive.

The specialised nature of products in smaller organisations somewhat buffers the effect of direct cost comparisons with large organisations. Prices do however have to seem somewhat comparable to the customer. The quality of products or services of small organisations has to be at least equal, if not often higher than their larger counterpart.

In order to remain competitive in this price and quality controlled environment, with limited financial and professional resources, the management of smaller organisations has to develop a complete and efficient production system, with innovative product designs, process designs, job designs and job standards, and has to manage this system effectively (Hosmer, et al., 1997).

One requirement that is non-negotiable when discussing competitiveness issues in small organisations is the delivery of high quality products at all times. This necessitates the development and implementation of cost

effective production systems and the use of modern technology. Customers are continuously more discerned regarding quality and in increase in service and product offering ensures that consumers find the desired product at their desired cost. This phenomenon places even grater emphasis on the importance of a quality focused organisations as an important part of sustaining competitiveness.

2.2.4.2 Marketing Management

Marketing management is the process of adapting the characteristics of a product to fit the needs and wants of customers in a specific market segment, thereafter, combining the pricing level, distribution method, personal sales effort and advertising program, into a consistent marketing plan, that is adjusted to the characteristics of the product or service, and the needs of the customers (Hosmer, et al., 1997).

Small organisations, as do big organisations, face the same array of variables in managing marketing functions, such as competitiveness issues, socio-political forces, legislation, and technology concerns. Managing the marketing functions effectively poses challenges for the already multi-responsible owner manager, and still remains a critically important aspect of managing a small organisation.

2.4.3. Financial Management

2.3.4.1 Financial Systems and Control

An accounting system provides the framework for managerial control of the firm. An accounting system should accomplish the following objectives for a small organisation (Longenecker & Moore, 1991):

- The system should yield an accurate, thorough picture of operating results,
- The records should permit a quick comparison of current data with prior years' operating results and budgetary goals,
- The system should facilitate prompt filing of reports and tax returns to regulatory and tax-collecting agencies of the government,
- The system should reveal employee fraud, theft, waste and record-keeping errors.

Because capital and liquidity problems can quickly lead to large financial losses and have devastating effects, managing finances is an especially important element for managing small organisations successfully. Management is often unaware of cumulative financial losses caused by insignificant financial leaks, most of which, could have been detected by owners if adequate and effective reporting systems have been implemented.

Managerial control provides the key objective of any accounting system in a small business. Information management should be such that the information produced can be utilised as a decision support for management and should be easily understandable. The manager should be able to review data and be able to identify the required intervention in a timely manner.

2.3.4.2 Inventory Control

Inventory within any organisation represents cash or cash convertible equivalent. Even though inventory normally is the largest investment in small organisations, control relating to inventory usually is one of the most neglected managerial responsibilities. Few small business managers

recognise the high cost associated with carrying excess stock; including the cost of interest on money invested, the cost of storage space, the cost of insurance protection, and possibly the cost of deterioration or wastage. On the other hand, a shortage of stock / inventory can lead to a decrease or loss in sales. From the analysis it is obvious that the successful manager would ensure that inventory levels are managed in such a manner that prevents losses in productive sales but still justifies each element of its investment (Maritz, 2001).

2.5 Summary

This section focused on how each of the key success factors typically function in a small business, and what the unique associated problems and challenges of each of the critical success factors are. Figure 2.2 summarises the mentioned factors, and forms the backbone of the critical success framework as developed by Maritz, 2001. The mentioned critical success framework would be utilised as a baseline for the remainder of this study.

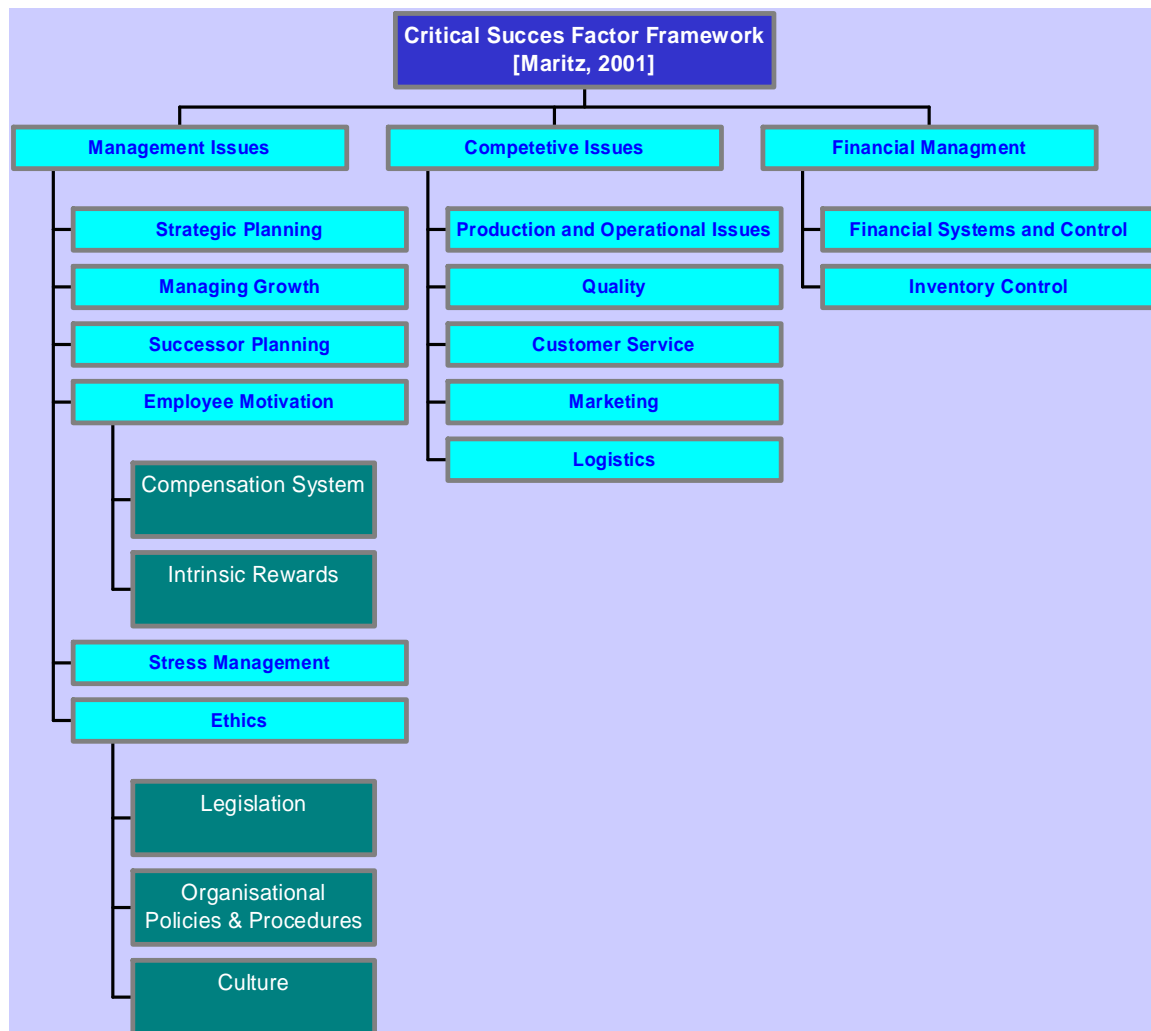


Figure iii - 2.2: Critical success framework

The clear conclusion that is reached after contemplating the most common causes of small business failure is that the availability of information and issues relating to effective information management is one of the main causes of business failure in small organisations.

An enhanced and deeper understanding relating to the complexities and possibilities inherent in each identified critical element, would not only

improve the chances of survival for small organisations significantly, but would also provide opportunities for improving business performance and financial gains.

It is concluded that even in the electronic and information age that we are currently a part of, effective information management remains to be a critically important aspect of business, be it large or small.

CHAPTER 3

SUSTAINABLE BUSINESS

3 Sustainable Business

3.1 Introduction

The concept of sustainable development arose from the Rio Earth Summit because of concerns about the effects of uncontrolled economic growth on the environment and world communities. There is a wide range of implications for businesses, ranging from the debate on the capacity of the atmosphere to cope with emissions to the distribution of wealth.

Several definitions exist for defining the term “sustainable development”. Each of the definitions has a different focus, and allows for different perceptions/approaches:

- *“Sustainable development is about ensuring a better quality of life for everyone, now and for generations to come” (DETR, London, 1999).*
- *“...is development without growth in throughput of matter and energy beyond the regenerative and adsorptive capacities”. (Goodland and Daly, 1996)*
- *“We do not inherit the earth from our parents; we borrow it from our children”. (Kenyan Proverb)*

However, probably the most widely known definition of sustainable development is the Brundtland definition that states sustainable development is ‘Development which meets the needs of the present without compromising the ability of future generations to meet their own needs’.

It is becoming clear that society believes that business must and should not leave a legacy of environmental and social damage for our successors to sort out. Whilst most people would personally subscribe to

this concept, one of the largest challenges is applying the principle of sustainable development to business strategy. This has been defined as “Business Sustainability” and includes our proper contribution to building a more sustainable world, including the survival of business itself.

The danger of not engaging with this agenda is that society could place increasing costs on unsustainable business practices, and customers may not choose to purchase associated products and services. Ultimately, this process may alienate the company from the rest of society, resulting in reduced reputation, increased costs, and decreasing shareholder value through erosion of its license to operate (J. Hill, Corporate Environmental Strategy, 2001).

3.2 The Concept of Corporate Sustainability

Corporate sustainability leaders achieve their business goals by gearing their strategies and management to harness the market’s potential for sustainability costs and risks. It is this pursuit and related management capabilities that creates long-term shareholder value.

Sustainability opportunities and risks are directly related to a company’s commitment to five key corporate sustainability performance principles (J. Hill, Corporate Environmental Strategy, 2001):

- **Innovation:** Investing in product and service innovations leading to a more efficient, effective and economic use of financial, natural and social resources over the long-term.
- **Governance:** Setting the highest standards of corporate governance, including management quality and responsibility, organisational capacity and corporate culture.

- **Shareholders:** Meeting shareholders' demands for sound financial returns, long-term economic growth, long-term productivity increases, sharpened global competitiveness and contributions to intellectual capital.
- **Leadership:** Leading the industry toward sustainability by setting standards for best practice and maintaining superior performance.
- **Society:** Encouraging long lasting social well being in local and global communities, interacting with different stakeholders (e.g. clients, suppliers, employees, government, local communities and Non Governmental Organisations (NGOs) and responding to their specific and evolving needs thereby securing a long term "license to operate" and superior customer and employee loyalty.

3.3 General Approach to Sustainable Business

Over the past three decades, society has witnessed the birth, growth and maturation of regulation driven environmental (and occupational health and safety) protection programs, and the related evolution of strategies, tactics and compliance programs within the regulated community. Modern consumer trends and legislation demands environmentally friendly and socially responsible practices. Globally this has led to stricter legislation on environmental protection. [Business for Sustainable Development, webspace]

The South African legal system emphasises the need for a structured process or strategy to prevent or minimise the environmental impact of a production process, or to treat any resulting effluent to acceptable levels as required by the appropriate legislation. Monitoring, inspection, auditing and policing structures has been introduced, to ensure long term compliance.

The contemporary way of conducting business is globally being redefined by increasing environmental concerns, stricter legislation and shareholder activism. This has forced companies and industries globally to move from mere compliance mode, to including environmental risk modelling in their risk management systems, as well as to include for sustainable development goals in general business strategy development. Figure 3.1 depicts this approach.



Figure iv - 3.1: Journey to sustainable development [BSD, 2003]

Initially the need to comply with environmental regulations drives improvements in environmental performance within organisations. The next or more proactive phase requires of businesses to adopt a more proactive approach towards integrating environmental considerations in operations management. Tools such as environmental risk management is introduced in this phase in an attempt to reduce environmental liabilities and to minimise the costs associated with regulatory compliance. The final phase of moving towards pro-activity involves the inclusion of sustainable business strategies in contemporary business processes can lead to innovative opportunities and enhanced results.

3.3.1. Regulatory Compliance

As mentioned in the previous paragraph, the first step in moving towards sustainability is by means of compliance with regulatory requirements, as depicted in figure 3.2.

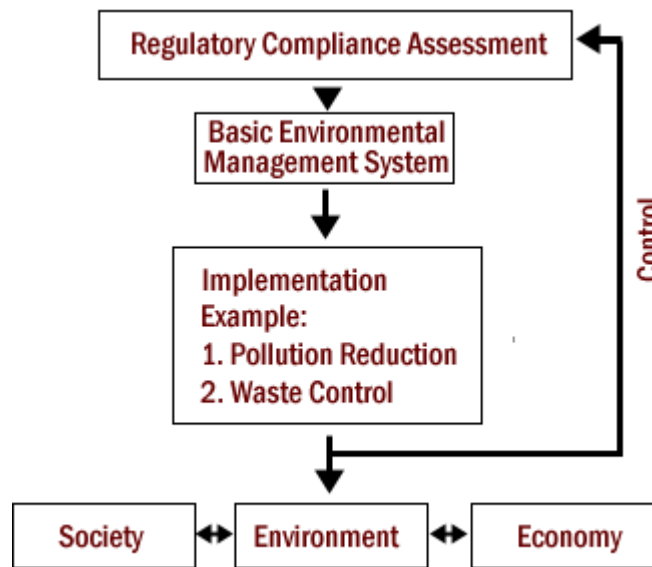


Figure v - 3.2: Regulatory compliance [BSD, 2003]

The global development and introduction of recent environmental legislation and regulations are obliging organisations to improve their social and environmental performance. Unfortunately, obtaining compliance to new legislation generally requires a financial investment over the short term, which can influence on company profitability. Generally the most considerable financial liabilities associated with environmental compliance and risks include interventions such as remediation, clean-up and fines for breaches of legislation. This places great responsibility on managers of organisation to provide for environmental liabilities in their financial and/or insurance processes.

Even though environmental insurance can assist companies to comply with regulatory and other requirements, this approach still signifies a reactive approach, and often prevents companies from establishing efficient cost control and environmental growth strategies. This reactive approach or “compliance mode” still forces organisations to consider environmental compliance as an unnecessary encumber that could negatively influence on a organisations competitiveness and business profitability.

A more holistic approach that includes the implementation of comprehensive environmental programmes and systems encourages companies to move beyond compliance towards integrating sustainable development as part of their organisational goals and mission.

3.3.2. Environmental Risk Management

Companies that have experienced the difficulties associated with operating in compliance mode, start to integrate environmental risk management as part of their general risk management functions, and define the next step towards sustainable development as depicted in figure 3.3.

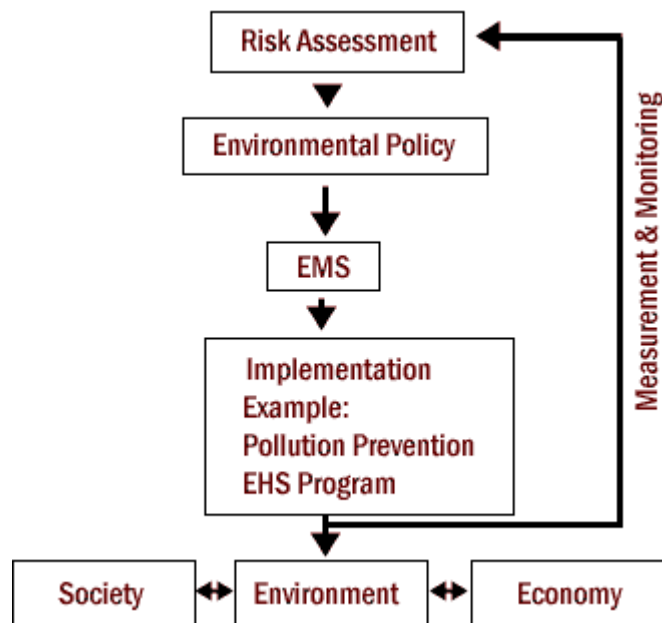


Figure vi - 3.3: Environmental risk management [BSD, 2003]

The development of corporate governance codes have created a forum for both corporate and personal environmental liability and have resulted in business executives to adopt more proactive strategies in dealing with environmental issues. In an attempt to minimise environmental risks, businesses are starting to adopt a preventative approach towards environmental liabilities by proactively anticipating potential risks, and implementing interventions for preventing environmental damages and degradation. This approach offers greater suppleness to managing environmental risks than previous compliance approach.

In an attempt and drive towards improving environmental performance, some organisations conduct environmental health and safety (EHS) assessments and develop corresponding environmental charters and policies. The implementation of formal environmental management systems provides a extremely useful tool in managing and mitigating environmental risks effectively.

As part of an environmental management system, techniques such as pollution prevention, cleaner production and recycling programmes are implemented and assist in the translation of policy objectives into practical gains (Figure 3.4). The more proactive risk management approach allows companies to anticipate and avoid expenditures associated with environmental damage as well as minimising cost of complying with future legislation.

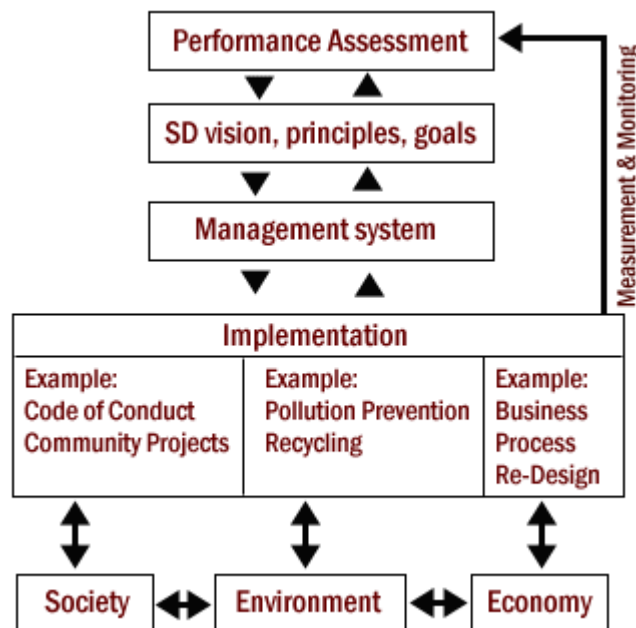


Figure vii - 3.4: Environmental risk management refined [BSD, 2003]

3.3.3. Sustainable Business Strategies

Sustainable business strategies indicate the final phase towards sustainable business. The endeavour of which is to seek win-win situations which can achieve environmental quality, increase wealth, and enhance competitive advantage.

In the final phase companies integrate sustainable development principles as part of general business strategies. The suggested method is to include sustainable development as a likely extension of corporate codes of practice and corporate policies. The integration of stakeholders needs and expectations in decision making processes guides the journey to economic, environmental and societal rewards.

This more holistic approach enables managers to uncover business opportunities which, in earlier stages of the journey, might have been regarded as costs to be borne or risks to be mitigated. Results from this approach include the development of novel business processes which lead to reduced adverse environmental impacts, improved financial performance due to increased process effectiveness, and an enhanced reputation among communities, customers and stakeholders.

3.3.4. Sustainable Development and Environmental Management Compared

Many organisations tend to confuse environmental management and sustainable development as being the same fixation. They are however, two different concepts and the similarities and differences are outlined in the following paragraphs.

Similarities between sustainable development and environmental management:

- Environmental protecting supports the goals of sustainable development. The survival of future generations requires a healthy environment that construes clean air, unpolluted water and healthy soil.

- The protection of natural resources supports environmental sustainability. Concepts such as re-use and recycling allows for minimisation and optimisation of resource use in an attempt to save natural resources for future generations.
- Increasing environmental knowledge and awareness by means of training and education we support the principles of sustainable development. Increasing the knowledge base while learning to protect the environment, also increases knowledge regarding the global environment and thus improve our ability to identify solutions for sustainable development.

Differences between sustainable development and environmental management:

- Sustainable development is of importance for society as a whole and a participatory approach is thus integral to sustainability.
- Sustainable development investigates the relationships between environmental, social and economic benefits, whereas, environmental management relates to environmental impacts.
- The main objective of environmental management is to reduce adverse impacts on the environment and not necessarily allowing future generations to inherit the same amount of natural, social and economic wealth as their predecessors, as required by the definition of sustainable development.
- Whilst environmental management is often regulated and controlled, sustainable development involves going beyond mere compliance.

DEVELOPMENT OF A SUSTAINABLE BUSINESS FRAMEWORK

4 Development of Sustainable Business Framework

This section poses to discuss the approaches and systems used when designing and implementing a framework for sustainable business in a company. Section 4.1 deals with the methodological approach towards sustainable business, while section 4.2 would provide an overview of the current systems and tools available to address the key issues surrounding sustainability, by utilising some text reference, and specifically according to the books by Prof. Michael Porter, "Competitive Strategy and Competitive Advantage". [Porter M.E, 1998]

4.1 Considering Sustainability

4.1.1. Introduction

Businesses that are keen to profit from the conversion to sustainable development often have a longer time based approach and a broader more sophisticated set of objectives than their traditional counterparts. They are typically identified by being dissatisfied with current situations and want to operate in a socially, economically and environmentally responsible manner. Managers of these organisations add real value to the well-being of employees, society, culture as well as to the prosperity of future generations. While it is realised that they cannot afford to ignore short-term financial obligations and responsibilities their meaning of accomplishment is more refined and focus on a longer time horizon. [Business for Sustainable Development, webspace]

Corporate culture plays an important role in the development of sustainable business strategies and often, the founders of these companies have a well-articulated set of principles that guide the

business and help to instil the same set of values in their employees. Good culture shapes the mood and temperament of the workforce and positively affects organisational energy, work habits and operating practices. Good culture provides standards, values, informal rules and peer pressures that mature and motivate people to do their jobs. Good culture strengthens employee identification with the company, its performance targets and strategy.

In addition good culture stimulates people to take on the challenge of realising the company's vision, doing their jobs competently and with enthusiasm and collaborating with others to execute the organisational strategy. A good organisational culture creates a work environment that promotes "can do" attitudes, accepts change and breeds needed capabilities.

Corporate culture can be further developed by declaring organisational goals in the public domain and can inspire trust, create a model for industry sectors, and provides a benchmark against which achievement can be measured.

The importance placed on high calibre employees within smaller organisations has already received some attention. Smaller companies, which are often at a disadvantage when recruiting employees, can attract creative and talented staff by offering workplaces that is more participatory, have greater sensitivity to family issues, share more of the wealth, offer more fun, and encourage trust between management and employees. This broader vision of success requires new business tools, practices and relationships. Being receptive to new ideas and suggestions opens the door to an array of business opportunities.

The current focus on environment, empowerment, education, enjoyment and ethics is not likely to be a passing fad. People are finally waking up to the need for organisations that protect the environment and our social well-being.

4.1.2. Internal Uniformity

The first intervention required when addressing sustainable development within any organisation is to ensure that values of sustainable development infuse throughout the company. This usually requires intervention from the chief executive officer of a company, and should be done in such a manner that it influences on company culture and viewpoints and requires a contribution from everyone within the organisation.

4.2.1.1 Mission Statement

Organisational goals, principles and operating procedures of a company are communicated very effectively by means of a mission statement of declaration. Even though the content of focus of a mission statement relating to sustainable development will vary from one company to the next, depending on the nature of the enterprise and the location of the production facilities etc. it still is best issues from a CEO that is committed to the said objectives and beliefs.

4.2.1.2 Communication

Communication of this statement to all employees is of utmost importance and will ensure that employees know that performance will be measured against the stated goals. It is a good practice to study other

organisations mission statements and practices, and would assist CEO's in gaining a deeper understanding and broader perspective of organisational objectives and goals.

The developed and implemented internal and external communications systems can be utilised by companies to report on its progress in achieving social, financial and environmental goals. In addition benchmarking your organisation against related companies and best practice guidelines, organisations can strengthen their commitment to stated objectives, and alert employees and other stakeholders to areas where more effort is needed.

Initiatives such as the global reporting initiative can assist organisations in reporting on sustainability initiatives and just as financial reports, assist employees to concentrate on cutting costs and maximising the return on investments. In addition, the development and compilation of environmental and social audits, may enhance company focus, and identify opportunities for further improvement. Annual reports relating to sustainability initiatives, such as environmental performance, are becoming a standard among several industries globally. The clearer definition and publication of sustainability goals and results allows organisations to gain a better understanding of how their operations affect on the surrounding environment, and assist in the identification of improvement performances.

Internal communication can be enhanced by means of regular staff meetings, e-mail bulletins, accessible managers and in-house newsletters. Providing employees with the rationale behind major decisions, they are less likely to pay attention to rumours and speculation and perform their responsibilities more effectively.

4.2.1.3 Waste Reduction and Pollution Prevention Strategies

One of the challenges in addressing sustainability challenges is the improvement of environmental performance. The development of focused organisational teams, involving personnel from different departments, can be effective in devising strategies to improve environmental performance. If top management support provides them with the required resources and accessibility, remarkable results can be achieved over time due to teamwork and cross contamination of ideas.

The simplest and best way to start is by setting of straightforwardly achievable goals, and then becoming more ambitious as confidence and expertise are gained. Simple examples might include the issuing of company policies that require of all internal documents to be printed and copied double-sided, providing refillable pens in the supply cabinet, and turning off unused lights and equipment. The next step might involve the development of more complex and formal company wide recycling and energy efficiency programs. Other examples of tougher environmental challenges include:

- The selection of biodegradable cleaning products, and bathroom tissue and paper towels that are made from recycled fibre.
- Timed thermostats, water-efficient toilets and plumbing fixtures.

The associated return on investment should always be quantified for capital investments, to ensure that everyone in the organisation understands the financial benefits of environmental responsibility. Manufacturing firms often focuses on production processes as possible opportunities for improving on environmental performance. Reward

schemes for innovative and valuable contribution towards environmental performance may be introduced as employees become increasingly aware of the cost and environmental benefits, associated with sustainability drives and initiatives.

4.2.1.4 Training

Training and education form a vital part of enhancing and achieving sustainability goals within organisations. Informed employees will generally be better equipped to promote company goals and to respond to major trends. Training needs should be identified within the company and time and monetary provision should be allocated to perform training. Several additional tools are available to enhance training initiatives in organisations such books, magazines and journals, videotapes and guest speakers. An array of external courses are available that can assist to position a company's efforts into perspective.

4.1.3. External Reliability

The challenge for companies today is not only to do the right things, but also do things right. Companies that are perceived to do things right will enjoy customer loyalty, public credibility, and investor confidence. Organisations will find it difficult to always be perceived as making the right decisions, but measurable progress and effective communication to all stakeholders are essential parts of effective management.

4.3.1.1 Sustainable Reporting

The idea behind sustainability reporting or so-called triple bottom line reporting (economic, social and environmental) is the disclosure of more information in all three dimensions of sustainability. This will enable decision makers to get a fuller picture on the genuine corporate responsibility that a corporation practices.

Annual reporting that highlights benchmarking and measurable progress made towards improving environmental performance, societal interests as well as economic performance, is becoming a best practice for several industries, and can in addition aid as an superior advertisement for organisations.

When stakeholders (including customers, suppliers, employees, investors, regulators, members of the local community and environmental groups) review such reports, company perceptions can be demonstrated effectively by communicating a company's commitment to environmental management and social responsibility. Reports that verify clearly articulated set of organisational goals, as well as systems for measuring achievement can assist to make a company emerge as responsible and humane.

A study conducted by economics professors Stephen Erfle and Michael Fratantuono at Pennsylvania's Dickinson College, found that a positive correlation exist between organisational profits and five internal criteria including, environmental performance, advancement of women, advancement of minorities, charitable giving, and community action.

Transparency within organisations provides a framework for building relationships with stakeholders build on trust and loyalty, and would provide returns on the long term.

In the South African context it is important for companies to account for the effect of HIV and AIDS in the reporting phase due to the economic impact of this disease on a companies financial, economic and human development performance.

4.3.1.2 Public Relations

When considering relating to the public, a forthright approach and clear, understandable verbal communication is required to successfully convey information about a company to customers, the press, the local community, and other stakeholders. Providing (sometimes ignorant) stakeholders with knowledge ensures familiarity and security relating to strange and somewhat sensitive issues.

A transparent approach can help to build support and suppress fears among stakeholders in several situations. This is true in the case that a company is new to the community, or has just developed an innovative production process to solve an environmental problem, or if it is the victim of damaging rumours. Providing community groups with information that could enhance pride in a specific industry surrounding them, often settle fears associated with ignorance.

4.3.1.3 Community Commitment

The era where organisations contribution to community development was measured by their financial contributions have fortunately passed, as modern approaches require active engagement in community work. Contributing to community developing by means of training and the

provision of needed resources and expertise are setting new trends, and redefining the concept of corporate social responsibility.

4.2 Tools/Systems for Sustainable Business

One of the biggest challenges of pursuing and incorporating sustainability into business strategies and processes is the realisation of true value (value addition). Even though the chief executive officer of a company is the only person that is responsible for the entire business operation, departmental managers and other personnel have access to a variety of tools, specific to their profession, that would enable value addition in the company. Harvard Professor Michael Porter developed a "Sustainable Value Chain" approach, and is published in his books, "Competitive Strategy and Competitive Advantage". [Porter, 1998]

The sustainable value chain has several basic components that define where value is added in each step. The concepts needed to add value can be arranged as depicted in figure 4.1.

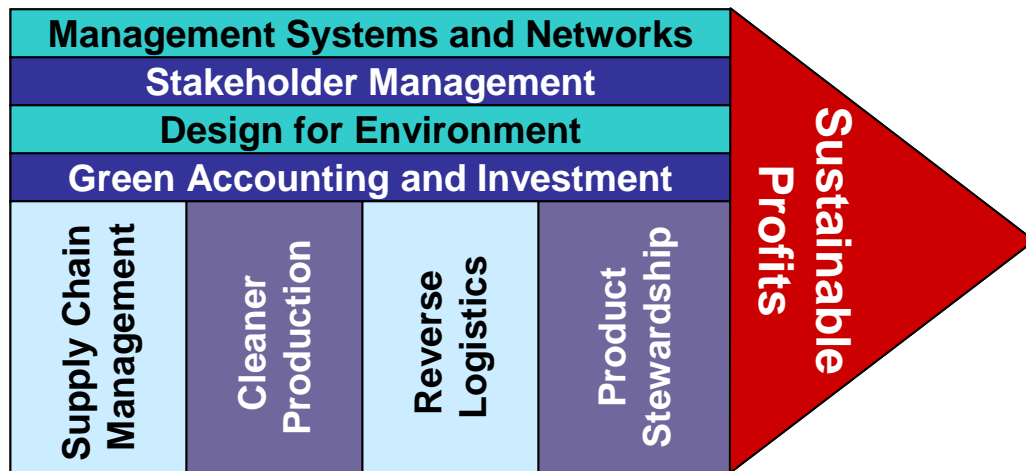


Figure viii - 4.1: Sustainable profits [Porter, 1998]

Each component of the sustainable value chain has a basic function that related to specific skills and units within an organisation. Some of these aspects would be discussed in more detail in the following sections.

4.2.1. Management Systems

ISO 14000 is a series of voluntary standards and guidelines (not regulations) formulated by the International Organisation for Standardization (ISO) to harmonise environmental disciplines for industries all over the world. While ISO 14000 is similar in scope to ISO 9000, it is also distinctly different.

While registration to the ISO 14001 standards is voluntary, the increasing popularity of the standard is being driven by government interests, customer/supplier requirements, spiralling waste disposal costs, and the general interest of the public to know what companies are doing about environmental issues.

Benefits include providing a structured approach to environmental management that can help companies achieve cost savings, regulatory compliance, increased market shares, and international recognition.

Additionally, establishment of a system approach to environmental management can give a company an integrated monitoring and record keeping model that compliments an environmental strategy.

ISO 14001 provides a proactive approach to environmental management that shifts a company away from the present “command-and-control” method and moves companies beyond regulatory compliance and into an “environmental leadership” role. An EMS provides public recognition and an enhanced performance image for company stakeholders. Through the EMS documentation and communication system all components of a facility work together to achieve company wide environmental excellence.

4.2.2. Eco Efficiency

The concept of eco-efficiency was first presented at the Rio Earth Summit in 1992 by the World Business Council for Sustainable Development (WBCSD) as industry’s contribution to the achievement of sustainable development.

It has been taken up around the world, and is strongly supported by the Organisation for Economic Cooperation and Development (OECD). The WBCSD is an industry grouping that is still very active in promoting the application of eco-efficiency by companies throughout the world.

Eco-efficiency is strongly supported by the business community because it does not focus exclusively on environmental outcomes. Rather, it recognises the simultaneous and complementary benefits of combining environmental and economic objectives. With the growing focus on eco-

efficiency, the belief that economic objectives and environmental concerns are in conflict is being challenged.

Eco-efficiency means producing goods and services with less energy and fewer raw materials, resulting in less waste, less pollution and lower cost. An eco-efficient business is one that has either eliminated an operational by-product, or found a way to turn that by-product into an income earner.

The WBCSD has outlined the following actions to implement eco-efficiency:

- reducing the material intensity of goods and services
- reducing the energy intensity of goods and services
- reducing toxic emissions
- enhancing material recycle-ability
- maximizing the use of renewable and recycled resources
- extending product durability
- Increasing the service intensity of goods and services.

4.2.3. Design for Environment

'Design for environment' is about reducing the environmental impacts of a business' manufactured products by introducing improvements at the design stage. Design improvements typically minimise the quantity and toxicity of materials used in a product, and provide for easy dismantling, reuse and/or recycling at the end of its useful life.

The environmental performance of products is an issue that is increasingly important as the market for 'green' goods continues to grow. The resultant

benefit is that a product that has less impact on the environment is often better in terms of quality and marketability.

4.2.4. Life Cycle Assessment

Life Cycle Assessment (LCA) is a tool for evaluating the total environmental impacts associated with a product throughout its life cycle, from the extraction of raw materials through to processing, transport, use and disposal.

LCA can help businesses to better understand the environmental aspects of their products, and to identify the most effective improvements that can be achieved in the use of resources.

4.2.5. Environmental Accounting and Investing

Traditional accounting practices have often overlooked the environmental costs of operating a business. Environmental accounting includes aspects such as the cost of resources, waste treatment and disposal, of a poor environmental reputation, and of paying environmental risk insurance premiums that may not normally be incorporated into a business' financial reports.

4.2.6. Sustainable Supply Chain Management

Supply chain management, or 'greening the supply chain' as it is sometimes known, involves improving the processes and relationships that exist to support the provision of goods and services along a supply chain. The benefits can include better communication, more efficient delivery and distribution of goods, quicker market response and reduced costs resulting from more efficient operations.

Some businesses are also using their influence as major customers in the supply chain to improve the environmental performance of their suppliers by requiring that they become certified to a recognised EMS.

4.2.7. Pollution Prevention

Pollution prevention is any practice that reduces or eliminates the amount and/or toxicity of generated wastes released to the air, land or water before any management practices, treatment or disposal. Pollution prevention includes the design of products and processes that will lead to less waste being produced. As a total plant philosophy, a pollution prevention program examines and implements methods to reduce hazardous, special and non-hazardous waste.

Any business generating wastes that want to keep one step ahead of their competitors, and that wants to improve their facilities environmental policies should incorporate pollution prevention as part of their business philosophy.

A principle benefit of a pollution prevention program is the cost savings that can be a result of such a program. Also, through various pollution prevention methods such as source reduction, in-process recycling, and reducing waste stream toxicity, a pollution prevention program makes the working environment safer for all employees.

Additional benefits include: protecting the environment; meeting compliance issues; reducing liability; and, promoting better community relations.

Some common Pollution Prevention techniques which a company can utilise include:

- Improved operating procedures,
- Preventative maintenance,
- Waste stream segregation,
- Raw material modification/substitution,
- Product redesign,
- Equipment modification,
- Process modification,
- Wastewater reduction,
- In-process recycling/reuse, and
- On-site recycling.

4.2.8. Product Stewardship

Product stewardship is defined as the ethic of shared responsibility throughout the life of a product, which includes its environmental impact from manufacture through to its ultimate disposal. This principle is being increasingly adopted around the world in the form of regulations, covenants, ordinances and other mechanisms on particular product categories.

An example of this principle in Australia is the recent National Packaging Covenant and the supporting National Environment Protection Measure (NEPM) on Used Packaging Materials. These initiatives are designed to ensure that all parties in the packaging supply chain participate in reducing the environmental impact of packaging from used domestic products.

4.3 Proposed Assessment Criteria for Sustainability

The following corporate sustainability assessment framework, has been developed by the SAM Sustainability Group (Switzerland), and is used to calculate a Sustainability Group Index for companies listed on the Dow Jones Stock Exchange (I. Knoepfel, Corporate Environmental Strategy, 2001).

Through the assessment of economic, environmental and societal driving forces and trends, generally applicable corporate sustainability criteria are identified and defined. They are based on widely accepted standards, best practices and audit procedures and are applied to all industries, identically and without exception.

In addition, industry specific criteria covering each dimension are identified for every industry group. The industry group specific criteria reflect the economic, environmental and social, political and technological forces driving the sustainability performance of a particular industry group. They are based on extensive input from industry specialists and consultants. Appendix A contains an example of the questionnaires that SAM uses for the development of their performance indexes.

In a second step, both the general and industry specific criteria are then equally defined in terms of sustainability opportunities and risks. An additional classification of the criteria is introduced according to their strategic, management and industry specific character.

Table 4.1 gives an overview of all criteria used and their classification. The table also shows the weighting structure used. Additionally, in each dimension a 30% weight is assigned to strategic, a 40% weight to management and a 30% weight to industry specific criteria.

Table ii - 4.1: SAM evaluation criteria

	Opportunities (50% weight)	Risk (50% weight)
Economic (33% weight)		
Strategic	Strategic planning Organisational development	Corporate governance
Management	Intellectual capital management IT management Quality Management	Risk and crisis management Corporate codes of conduct
Industry Specific (for example)	R&D spending	Internet Security
Environmental (33% weight)		
Strategic	Environmental charters	Environmental policy Responsibility for environmental issues
Management	Environmental reporting Environmental profit and loss accounting	Environmental audits and management systems Environmental performance
Industry Specific (for example)	Eco-design of products Innovative services	Product labelling Environmental liabilities
Social (33% weight)		
Strategic	Stakeholder involvement	Social policy Responsibility for social issues
Management	Social reporting Employee benefits Employee satisfaction Remuneration	Child labour Conflict resolution Equal rights and non-discrimination Occupational Health and Safety Layoffs/freedom of association Standards for suppliers
Industry Specific	Community programs	Resettlements

4.4 Summary of Chapter

From this chapter it is clear that addressing the challenges posed by sustainable development no longer is a nice-to-have, but forms an important aspect of modern business management, as any contemporary management elements. Addressing sustainable development within organisations not only requires strong leadership and management proficiencies and skills, but also requires organisational and cultural change.

Even though several tools are available to assist companies in addressing sustainable development, leaders should move the importance of sustainability to the top of the priority list within companies, and ensure that resources are allocated and stakeholder involvement is ensured, to be able to address these challenges successfully.

CHAPTER 5

ROLE OF SUSTAINABLE BUSINESS

5 Sustainable Development and the Success Factor Framework

5.1 National Sustainability Statistics

Up to this point, this study has basically addressed the development of a critical success factor framework for small manufacturing businesses, as well as to discuss some heuristics on sustainability. It is deemed appropriate to consider some statistics regarding the integration of the principles of sustainability in businesses in South Africa.

This section would discuss and analyse some results obtained from a survey done on “Sustainability Reporting” by KPMG during 2001. It should be noted that even though the statistics referred to in this section are indicative of large corporations, it is assumed that it should be in line with small organisations perceptions, mainly due to the absence or existence of any data on sustainability reporting, relating to smaller organisations.

5.2 Environmental (Sustainability) Reporting

Financial performance is seen as one of the aspects of economic performance. At present, financial reporting systems are used as a model for sustainability reporting. It is hoped that by bringing the methodology of financial reporting into sustainability reporting, the rigor and thoroughness of the traditional audit and reporting process will be translated to sustainability reporting.

Constructive obligations are the creation of a public expectation or promise. An example is a company’s environmental policy. The adoption

of such a policy necessitates the spending of money. The company is therefore obliged to report to its stakeholders how it is fulfilling its constructive obligation, in other words, how it's spending the money earmarked for the obligation.

Sasol, Thore Chemicals, Iscor and Cape plc are just a few examples of South African companies that are feeling the effect of environmental litigation. It stands to reason that the more transparent a company is in its reporting, the more it is able to show that it has taken reasonable measures to minimise the negative consequences of its operations.

In general reporting on sustainability issues are fairly superficial. Less than a quarter of the companies surveyed by KPMG, disclosed information on programs and policies, management systems, standards and audits. The same number had quantitative data on sustainability issues.

Only 15 % of the companies referred to sustainability issues in their corporate mission statement. The fact that sustainability is not yet a strategic issue is confirmed by the fact that less than a fifth of the companies mention it in either the Chairman's Statement or CEO's Review Section.

The Top 100 Industrials performed on a par with the average disclosure levels on sustainability issues for the total sample. However, the Industrials tend to report more than the average on internal issues (such as governance, ethics, employment equity, education and training, industrial relations) and less on external issues (such as social, community, environment, health, safety, AIDS and sustainable development).

The converse is true for the Mining sector, which have significantly higher levels of disclosure relating to external stakeholders, especially on environment, health and safety issues. In general, the Service sector companies in the top 100 All Share Index (ALSI 100) display less detailed sustainability reporting performance than their mining and industrial counterparts. Public sector companies show significantly better levels of reporting on all sustainability issues compared to the sample average, with the exception of disclosures on corporate governance, code of conduct/ethics and fraud strategy/prevention. Figure 6.1 provides graphic information on these reporting statistics per economic sector.

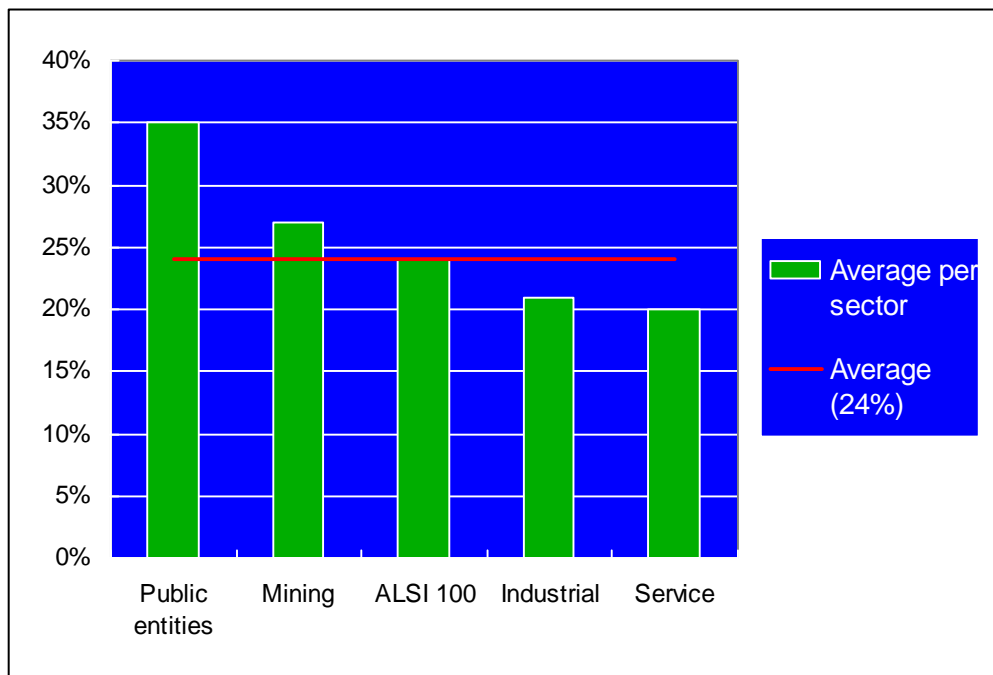


Figure ix - 6.1: Sustainability reporting statistics per economic sector in SA

Corporate governance is the most mentioned issue by South Africa's top companies (92%), with three quarters specifically mentioning the King Report (80%) and corporate governance audits (75%). Although most companies also mention a Code of Conduct / Ethics (82%), it tends to be

without supplying any evidence of how these principles are being implemented. This indication of lack of embeddedness is confirmed by the low priority accorded to fraud prevention (33%). Only a third of South Africa's top companies report that they have an employment equity policy (34%), while education and training tops the list for disclosure of quantitative data (30%) and programs (49%), which is an indicator of investment in human capital. Industrial relations and labour issues tend to be simply mentioned (61%) rather than discussed in detail.

Social and environmental issues are the sustainability issues most often included in the companies' mission statement (25% and 22%), as well as being related to financial expenditure (32% and 23%). Non-financial quantitative data is more often reported for social / community issues (27%) than environment (15%), health (15%) or safety (17%) impacts. Environmental audits (24%) are more commonly disclosed than health (13%), safety (15%) or social (2%) audits. Reflecting this relative ranking, the ISO 14001 standard (environment, 14%) is mentioned more than NOSA (7%) or OHSAS 18001 (health & safety, 5%), while AA 1000 and SA 8000 (social, 0%) remain totally elusive in South Africa. HIV/AIDS disclosure remains disappointingly low, with just over a third of the ALSI 100 companies mentioning the issue, and less than 15% of the total sample of 184 top companies reporting on programs (13%), data (9%), policies (7%) or expenditure (5%) for HIV/AIDS. Surprisingly, reporting on HIV/AIDS is better among public entities (43%) and service companies (43%) than the mines (32%) or industrials (25%).

Given that the World Summit on Sustainable Development (WSSD) is being held in South Africa (SA) in Sept 2002, it is cause for concern that sustainable development is not yet being reflected as a widely recognised concern among SA's largest companies (27%). Likewise,

given the increasing levels of white-collar crime that business is experiencing in SA, disclosure on fraud strategy and fraud prevention is also worryingly low (33%).

Figure 5.2 provides a graphic representation of the issues addressed in sustainability reports.

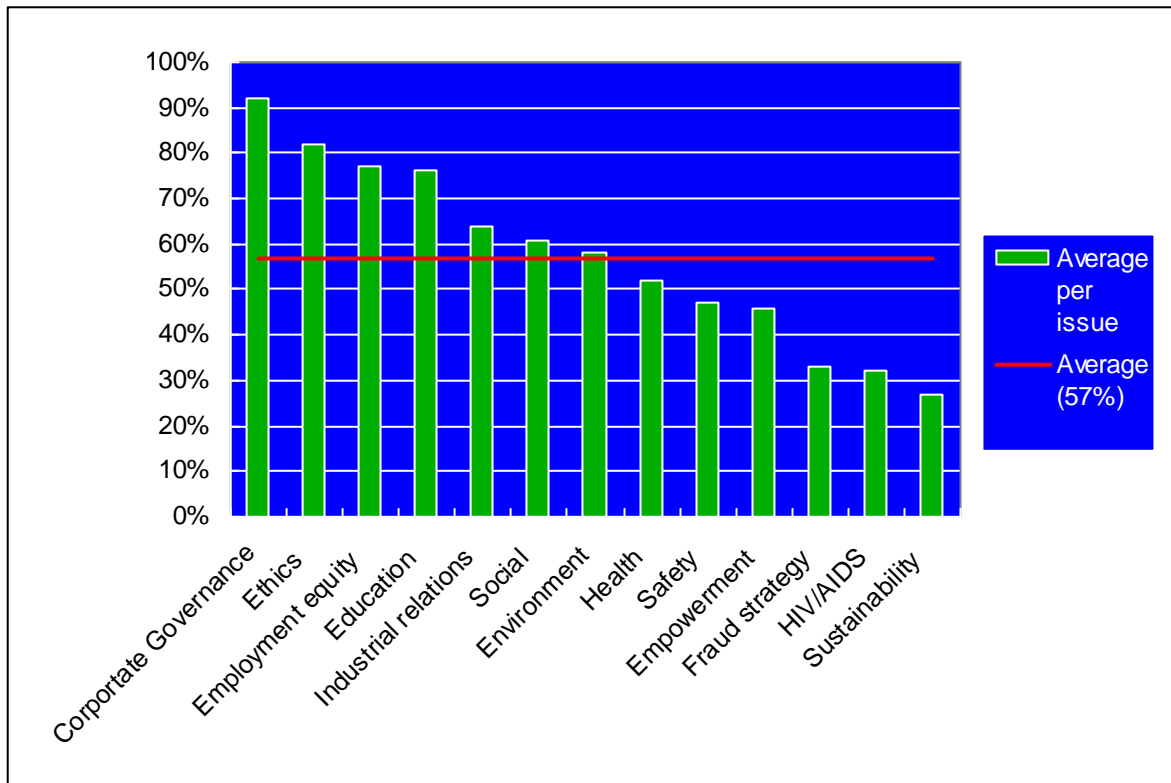


Figure x - 5.2: Quantification of issues addressed in sustainability reports in SA

5.3 Role of Sustainable Business in the success Factor Framework

An interesting issue in the corporate learning process is the discovery that there is a positive relationship among factors such as improved product and service quality, labour conditions and environmental quality.

In companies that develop and implement the more proactive approach of sustainable business, a continuous improvement chain is developed which encourages innovations, improves productivity, improves product and service quality, achieves service excellence, increases readiness and survivability, decreases costs and improves the corporate image (Leo W. Baas, 1995).

Some of the areas where interaction between general business management concepts and Sustainable Development tools deliver tangible business benefits are discussed in the following paragraphs. Additional benefits are discussed in chapter 7 where an actual case study is discussed.

5.3.1. Access to Capital

Sustainability is increasingly viewed as proactive risk management, making companies with sustainability policies more attractive to investors and financiers. A study by a consortium of seven companies - Imperial Chemical Industries, Volvo, Unilever, Monsanto, Deutsche Bank, Electrolux, and Gerling - showed that sustainability strategies such as improving environmental compliance and developing environmentally responsible products can improve profitability and earnings per share, and help win contracts and investment approval.

5.3.2. Asset Retention

Extending the productivity of resources is becoming a strategic business practice across diverse industry sectors. Companies such as Xerox, Dell Computer and Interface Flooring have developed products that are

leased rather than sold to customers, enabling the companies to retain much of the products' value.

5.3.3. Brand Image

The marketplace is becoming more environmentally sophisticated. Appealing to the ecological and social as well as economic sensibility of consumers can increase customer loyalty. Since 1990, McDonald's has enhanced its brand image by buying recycled products worth \$3 billion without paying a price premium or otherwise increasing costs.

5.3.4. Competitive Advantage

Establishing policies to improve environmental performance beyond compliance with current regulations can help companies gain advantage over the competition.

In Connecticut, a new state law rewards companies for having ISO 14001 environmental management certification and for adopting sustainability standards such as the CERES Principles or The Natural Step. The state's program includes incentives such as expedited review of permit applications and public recognition of participating businesses through the use of an exclusive symbol or seal.

Internationally, some companies in developing countries are recognizing that sustainability may give them a competitive advantage in the global economy. Bangladesh's leading industrial company, Beximco, has integrated high environmental standards into its operations and perceives social and environmental sustainability as the key to dominating the global market in yarns, fabrics and apparel.

5.3.5. Employee Relations

Employees appreciate a work environment that reflects their own values. Because of this, some companies have found that sustainability initiatives have helped attract and retain talented and committed employees.

5.3.6. Innovation

Applying sustainability principles to the design and manufacture of products has helped several leadership companies bring entirely new product lines to market. DuPont, Herman Miller and Patagonia are among those that have spurred innovation both inside their own companies and with their suppliers by applying environmental principles to product design and development.

5.3.7. Market Share and Profit Margins

Promoting the environmental superiority of products can be an excellent marketing strategy. Collins & Aikman Floorcoverings has experienced increased demand after offering a closed-loop recycled carpet (the company reclaims carpet for recycling back into new carpet) that, at no additional cost, meets or exceeds the performance criteria of its non-recycled counterparts. Electrolux reported that its most environmentally sound product lines accounted for 21 percent of its total European sales and 31 percent of profits in 1999.

5.3.8. Productivity

Sustainable buildings - designed to minimize environmental impacts, be cost-effective to build and operate, and provide a comfortable working environment - can mean a healthier, happier and more productive work force. Boeing is among several companies that have documented significant increases in productivity, ranging from one percent to 15 percent, from the use of "green building" design elements.

5.3.9. Return on Investment (ROI)

Taking a longer (5 - 10 year) rather than shorter approach to the financial assessment of capital investments can result in decisions that yield greater returns-on-investment over the life cycle of the venture. Dow Chemical's environmental initiatives are expected to yield a 30 percent to 40 percent ROI by the year 2005 and contribute to one percent of the company's revenues over 10 years.

5.3.10. Quality

Incorporating environmental considerations can lead to superior products. 3M's Scotchtint window film, designed to increase the energy efficiency of buildings, not only reduces overall electricity costs but also is a higher quality product than other window films. Its abrasion-resistant composition allows windows to better withstand washing and day-to-day abuse. Because the windows are more durable, replacement costs over the life-cycle of a building are minimized. Additionally, Scotchtint films block a high percentage of the sun's harmful ultraviolet (UV) radiation, thus improving protection for carpets, curtains and other furnishings, and extending their life spans.

ENVIRONMENTAL MANAGEMENT SYSTEMS

6 Environmental Management System (ISO14001)

6.1 Introduction

Economic, competitive and environmental realities today dictate that the manufacturing processes you implement be more effective, (cost) efficient and more environmentally friendly - whilst maintaining or improving product quality - than those of your competitors.

South African industry faces some major challenges to remain globally competitive. Development of tools to ensure economic and environmental sustainability, will along with product development, effective marketing, production innovation and quality management-and-control systems, determine the future of the industry.

Modern consumer trends and legislation require environmentally friendly and socially responsible practices.

Implementing an Environmental Management System (EMS) can help you meet this challenge in several important ways. First, an effective EMS makes good sense, whether your organisation is in the public or private sector. By helping to identify the causes of environmental problems and then eliminate them, an EMS can help you save money.

6.2 Environmental Leadership

Environmental Leaders in the corporate arena face a challenging set of demands that differ from their corporate peers in other disciplines.

Firstly they are responsible for achieving organisational regulatory compliance. Secondly they must go beyond compliance to recognise business opportunities while taking prudent business risks. Thirdly, they must work skilfully with a wide range of external stakeholders that are not necessarily all friendly.

These challenges require of environmental leaders to:

- Have an extraordinary range of knowledge,
- Be diplomatic and have political talent,
- Have dispute-resolution abilities,
- Possess basic business skills, and
- Hold humanism in their decision making that reaches beyond the short term financial focus.

Although many of these skills are shared by political and corporate leaders alike, what's unique of environmental leaders are:

- The Comprehensiveness of their skills
- The frequency with which environmental leaders must initiate and guide company-wide change with limited staff and resources.

When considering the responsibilities of environmental leaders, three main goals or objectives of environmental leaders can be deducted, namely:

- They need to achieve compliance cost effectively, by comprehending legal, engineering, and scientific needs, and by making the goal understandable to others in the organisation, and especially to the Chief Executive Officer.

- They need to achieve compliance without extinguishing the spark for risk taking, innovation, and business advances by creating a productive balance between regulatory demands and business expectations.
- They need to answer to public expectations by satisfying key stakeholders.

Experience has proven that successful environmental leaders should possess a number of skills that would guide and assist them in their challenging business goals. These include:

- Forgetting about blame and focusing on finding workable solutions.
- Building a broad and deep network of personal friendships, associations, and affiliations.
- Cultivating risk, ambiguity, and uncertainty as sources of powerful change.
- Selecting brilliant, reliable deputies.
- Verifying instincts against clients' needs.
- Replicating success, using lots of small steps to clear the top.
- Making the future of the organisation promising to everyone in it.
- Acknowledge the importance of everyone's role.
- Using stories and metaphors to reinforce the goals of the organisation and a sense of belonging. (J. Hill, Corporate Environmental Strategy, 2001)

6.3 Principles of Environmental Management

The adoption of formal environmental management systems by an organisation has the potential to amend both environmental and economic performance, and the resulting relationships with suppliers,

customers, employees and environmental regulatory policies and agencies.

In practice, however, some resistance to change may be expected and innovative measures may be necessary to prepare the target organisation. In the South African context the main factors inhibiting the implementation of environmental management systems can be ascribed to (amongst others):

- Undefined environmental or social impacts of processes,
- High perceived cost of systems and lack of accountable (financial) benefits,
- Lack of information for development and implementation of these systems,
- Lack of / difficult access to financial or human resources,
- Access to education and training of staff,
- Fear of public exposure, unfavorable publicity or prosecution and fines,
- Changing legislative requirements,
- Additional requirement to or shift in core business.

It is essential to address these issues during all stages of these systems, from conceptualisation to implementation of these systems.

6.4 Overview of Environmental Management Systems

6.4.1. What is an EMS?

An environmental management strategy, system or plan (EMS), is a document detailing, at the highest management level, the environmental policies of a company and the appropriate procedures for its implementation.

An EMS is a continual cycle of planning, implementing, reviewing and improving the processes and actions that an organisation undertakes to meet its environmental obligations.

6.4.3. EMS Drivers

The internal and external drivers of an EMS are listed in the table 6.1.

Table iii - 6.1: Internal and external drivers for EMS implementation

Internal Drivers for EMS	External Drivers for EMS
<ul style="list-style-type: none">- Regulatory Requirements- Delegation of Responsibilities- Reduces Disruption Caused by Employee Turnover;- Framework to Move Beyond Compliance- Vehicle for Positive Change- Improved Employee Morale- Opportunities for Savings- Reduce Accidents- Consolidates Existing Environmental, Safety, and Health Programs Into a Cohesive System	<ul style="list-style-type: none">- To Comply With More Stringent Legislation- To Satisfy Customer Demands- To Ensure Competitive Future for the Industry - Trade Barrier Reduction- To Enhance Public Image- Improve Access to Capital due to lower investment risk- Improved Product Marketability- Improved Competitiveness

6.4.4. Key EMS Benefits

The following are some key EMS benefits:

- Improved environmental performance,
- Reduced liability,
- Competitive advantage,
- Improved compliance,
- Reduced costs,
- Fewer accidents,
- Employee involvement,
- Improved public image,
- Enhanced customer trust,
- More favourable credit terms, and
- Meet customer requirements.

6.4.5. What is needed?

Integrating environmental management with other key organisational processes can improve financial, quality and environmental performance of a company. The key to effective environmental management is the use of a systematic approach to planning, controlling, measuring and improving an organisation's environmental performance. Figure 6.1 depicts the typical approach taken when developing an EMS. Potentially, significant environmental improvements (and cost savings) can be achieved by assessing and improving an organisation's management processes.

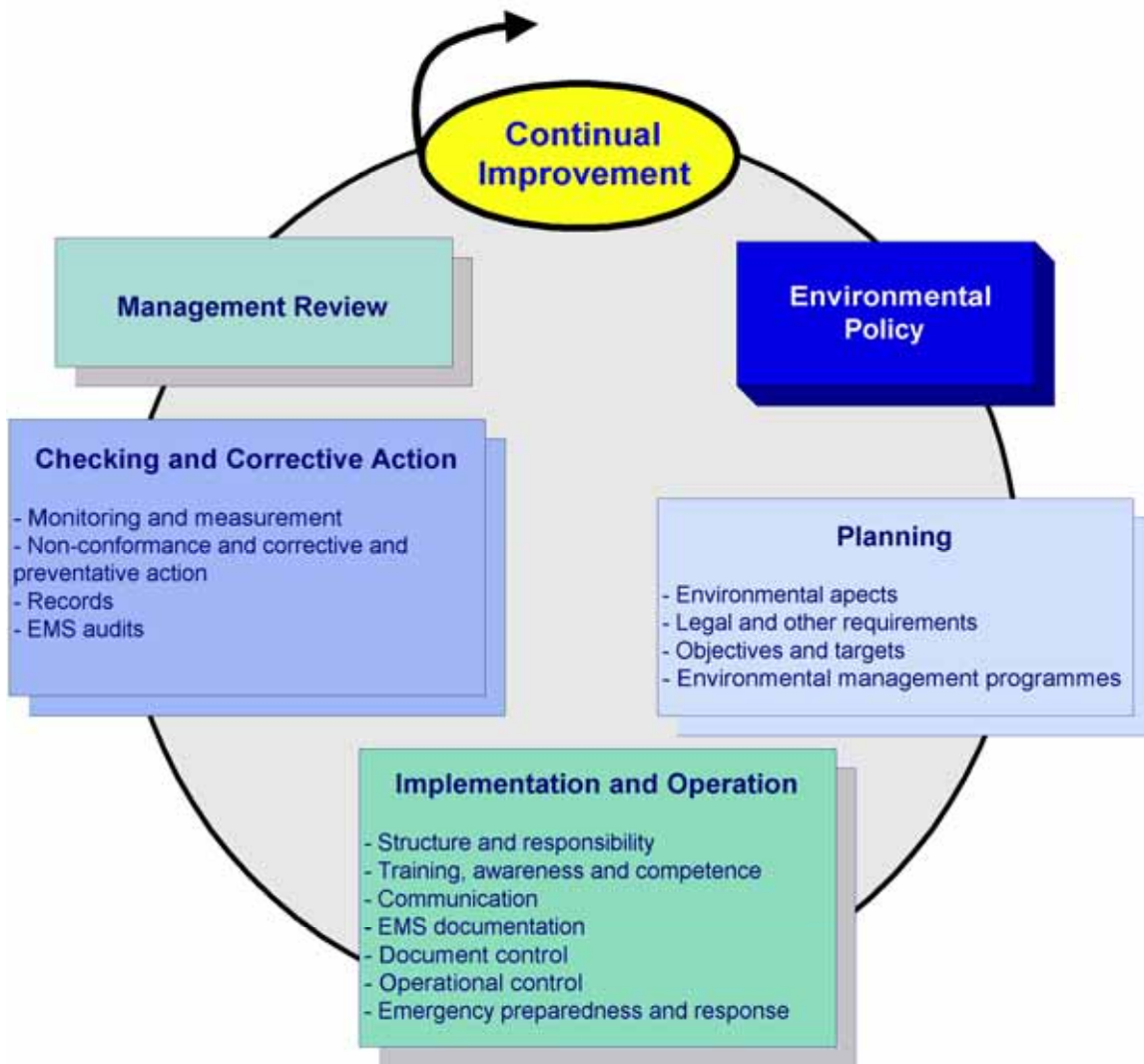


Figure xi - 6.1: Typical Framework for EMS (ISO 14001)

6.4.6. Environmental Strategies

In order to make EMS implementations not only environmentally effective but also financially and resource efficient, most companies that have implemented EMS's in their business have been forced to re-assess corporate strategy. This requires adopting attitudes in achieving "excellence in environmental management" by making environmental protection an integral part of the way they do business.

Rather than motivation to simply comply with the relevant legislation – companies recognize the long-term financial and strategic benefits of an EMS. Adopting systematic, preventative approaches based on the determination of impact, elimination of pollution sources and “careful focused” management of environmental activities and adopted treatment systems is a cyclical system of Continuous Improvement.

6.4.7. Relevant legislation

The implementation and certification of an EMS requires compliance to legislation and therefore it is deemed necessary to refer to some relevant SA legislation. Table 6.2 outlines some of the important relevant legislation that is applicable to manufacturing operations:

Table iv - 6.2: Important environmental legislation

The National Environmental Management Act (NEMA) 107/1998
<ul style="list-style-type: none"> • Duty of care and remediation of environmental damage (Section 28)
<ul style="list-style-type: none"> • Protection of workers refusing to do environmental hazardous work (Section 29)
<ul style="list-style-type: none"> • Control of emergency incidents (Section 30)
<ul style="list-style-type: none"> • Access to environmental information and protection of whistle-blowers (Section 31)
<ul style="list-style-type: none"> • Legal standing to enforce environmental laws (Section 32)
<ul style="list-style-type: none"> • Private prosecution (Section 33)
The Environment Conservation Act 73/1989
<ul style="list-style-type: none"> • Prohibiting of littering (Section 19)
<ul style="list-style-type: none"> • Waste management (Section 20)
<ul style="list-style-type: none"> • Prohibition of undertaking of identified activities (Section 22)

The Atmospheric Pollution Prevention Act 45/1965
<ul style="list-style-type: none"> • Premises on which scheduled process carried out to be registered (Section 9)
<ul style="list-style-type: none"> • Conditions of registration certificates (Section 12)
<ul style="list-style-type: none"> • Installation of fuel burning appliances (Section 15)
<ul style="list-style-type: none"> • Procedure where smoke or other products of combustion causes nuisance (Section 17)
<ul style="list-style-type: none"> • Steps to be taken by certain persons for preventing atmospheric pollution by dust (Section 28)
The Hazardous Substances Act 15/1973
<ul style="list-style-type: none"> • Sale of Group I and Group II, and letting, use, operation, application and installation of Group III, hazardous substances (Section 3)
<ul style="list-style-type: none"> • Liability of employer of principle (Section 16)
<ul style="list-style-type: none"> • Regulation for Hazardous Biological Agents GN R1390 in GG 22956 27December 2001
The National Water Act 36/1998
<ul style="list-style-type: none"> • Prevention and remedying effects of pollution (Section 19)
<ul style="list-style-type: none"> • Control of emergency incidents (Section 20)
<ul style="list-style-type: none"> • Water use (Section 21)
<ul style="list-style-type: none"> • Permissible water use (Section 22)
<ul style="list-style-type: none"> • Controlled activity (Section 37)
<ul style="list-style-type: none"> • Offences (Section 151)
<ul style="list-style-type: none"> • Offences in relation to employer and employee relationship (Section 154)
The Water Services Act 36/1998
<ul style="list-style-type: none"> • Conditions for provisions of water services (Section 28)
<ul style="list-style-type: none"> • Industrial use of water (Section 4)
<ul style="list-style-type: none"> • Bylaws (Section 8)
<ul style="list-style-type: none"> • Offences (Section 9)

The Regulations Relating to Compulsory National Standards and Measures to Conserve Water GN R509 in GG 22355 of 8 June 2001
<ul style="list-style-type: none"> • Disposal of grey-water (Section 7)
<ul style="list-style-type: none"> • Use of Effluent (Section 8)
<ul style="list-style-type: none"> • Quantity and quality of industrial effluent discharged into a sewerage system (Section 9)
The National Road Traffic Act 93/1996
<ul style="list-style-type: none"> • Certification of roadworthiness required in respect of motor vehicle (Section 42)
<ul style="list-style-type: none"> • Transportation of certain dangerous goods prohibited (Section 54)
The Occupational Health and Safety Act 85/1993
<ul style="list-style-type: none"> • General duties of employers to their employees (Section 8)
<ul style="list-style-type: none"> • General duties of manufacturers and others regarding articles and substances for use at work (Section 10)
<ul style="list-style-type: none"> • Duty to inform (Section 13)
<ul style="list-style-type: none"> • General duties of employees at work (Section 14)
<ul style="list-style-type: none"> • Report to inspector regarding certain incidents (Section 24)
<ul style="list-style-type: none"> • Acts or omissions by employees or mandataries (Section 37)

6.5 Developing an Action Plan for EMS Implementation

It should be noted that this section does not specifically refer to the official ISO14001 framework for an EMS as outlined in Figure 6.1, but rather discusses some heuristics on the approach taken when implementing an EMS, encompassing the following aspects of an EMS:

- Focus on conformance to legislation,
- Commitment to preventing pollution,
- Measurement and Monitoring,
- Planning and implementation,
- Documentation,
- Reporting and
- Continual Improvement.

The approach focuses on a series of key steps or actions to the development, implementation and maintenance of an EMS. The actions are applicable to any management system formal or informal based on the accepted principles of:

- Defining objectives and establishing targets,
- Developing management structures and processes,
- Monitoring and measuring performance,
- Implementing improvements.

6.5.1. Environmental Policy

With more emphasis being placed on how products are produced or service are provided, most companies have found it necessary to publish some form of an Environmental Policy.

The Environmental Policy has three primary goals, namely:

- To inform current or potential customers and employees of the company's commitment to limit their impact on the environment and to produce products in an environmentally friendly manner.
- To inform government agencies of the company's commitment to comply with environmental legislation and regulations and to promote the sustainable use of natural resources.
- To inform employees, suppliers and service providers of their contributions and to set a benchmarks for working practices.

Typically the Environmental Policy will consist of a series of clear and concise goals regarding the protection of the environment and it:

- Must be relevant to the activities, product and/or services rendered by the company and their environmental impacts.
- Should consider the organisation's mission & vision.
- Must be documented, communicated to staff & publicly available.
- Must include a commitment to prevent pollution & continual improvement.
- Must include a commitment to comply with relevant environmental legislation and regulations.

The objectives formulated within the Environmental Policy will form the foundation for further decision-making regarding the actions that need to be taken to prevent or minimise polluting practices. The objectives will also form the benchmark for evaluating the progress of implementation of preventative actions and overall environmental performance of the environmental system. A number of excellent examples of an

Environmental Policy have been published in the corporate policies of major South African and international companies and these can be used as a model for the development of your Environmental Policy.

It is important, however, that the Environmental Policy should address all relevant environmental impacts of the particular industry, company and environmental setting and this can best be achieved by means of an Environmental Impact Statement.

6.5.2. Assuming Management Responsibility

The shareholders and/or manager(s) (management) would be accountable and legally liable. Therefore, it is the responsibility of management to delegate authority and developing a system for management environmental aspects in your business. A good starting point usually involves identifying and appointing a responsible person (a champion) to address environmental considerations in the business. Assigning corresponding responsibilities to actions and objectives and compiling relevant information (legislative, production, resource, management, etc.) would form part of the responsibilities of this person.

A Champion in an organisation is someone who grasps the benefits of, and is enthusiastic about the project; the champion can be one of the most critical elements of any team. It has been found that even less senior company members can be effective champions, successful in keeping the project a priority on the firm's agenda and keeping the necessary resources committed.

By learning to think of the company's staff members as your internal advocates, can be a key to communicating the benefits to the company

of a new approach to environmental change. They are the ones that best provide information about competing opportunities for the company or about the fit of an EMS with overall corporate strategy.

6.5.3. Defining Environmental Aspects and Compiling Relevant Information

Key to the development of an effective EMS is the identification of environmental aspects and impacts. The relationship between an aspect and an impact can be defined as one of cause and effect. Knowing what the impacts are is only part of the challenge – you should also know where they come from.

Environmental Aspects are defined as the activities, products or services of an organisation that can interact with the environment.

Environmental Impacts are the changes in the environment, adverse or beneficial that arises from an organisation's activities, products or services. Many aspects / impacts are controlled by applicable laws and regulations, therefore permits, audit reports, risk analyses, flow-diagrams, geographical information and other such documents may yield valuable information. However, many may not be regulated and it may be necessary to look beyond issues such as land, energy and resource use. When considering impacts / aspects it is important to consider not only aspects arising from normal process operation. Abnormal conditions such as start-up, shut-down, equipment failure, incidents and accidents introduce significant aspects.

The following information should be compiled as it may assist in the identification process:

- Identify potential emissions originating from operations to the surrounding:
 - Water,
 - Air, and
 - Soil.
- Identify appropriate environmental legislation (Section 1.3.5 on Environmental Strategy contains a list of some of the important applicable legislation).
- Identify appropriate occupational health and safety legislation (Section 1.3.5 on Environmental Strategy contains a list of some of the important applicable legislation).
- Interested and affected parties.
- Consider customer requirements.
- Work details and responsibilities.
- Geographical information.

6.5.4. Defining Environmental impacts

After the environmental aspects have been identified the second phase in this process is to list all potential corresponding impacts of a given action, process unit or system in terms of the various environmental partitions; air, water, noise, biological, cultural and socio-economic environments.

Generally, impact statements only focus on the negative effects of an action, however it may be useful to investigate and include the positive influences. The individual impacts may then be classified as primary, secondary or tertiary as a consequence of its effects on the environment. Another useful descriptor is the timeframe of the particular effect, thus

whether the effect is short term (immediate) or long term (or cumulative). This will lead to a number of tables of the as depicted in table 6.3.

Table v - 6.3: Potential Environmental Impacts of the Irrigation of Effluent on Soil

	Primary effects	Secondary effects	Tertiary effects
Adverse Impacts			
Short term	Odours	Flooding	Complaints
	Visual impacts	Accumulation of solids	Non conformance to legislation
		Erosion	
		Flies and pests	
Long term	Loss of soil structure	Decrease crop yield	Decrease financial value
	Increase in salinity	Decrease in moisture retention	Decrease environmental value
	Contamination of groundwater	Pathogens	Potential disease
Positive Impacts			
Short term	Disposal method	Increased crop yield	Additional income
			Capital saving
Long term	N/A	N/A	N/A

6.4.5.1 Determining Impacts and the Pollution Source Database

The impacts (as in table 6.3) can be derived by compiling an inventory of all process inputs, outputs and activities. A procedure for deriving the impacts and compilation of the impact tables is shown in the figure 6.2.

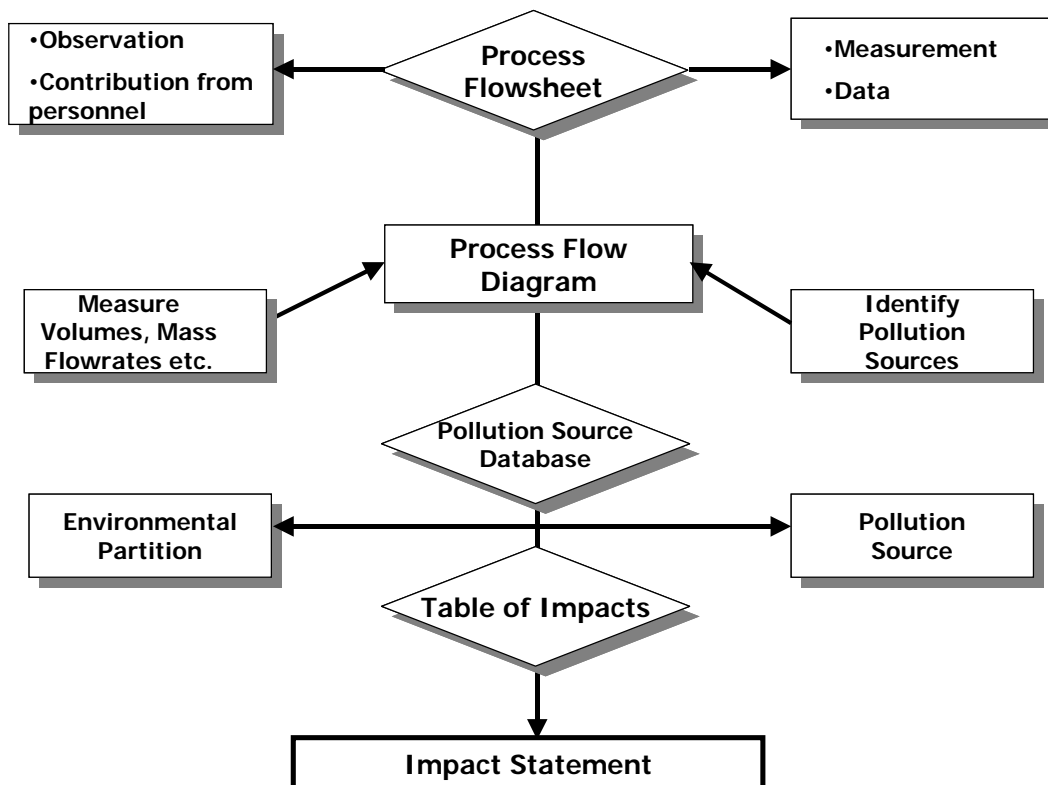


Figure xii - 6.2: Procedure for determining impacts [Hayward et. al., 2002]

6.4.5.2 Determining and describing impacts

The inventory can be compiled by constructing a flow sheet of the process showing material (mass) and energy flow through the production process. This information can be supplemented by conducting interviews with staff and production personnel, conducting a survey of streams, and relying on acquired process experience.

Activities, actions and process or waste streams can then be classified according to the partition(s) of the environment, which they may affect to form a Pollution Source Database. The Pollution Source Database (PSD) therefore is a summary of all sources of pollution in a process typically including the parameters of size, volume, frequency and affected

partitions. Once the PSD is compiled, a table of the impacts may be constructed for each pollution source and its affected partitions.

The long- and short-term effects of the pollution source can be determined by using the data (size, volume, frequency, etc.) compiled in the PSD. Primary effects are generally obvious or immediately apparent. Secondary and tertiary effects may only be visible as a consequence of the primary impact. All these effects can influence the physical, biological, economic, social or cultural composition (make-up) of the environment and these should consequently be considered in turn.

6.4.5.3 Prioritising Actions and Establishing Legislative Conformance

Actions to prevent or minimise the environmental impacts can be prioritised by:

- Verification of conformance or non-conformance of waste streams to environmental legislation and regulations.
- The intensity or extent of the impact as described in the impact table.
- Size, volume or pollution load of the waste or polluting stream.

6.5.5. Educate Staff

The goal of environmental education is to develop a work force that is aware of and concerned about the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones. Educational

programmes for employees should contain elements to provide them with the following:

- Knowledge
 - Clear simple guidelines.
 - Identify potential problems.
- Skills and tools
 - Identify and effect solutions.
- Motivation
 - Raise awareness of impacts of costs, quality of life, etc.
- Commitment
 - Assign responsibility AND authority.
 - Communicate progress.

6.5.6. Monitoring Environmental Aspects and Impacts

In addition to providing details to estimate environmental impact, an effective monitoring system should satisfy the following conditions:

- It should provide a continuous measure of environmental performance.
- It should identify pollution sources and measure the extent and frequency of non-conformance.
- It should be cost effective.
- It should provide accurate and repeatable results.

Monitoring may have additional benefits:

- Identification non-conformance to legislation,
- Establishes a benchmark for evaluating process changes,

- Provides data for the design of prevention, treatment or containment systems,
- Identify inefficient or ineffective practices.

6.5.7. Establish Objectives and Targets

Objectives and targets help translate purpose into action. An objective is an environmental goal, arising from the environmental policy; whereas the target is a detail performance requirement, usually quantified, arising from the objectives. In order to set objectives you have to consider:

- The environmental policy,
- Significant environmental aspects,
- Legal and other requirements,
- Interested and affected parties, and
- Technological, operational, financial and other constraints.

6.5.8. Documentation Control

Companies are legally obliged to measure and document emissions. Records of past environmental performance are essential for any decision making in that it provides a benchmark for establishing performance. Any process or treatment related changes or improvements made would require historic data on environmental performance.

The following additional records may assist or reinforce any analysis or decision-making:

- A record of the activities occurring during or just prior to sampling may be useful to establish sources of non-conformance.

- The monitoring system may be reinforced or assisted by documentation of visual observations by cellar personnel i.e. filter powder or fining agents in effluent, SO₂ leaks or emissions, etc.
- Document all other actions, i.e., process changes, equipment failure, -maintenance, -modification or calibration, remedial activities, etc.

6.6 ISO 14001

ISO 14001 is a set of international standards for improving the environmental performance of organisations. It includes the standard for environmental management systems (EMS) called ISO 14001. The key aspects of ISO 14001 are that it is:

- Voluntary,
- flexible and non-prescriptive,
- can use existing (environmental) programs and systems,
- emphasizes continual improvement, and
- encourages cost saving by integrating environmental requirements into the overall company systems (design, manufacturing, etc.) is the most important of these benefits, and may be the most surprising for those unfamiliar with environmental management.

IMPLEMENTATION OF ISO14001: US USA RAISINS (USAR) CASE STUDY

7 Implementation of ISO14001: USA Raisins Case Study

7.1 Introduction

As part of this Masters study an ISO14001 environmental management system was developed and implemented at a Cape Town based manufacturing company (for confidentiality purposes this company have been given a fictitious identity in this thesis namely, USA Raisins). This ISO14001 system is used as the backbone of an integrated management system that incorporates food safety, occupational health and safety principles into the general business management system. Prior to the implementation of ISO14001 this company had no formal general management systems in place.

USA Raisins is a small family owned manufacturing/processing company, and has been in operation for two years. They process organically produced raisins by sorting, destalking and washing the raisins, covering them with organic sunflower oil and packaging them for exporting mainly to Germany and Australia, even though they are continuously expanding their market to other neighbouring countries.

7.2 Business Overview

7.2.1. Product

USA Raisins is a processing organisation that purchases raisins from farmers and processes them further for export. The processing includes sorting, quality control, washing, drying and covering with organic oil prior to packaging. The product description is provided in table 7.1.

Table vi - 7.1: USA Raisins product description

Product:	Organically Produced Raisins Coated with Organic Sunflower Oil
Common Name/Description:	Raisins (Thompson's Seedless)
How is it to be used?	Organically produced raisins: Transferred within plant for washing, oil coating and packaging.
Type of Package?	Raisins: Plastic lined cardboard box packaging.
Length of Shelf Life; At what temperature?	1 year, at ambient temperature
Where will it be sold?	Australia, Germany (wholesale)
Labeling instructions:	Ecosert labelling
Is special distribution control needed?	Handle with care labelling. Product recall procedure.
Controlled Temperature: Refrigerated Transport?	N/A
Product and Ingredients	Product: Raisins Oil Ingredients: Organically produced sunflower oil Other Ingredients: None Restricted Ingredients: None
Packaging Materials:	Cardboard boxes and virgin plastic
Casing:	None

7.2.2. Producers

USA Raisins has delivery contracts with identified producers of certified organic raisin producers that provide them with a continuous source of

raw material. The quality of the raw product is controlled by an ECOCERT system that is compulsory for the production of any organic products.

ECOCERT SA is an inspection and certification body accredited to verify the conformity of organic products against the organic regulations of Europe, Japan and the United States. The ECOCERT certification mark is one of the leading international organic certification marks, enjoying a good reputation and trusted by both consumers and the organic industry. USA Raisins has additional quality control and monitoring systems in place to ensure optimal product quality at all times.

7.2.3. Process Description

The process description is outlined in Appendix B, together with flow diagrams and operational procedures.

7.2.4. Distribution

USA Raisins uses ship freighting to distribute their packaged product to wholesalers in Germany and Australia. The wholesalers repackage the product for further distribution in the supply chain.

7.2.5. Market

USA Raisins have an established market that exceeds their production capacity at present. Even though they investigate the development of new markets, they do not have any difficulty selling their product at this stage.

7.2.6. Management

The company is currently managed by a general manager who is assisted by a production manager, a human resources manager, three administration and ten production personnel. No formal business management system was employed at USA Raisins when the project started. Simple administration and quality control functions have been established.

7.3 Motivation for Implementation of an EMS

7.3.1. Development of Formal Management Systems

The development and implementation of a formal business management system have been identified as one of the interventions that would assist in business planning, and streamlining the business processes of USA Raisins significantly. As with any other small manufacturing organisation they were experiencing difficulties in formalising systems and procedures within the company as well as with obtaining useful data from their production processes.

Several other difficulties with regards to prioritising and planning of projects were experienced in the past and they were uncertain regarding compliance to relevant legislation. Therefore, the developed system would also have to function as their general business risk identification and risk management system, to ensure adequate and proactive risk management at all times.

As the environment have always been of importance to management it was decided to develop and implement an integrated management

system including aspects relating to quality, food safety and occupational health and safety, but that the main focus would remain to be towards the environment. Hence, the decision was made to utilise the ISO 14001 environmental management standard as a framework for the development and implementation of management systems.

7.3.2. Marketing Niche

USA Raisins believe that the implementation of a formal management system complying with the requirements of an ISO 14001 environmental management system would provide them with a significant competitive advantage above their current competitors in the European and Japanese markets.

In addition it was perceived that the system would provide them with a focused tool to be able to manage their in-house projects, and their impact on the environment more effectively.

7.4 Systems Development and Implementation

An ISO 14001 Environmental Management System was developed for USA Raisins in accordance with the approach as described in Chapter 6. Appendices C and D contains the ISO14001 Standard Requirements as well as the USA Raisins ISO14001 Documentation, respectively. All employees of USA Raisins received the appropriate training. The EMS manual contained in Appendix D provides a detailed overview of the developed system.

Development, implementation and certification of the implemented system has spanned over a 15 month period. The developed ISO14001 system is now used as the general management system at USA Raisins, and forms the basis for risk management (occupational health and safety and food safety) systems within the company.

7.5 Realised Advantages

Several tangible benefits have been experienced since the inception of the implementation and are summarized in the following paragraphs.

7.5.1. Proactive Management

The implementation of an integrated management system at USA Raisins has provided them with a framework to proactively manage their business risks. In addition several environmental, quality and food safety risks have been identified, that have decreased indirect liabilities for their company significantly. Appropriate projects or procedures have been developed to manage and minimise the corresponding identified risks.

The successful implementation has provided them with several new possibilities for exporting to Japan, a market that they have been trying to penetrate for some time now. Clients realize the benefits of doing business with a company that proactively manage their products and processes and minimize risks associated with product quality, environmental and food safety risks.

7.5.2. Capital Savings due to Pollution Prevention and Cleaner Production

The implementation of an ISO14001 environmental management system provided USA Raisins with a very useful tool to determine all costs associated with a production process. Instead of only taking processing costs into consideration several other environmentally related factors have influenced overall production cost significantly.

Savings due to the proper handling and stock control of chemicals and disinfectants, optimum water and energy usage, have led to production savings which impact directly on the bottom line. Cleaner production and pollution prevention programs, as part of the environmental management system, have decreased capital expenditure due to the reduced amount of waste and effluent produced.

7.5.3. Increased Process Efficiency

The formal framework provided by the integrated management system for training of employees, performance management and identification of training needs, has led to a more aware and competent workforce – in turn having a positive effect on the overall efficiency of the staff and processes.

The enhanced awareness and competency amongst staff directly impacts on the overall morale of the production facility and has enhanced the efficiency immensely.

The implementation of a Corrective and Preventative Action System, as part of the integrated management system, provides the production personnel with a tool to make recommendations regarding the operation

of the facility, and forces management to take these recommendations into consideration. This is a really valuable tool.

7.5.4. Reduced Investment Risk

USA Raisins have recently expanded their operations by purchasing an optical sorting machine. This machine would double their current production capacity. The implementation of an integrated management system has changed the risk profile of USA Raisins and they were able to obtain access to capital relatively easily for the purchasing of this new piece of equipment, as the formalisation of management systems within a company also provides for some piece of mind and enhanced control for financiers.

7.5.5. Information Management

The integration of process, environmental and related information provided by the integrated management system, provides management with up to date information on a daily basis that allows them to make informed and knowledgeable decisions. This allows management to make decisions that are not only based on a purely financial basis, but that takes other business risks and stakeholder concerns into consideration.

7.6 Chapter Summary

The development and implementation of an ISO 14001 environmental management system at USA Raisins have contributed towards the effective management of the business. Several of the mentioned critical success factors are formally addressed by means of the ISO

management system, and it is perceived that the formalisation of management systems within smaller companies can contribute significantly towards small business success.

Costs associated with consultation and certification fees have been recouped through the expansion of current client base as well as decrease in production costs, due to the implementation and formalisation of management systems within the organisation.

CHAPTER 8

CONCLUSIONS

8 Conclusions

This chapter poses to provide a concise conclusion of the scope and results of this thesis and focuses on each of the outcomes of each of the chapters correspondingly.

Chapter two of this thesis focused on a framework developed by Anne-Marie Maritz that she derived from a literature survey, conducted as part of an MBA study, to determine the critical success factors in small businesses. The high rate of small business failure in South Africa and internationally have caused researchers and consultants alike to focus and address some of the issues relating to the high failure rate.

Chapters 3 to 5 of this thesis briefly address some concepts obtained from a literature survey regarding the correlation between sustainable development and enhanced business performance. It shows that the implementation of sustainable development principles in a company can lead to significant improvements that influence bottom line performance. In these sections the concepts of sustainable development were addressed as well the general approach of business towards embracing these concepts. In addition, some tools and systems for enhancing a company's sustainability was discussed, and a framework is suggested for assessing sustainability in companies by utilising some set criteria. As derived from these chapters the implementation of an environmental management system usually signifies the first step towards addressing sustainable development goals in an organisation on the sustainable development journey.

Hence, it was decided to use a small production company, namely USA Raisins, as a case study to determine whether the formalisation of

management systems by means of the implementation of an environmental management system, would provide some of the mentioned advantages, when incorporating sustainable development strategies into conventional business models, and simultaneously try to address some of the critical elements as identified by Maritz.

The intention is thus, to identify whether the integration of sustainable development strategies, of which the implementation of environmental management systems usually forms the first step, would reduce the risk of business failure, and whether it would provide a sufficient framework to address some of the mentioned critical elements for a company in the production environment.

An environmental management system was thus implemented at USA Raisins over a 15 month period to determine whether this first move towards sustainable development would enhance their business performance, and hence influence the critical success factors.

The critical success framework as depicted in figure 2.2 has been adapted in figure 8.1 to depict the areas of overlap between the identified needs (Maritz, 2001), and these exact needs that are addressed when taking the first step towards enhanced sustainability by implementing an environmental management system; in this case based on the requirements for ISO 14001.

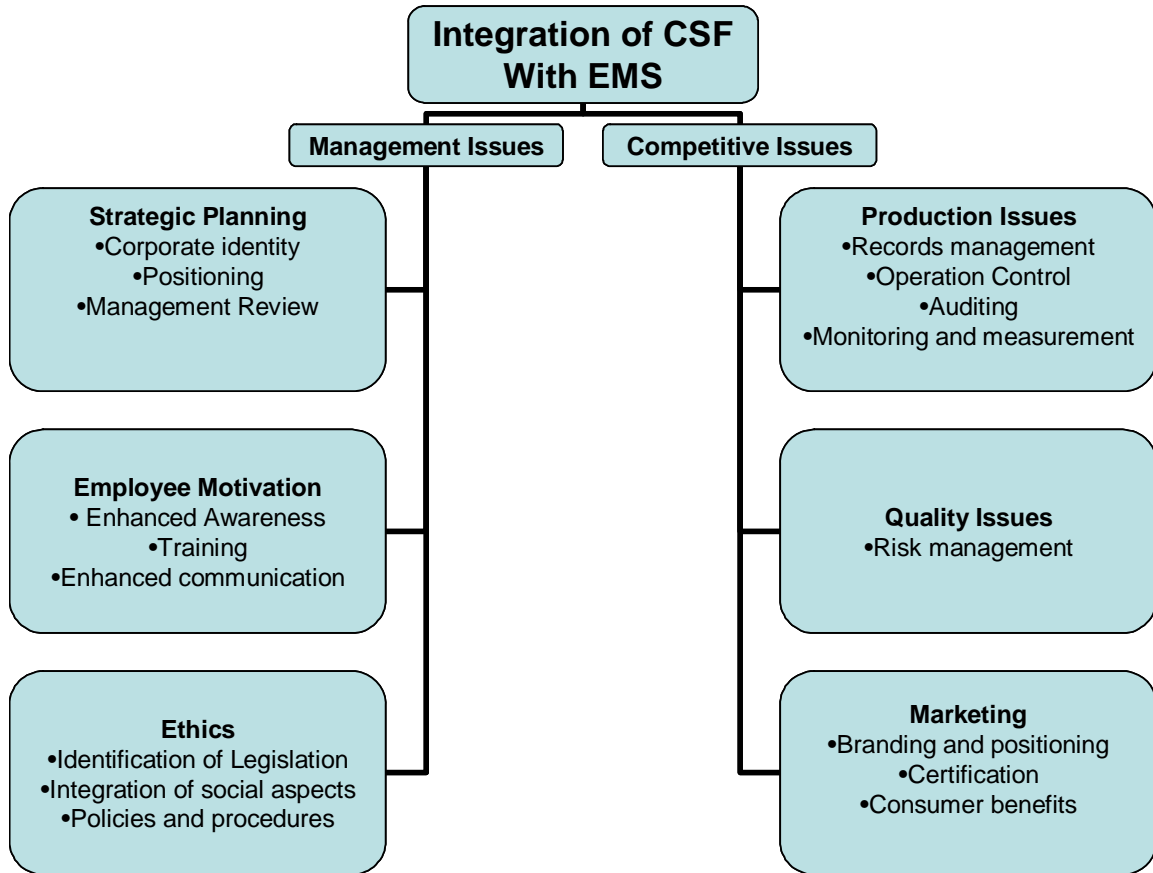


Figure xiii - 8.1: Integration of the Critical Success Framework (CSF) with an Environmental Management Systems (EMS)

The areas of integration between the developed critical success factor framework and the implemented ISO14001 environmental management system mainly relates to management and competitive issues. The positive impact of the implementation of an EMS influences strategic planning, employee motivation and business ethics in the management section, while production, quality and marketing issues experienced

positive impacts in the competitiveness aspects of USA Raisins (USAR). Each of these aspects is briefly discussed in the following paragraphs.

8.1 Strategic Planning

Due to the association that business strategy has with large organisations, small businesses often neglect future planning, or rather, the devising of strategies. Unfortunately without a clearly identified strategy, no business can obtain a competitive edge in the consumer driven markets.

The implementation of an integrated management system at USAR provided them with a framework for identifying possible business risks, and developing a corresponding action plan with objectives, targets, means and person responsible for its implementation, with a corresponding timeline and project management methodology. The formalisation of management systems at USAR (in their case ISO 14001) influenced strategic planning in several ways, as outline in the following paragraphs.

8.1.1. Business Identify and positioning

The implementation of an EMS at USAR provided the business with new dimensions that enabled the crafting of creative strategy and allowed for the further development and enhancement of business branding and identify. In a competitive environment where it is really difficult for business to obtain some form of differentiation or a “cut above the rest”, the move towards enhanced environmental performance have provided them with some leverage on the development of their own unique identity and the positioning of products (such as the expansion to Japan).

8.1.2. Management Review

The development of a system based on continuous improvement and revision of business goals (a basic requirement of ISO 14001), have ensured that business policies and strategies are revised on a continuous basis and assists USAR remain competitive in a progressive, continuously changing business environment.

8.2 Employee Motivation

High quality, motivated employees are most probably small companies' most valuable assets. The development of human capital not only ensures short term business success, but signifies a more sophisticated and sustainable approach towards success.

The implementation of the integrated management system (EMS) at USAR have provided them with clear procedures and systems that presents clear guidance on how work functions need to be conducted, and have enhanced employee motivation significantly.

8.2.1. Enhanced Awareness and Communication

Enhanced employee awareness regarding production, business risks and incidents has not only ensured that the employees of USAR are aware of their responsibilities, but have ensured an increase in general awareness regarding the complete supply chain and production cycles.

The integrated management system have enhanced awareness by ensuring regular and efficient communication internally and externally,

and have provided employees with the opportunity for providing some feedback to management and in turn for management to provide some feedback and guidance to the production staff, on a clear and effective basis.

8.2.2. Training

The implementation of a formal management system have provided USAR with a framework for identifying staff competencies and skills and identifying corresponding training needs. The better trained and skilled staff compliments, as a result of the implementation of a formal management system, are more confident regarding their responsibilities and also more motivated to perform their duties according to set and documented standards.

8.3 Ethics

In today's modern environment where corporate reputation can be the criteria for success, it is extremely important for small businesses to function in an ethical and legally responsible and acceptable manner.

USAR experienced some difficulty in identifying business risks associated with business ethics and legal requirements, and the formalisation of a management system within the organisation have assisted them to develop a framework to address these concerns, as outlined in the following paragraphs.

8.3.1. Identification of legislation

The implementation of a management system have provided USAR with a framework for the identification of applicable legislation, regulations and other national and international requirements and codes of practice, as well as a continuous system for remaining updated on changes in these requirements.

8.3.2. Policies and Procedures

The formalisation of company policies and procedures as part of the management system, have ensured that all employees and stakeholders are informed regarding the company's stance regarding product quality, social responsibility, food safety, ethical and environmental issues, and have provided a framework for revisions and communication of these policies.

8.4 Production Issues

The implementation of formal management systems provides businesses in the production environment with several tools that enables proper maintenance and management of facilities and operation. Production loss due to inefficient planning of maintenance is prevented by proactive planning and maintenance, and provides valuable management information that can be used to make informed decisions.

8.4.1. Records Management

A procedure for records management and monitoring and measurement as part of the IMS ensures easy access to updated production information at USAR. The availability of useful management information contributes towards sustaining efficient and cost effective processes.

8.4.2. Operational Control

The formalisation of management systems within USAR has provided them with a system to identify associated process risks and to develop corresponding control measures for implementation. In addition the framework provides for some project management heuristics that allows them to keep track of progress on critical projects and timelines for completion.

8.4.3. Auditing

A management procedure for auditing of the implemented system on a regular basis ensures that USAR continually improve the implemented system, and eliminates glitches in the developed system. In addition the IMS ensures that process risks are identified and allow for the development of corresponding control measures. A corrective and preventative action system was developed and implemented, and is utilised in conjunction with the auditing protocols to ensure that critically identified required interventions, are addressed, and monitored by management.

8.5 Marketing

In an environment where consumers determine the supply and demand of products, the implementation of an integrated management system, based on the ISO14001 standard, have provided USAR with a significant marketing advantage, especially in the areas of sustainability. Consumers are increasingly supporting companies that produce products in an environmentally and socially responsible manner, to the extent that certain consumers would not consider purchasing products that do not meet specific requirements such as ISO14001 certification. The additional branding and positioning leverage obtained by the implementation of the ISO 14001 system at USAR have provided them with a competitive advantage over their competitors and have created opportunities for creative marketing.

8.6 Concluding remarks

The implementation and integration of a formal management system, such as the system implemented at USAR based on the ISO14001 environmental management standard, can ensure enhanced performance in the small to medium manufacturing industries, especially when integrated with the other management systems. The implementation of such a system provides the managers of these companies with the necessary tools to address some of the critical success factors, as identified by Maritz. This suggests that the general implementation and integration of more formal management systems in production companies, could impact positively on the historically high failure rate of small companies, by successfully addressing some of the issues that are known to cause failure in these organisations.

REFERENCES

9 References

Website references

- 9.1 www.bsdglobal.com
- 9.2 www.dti.pwv.gov.za
- 9.3 www.dti.pwv.gov.za
- 9.4 <http://mint.mcmaster.ca/>
- 9.5 <http://web.mit.edu/icrmot/www/>
- 9.6 <http://www.cordis.lu/innovation-smes/home.html>
- 9.7 <http://www.gov.ab.ca/is/home.cfm>
- 9.8 <http://www.innovation.ca/>
- 9.9 <http://www.research-innovation.ed.ac.uk>
- 9.10 <http://www.saef.co.za/aboutf.html>
- 9.11 <http://www.thinksmart.com/index.html>
- 9.12 www.satour.com-traveltrade
- 9.13 www.brain.org.za
- 9.14 www.eia.gov
- 9.15 www.iso14001.com
- 9.16 www.polity.org
- 9.17 www.pollutionprevention.com
- 9.18 www.sustianability.com

Book and Journal References

- 9.19 American Environmental Protection Agency, IS No. 5, November 2000
- 9.20 Bamberger I. , 1983, Value Systems, Strategies and Performance of Small- and Medium-Sized Firms, International Small Business Journal 1
- 9.21 Baumbach C.M., 1983, Basic Small Business Management, Englewood Cliffs, NJ, USA: Prentice-Hall, Inc., 540p
- 9.22 Chapman J, 1996, Cleaner Production for the Wine Industry, South Australian Wine and Brandy Industry Association
- 9.23 Cox L.W., 1992, The Perception of the Causes of Small Business Success and Failure: 1992 USASBE National Conference proceedings, Ed. D Naffziger and J Hornsby
- 9.24 Darnall N, Gallagher DR, Andrews, RNL and Amaral D, 2000, Environmental Management Systems: Opportunities for Improved Environmental and Business Strategy?
- 9.25 De Beer A., Kritzing A., Venter N., Steyn J., Labuschagne M., Ferreira E., Groenwald D., Stapelberg J., 1996, Management of a Small Business, Kenwyn, SA: Juta & Co, Ltd.
- 9.26 Dun & Bradstreet, 2000, 18th Annual Dun & Bradstreet Small-Business Study
- 9.27 Hayward DJ, Lorenzen L, Bezuidenhout S, Prozesky V, Barnardt N & Van Schoor LM, 2000. "Omgewingsgerig of onbetrokke - kan jy dit bekostig?", Wineland, Januarie, 99-102.
- 9.28 Hendrickson L.U., 1998, Dynamic Management of Growing Firms – A Strategic Approach, 2nd Edition, University of Michigan Press, 233p
- 9.29 Hodgetts R.M., 1982, Effective Small Business Management, London: Academic Press, Inc., 496p
- 9.30 Holden J., 1990, Personnel Management: The Business Owner's Handbook For Small and Medium-sized Companies, Kenwyn: Juta & Co, Ltd.
- 9.31 INDUSTRIAL DEVELOPMENT CORPORATION, 2000, Industry Analysis – The South African Wine Industry
- 9.32 Jamal M., Badawi J.A., 1995, Nonstandard Work Schedules and Work and nonwork Experiences of Muslim Immigrants: A Study of A Minority in the Majority, Journal of Social Behavior and Personality

- 9.33 Labrecque T.G., 1990, Good Ethics is Good Business, USA Today Magazine
- 9.34 Longenecker J.G., Moore C.W., 1991, Small Business Management, South-western Publishing Co.
- 9.35 Maritz A, 2001, Development of a critical success factor assessment for small organisations, MBA Thesis, USB
- 9.36 McMorris RL & Gravley RJ, 1993, Managing Data from Large-Scale Continuous Monitoring Projects, Chemical Engineering Progress
- 9.37 National Department of Agriculture, 2000, Abstract of Agricultural Statistics, Pretoria, South Africa
- 9.38 Nizolek DC et. al., 1994, Set Up a Waste Accounting System to Track Pollution Prevention, Chemical Engineering Progress
- 9.39 Porter M.E., 1998, Competitive Advantage, The Free Press
- 9.40 Pulles, W., 1999, "Development of best practice guidelines for water quality management in South Africa", Journal of the South African Institute of Mining and Metallurgy, 197-200p
- 9.41 Resnik, P., 1988, The Small Business Bible -The Make-or-Break Factors for Survival and Success, United States of America: John Wiley & Sons, 230p
- 9.42 Rittmeyer RW, 1991, Waste Minimization Part I, Prepare an Effective Pollution Program, Chemical Engineering Progress
- 9.43 Rittmeyer RW, 1991, Waste Minimization Part II, Design Your Process for Waste Minimization, Chemical Engineering Progress
- 9.44 Rittmeyer RW, 1991, Waste Minimization Part III, Minimize Waste at Operating Plants, Chemical Engineering Progress
- 9.45 Rossiter AP et. al., 1993, Apply Process Integration to Pollution Prevention, Chemical Engineering Progress
- 9.46 Scarborough N.M., Zimmerer T.W., 1996, Effective Small Business Management, Upper Saddle River, NJ: Prentice Hall, 788p
- 9.47 South Africa Wine Industry Information and Systems, 2000, South African Wine Industry Statistics No.24, Paarl, South Africa
- 9.48 South African Government, 1998, S A Yearbook 1998
- 9.49 SRK Steffen, Robertson and Kirsten Inc., Water Research Commission NATSURV 14 in the Wine Industry, TT51/90

- 9.50 Stanworth M.J.K., Curran J., 1973, Management motivation in the smaller business, Great Britain: Gower Press Ltd, 195p
- 9.51 Thompson A.A., Strickland A.J., 1998, Strategic Management: Concepts and Cases, USA: McGraw-Hill Companies, Inc., 1094 p
- 9.52 Timmons J.A., 1985, An Obsession with Opportunity, Nation's Business
- 9.53 Timmons J.A., 1994, New Venture Creation: Entrepreneurship for the 21st Century, Homewood, 796p
- 9.54 Vogel D., 1988, Ethics and Profits Don't Always Go Hand in Hand, Los Angeles Times
- 9.55 Watson J., Everett J.E., 1996, Do Small Businesses Have High Failure Rates? Evidence from Australian Retailers, Journal of Small Business Management
- 9.56 Zacharakis A.L., Meyer D.G., DeCastro J., 1999, Differing Perceptions of New Venture Failure: A Matched Exploratory Study of Venture Capitalists and Entrepreneurs Journal of Small Business Management



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Respondent's name: _____

(person to be contacted in case of questions)

Function/position: _____

Department: _____

Address: _____

Town/city: _____

Zip: _____

Country: _____

Phone: _____

Fax: _____

E-mail: _____

Web: _____



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Approval Form

Company Name: _____

Confirmation of Truthful Company Statements and Documentation

The following people confirm that all statements made in the SAM Corporate Sustainability Assessment Questionnaire online or on paper as well as additional information / documentation (listed below) provided to SAM Research is true to the best of their knowledge. They confirm that they have read and accepted SAM's Information Policy and Disclaimer concerning the use of the provided information indicated below.

Name Function / Position

Signature Place, date

Name Function / Position

Signature Place, date

Documentation provided

Please include only recent documentation which has not previously been sent to SAM Research.

☐ SAM Corporate Sustainability Assessment Questionnaire (paper version)

Date submitted: _____

☐ _____
Annual / Financial Reports

☐ _____
Sustainability Reports

☐ _____
Environmental Reports

☐ _____
Social Reports

☐ _____
Others

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Economic Dimension

General corporate information

1. Please indicate the total number of employees and total revenues for the following years.

☐ Please indicate the corresponding currency: _____

	1998	1999	2000	2001
Number of Employees				
Total revenue				
Net earnings (EBITDA)				

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

2. Please indicate the average number of employees per business/performance unit in 2001.

- ☐ _____ employees
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

3. Please indicate your company's largest business sectors in terms of revenue for the year 2001.

Business Sector	Revenue

Currency: _____

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Corporate governance

4. How many members are on your Board of directors?

- ☐ _____ members
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

5. How many Board members have executive functions in your company?

- ☐ _____ members
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

6. Is the Board headed by a non-executive chairman and/or a lead director?

- ☐ Yes
☐ No
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

7. Please indicate in the table below the functions for which the Board explicitly assumes formal responsibility. Please also indicate the name of board committees responsible for these issues.

Function	Responsibilities	Name of committee
Strategy	<input type="checkbox"/> Formal Board Responsibility <input type="checkbox"/> No Board Responsibility	
Audit, accounting, risk management	<input type="checkbox"/> Formal Board Responsibility <input type="checkbox"/> No Board Responsibility	
Selection and nomination of board members and top management	<input type="checkbox"/> Formal Board Responsibility <input type="checkbox"/> No Board Responsibility	
Remuneration of board members and top management	<input type="checkbox"/> Formal Board Responsibility <input type="checkbox"/> No Board Responsibility	
Corporate social responsibility, corporate citizenship, sustainable development	<input type="checkbox"/> Formal Board Responsibility <input type="checkbox"/> No Board Responsibility	

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

8. Please indicate if the Board of your company has issued a formal corporate governance policy. If yes, please attach the document or indicate where it can be found (website, annual report etc.).

- ☐ Yes, documented in: _____
☐ No
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

9. Please indicate the percentage of the main nationality represented on your Board of Directors relative to all other nationalities represented on the Board.

- ☐ ____%
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

10. How many women are members of your company's Board of Directors?

- ☐ _____
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

11. Are binding rules related to trading company shares in place for Board members? Please provide supporting documentation.

- ☐ Yes, documented in: _____
☐ No
☐ Not applicable. Please provide explanations in the comment box below.

☐ Not known

Comment:

12. What is the average lock-in period for options/shares held by Board members?

- ☐ 3 years and higher
☐ 1-2 years
☐ No lock period
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

13. Please indicate the percentage of fees for management consulting paid to your auditing firm as a percentage of total fees paid to your auditing firm at corporate level in 2001.

- ☐ ____%
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Investor relations

14. Please provide examples of material (e.g. analyst presentations, websites, reports etc.) used to communicate with analysts and investors about sustainability issues.

- ☐ _____
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

15. Please indicate the percentage of your company's total freely available shares held by ethical, sustainable, or socially responsible investors.

- ☐ ____% of total freely available shares
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

16. Please provide an estimate of your company's total invested shareholder capital split by investment style.

<input type="radio"/>	Investment Style	Percentage of Total Invested Capital
	Value	
	Growth	
	Index	
	Others (specialties), please specify:	

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Strategic planning

17. Please indicate the three most important business challenges your company faces in the mid-to-long term.

- ☐ _____
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

18. Which of the following tools do you systematically use for strategic planning at corporate level?

- ☐ Answer:
- ☐ Portfolio theory; briefly describe how it is applied

- ☐ Real options methods; briefly describe how they are applied

- ☐ Scenario planning; indicate the average time horizon used: _____
- ☐ Systems dynamics methods; briefly describe how it is applied:

- ☐ Others: please describe:

- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

19. Please attach or indicate a web address of corporate statements or reports that indicate the core values and/or business principles of your company.

- ☐ _____
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

Documents (pages):

http://

Scorecards/Measurement Systems

20. Please indicate the main purposes of your scorecard/measurement systems (such as Balanced Scorecards or similar).

- ☐ Answer:
- ☐ To measure and integrate overall tangible and intangible corporate performance
- ☐ To act as an integrated strategic planning and management tool, linking different levels of the company
- ☐ To share process best practice across business units
- ☐ To compare business unit performances and Key Performance Indicators
- ☐ No scorecard/measurement systems implemented
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

21. Which perspectives are integrated in your company's scorecards/measurement systems (Balanced Scorecard or similar)?

☐ Answer:

- ☐ Customer / Stakeholder perspective
- ☐ Financial / Shareholder perspective
- ☐ Process / Internal perspective
- ☐ People / Learning perspective
- ☐ Others, please specify_____

☐ Not applicable. Please provide explanations in the comment box below.

☐ Not known

Comment:

22. Are Key Performance Indicators used in your scorecard/measurement systems externally communicated? Please attach relevant documentation or web address.

☐ Yes, documented in:_____

☐ No

☐ Not applicable. Please provide explanations in the comment box below.

☐ Not known

Comment:

Documents (pages):

http://

Risk & Crisis management

23. Please indicate the name and position of your chief risk officer or person responsible for this function.

☐ Name_____ Position _____ Number of levels from the Board _____

☐ Not applicable. Please provide explanations in the comment box below.

☐ Not known

Comment:

24. Is an incident / near miss notification procedure implemented at corporate level?

☐ Yes

☐ No

☐ Not applicable. Please provide explanations in the comment box below.

☐ Not known

Comment:

If yes, does your company externally communicate about incidents / near misses? Please attach relevant documentation or web address.

☐ Yes, please specify:_____

☐ No

☐ Not applicable. Please provide explanations in the comment box below.

☐ Not known

Comment:

25. Please indicate the elements included in your company's crisis/emergency plans.

- ☐ Answer:
- ☐ Business continuity plan
 - ☐ Communication with the media and other critical audiences/stakeholders affected
 - ☐ Co-ordination between departments involved (e.g. Public Relations, Investor Relations, Manufacturing, Customer Service, Finance and Risk Management departments)
 - ☐ Frequent rehearsal/testing of plans
 - ☐ Mechanisms for early internal/external notification of an emergency situation
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

Documents (pages):

http://

Codes of Conduct/Compliance

26. Please indicate areas for which corporate codes of conduct have been defined. Please attach supporting documents, actual codes of conduct etc.

- ☐ Answer:
- ☐ Corruption and bribery
 - ☐ Discrimination
 - ☐ Confidentiality of information
 - ☐ Money-laundering, insider trading
 - ☐ Security of staff, business partners, customers
 - ☐ Environment, health and safety

Documented in:

-
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

27. What mechanisms are in place to ensure effective implementation of your company's codes of conduct?

- ☐ Answer:
- ☐ Responsibilities, accountabilities and reporting lines are systemically defined in all divisions and group companies
 - ☐ Regular employee communication
 - ☐ Dedicated help desks
 - ☐ Intranet with practical examples for training purposes
 - ☐ Codes of conduct linked to employee remuneration
 - ☐ Employee performance appraisal systems integrates compliance/codes of conduct
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

28. Do you use Key Performance Indicators to track the performance of your codes of conduct?

- ☐ Yes
- ☐ No
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

If yes, are the results externally communicated? (please attached relevant documentation or web address)

- ☐ Yes, please specify: _____
☐ No
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Customer relationship management

29. Does your company have a centralized database system to manage all customer related information (e.g. contact persons, preferences, history of transactions, prospects/leads)?

- ☐ Yes
☐ No
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Please indicate the percentage share of total revenues generated by clients covered by the system.

- ☐ ___ % of revenues
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Supply chain management

30. Does your company have a centralized database system to manage all supplier related information?

- ☐ Yes
☐ No
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

If yes, please indicate the estimated share of total supply costs related to suppliers covered by the system.

- ☐ ___ % of supply costs
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

31. Please indicate in which of the following areas your company has defined corporate requirements/guidelines for the selection and ongoing evaluation of key suppliers and service providers

world-wide. Please attach examples of such guidelines.

- ☐ Answer:
 - ☐ Environment
 - ☐ Labour standards/employment practices
 - ☐ Occupational health & safety
 - ☐ Human rights
 - ☐ External supplier audits
 - ☐ Other: specify: _____
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

Documents (pages):

http://

Corruption and Bribery

32. Does your company have a corruption and bribery policy, and is this policy publicly available? Please attach documents and/or web address.

- ☐ Yes, publicly available
- ☐ Yes, internally available
- ☐ No
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

33. Who does your corruption and bribery policy apply to?

- ☐ Answer:
 - ☐ Employees
 - ☐ Contractors
 - ☐ Suppliers
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

34. Does your company publicly report on breaches of your corruption and bribery policy? Please attach documents and/or web address.

- ☐ Yes, please refer to the document(s) attached: _____
- ☐ No
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

Documents (pages):

http://

Environmental Dimension

Strategic planning

35. Please indicate the three most important environmental trends which could affect your company in the mid-to-long term.

- ☐ _____
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Environmental Management

36. Has your company adopted a corporate environmental policy? (whether stand alone or integrated into a broader policy statement). Please refer to the policy or indicate where it can be found on the web.

- ☐ Yes, documented in: _____
☐ No
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

If yes, please indicate whether this policy applies to:

- ☐ Answer:
☐ Company's own operations
☐ Environmental impacts of products & services
☐ Suppliers & service providers (e.g. contractors)
☐ Other key business partners (e.g. non-managed operations, JV partners, ...), please specify: _____
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

37. Have quantified environmental targets been defined for the whole company? Please attach relevant documents.

- ☐ Yes
☐ No
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Environmental Performance

38. Please complete the following table and include a short explanation of the trend.

☐

Indicator	Unit (if different from unit indicated)	Estimated coverage (%) of total resource use or emissions in 2001	1998	1999	2000	2001	Explanation of trend
Total energy consumption (GJ)							
Proportion of renewable energy (%)							
Total direct GHG emissions (tons CO2 equivalent)							
Total water use (tons)							
Total waste generation (tons)							

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Public reporting

39. Please indicate the organisational coverage (approximate number of employees covered) of your publicly available environmental reports.

- ☐ ___ % of total employees
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Advanced environmental management

40. Have corporate environmental requirements or guidelines been developed for the following?

- ☐ Answer:
- ☐ Production operations
 - ☐ Maintenance operations
 - ☐ Selection/on-going evaluation of suppliers/contractors/service providers
 - ☐ Development of new products and services
 - ☐ New projects
 - ☐ Non-managed operations/licensees/third-party manufacturers/JV partners
 - ☐ Due-diligence/Mergers and acquisitions
 - ☐ Other

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

41. How frequently is environmental data (e.g. emissions to air, water, land, resource consumption, accidents) reported by operations/business units to corporate?
- ☐ Monthly
 - ☐ Quarterly
 - ☐ Yearly
 - ☐ Irregularly
 - ☐ Not reported as yet
 - ☐ Not applicable. Please provide explanations in the comment box below.
 - ☐ Not known

Comment:

42. Does your company have a centralized database for environmental data that is accessible from various parts of your organization?
- ☐ Answer:
 - ☐ Yes, database is accessible at corporate level
 - ☐ Yes database is accessible at business unit/divisional level
 - ☐ Yes database is accessible by individual operations
 - ☐ No centralized database exists
 - ☐ Not applicable. Please provide explanations in the comment box below.
 - ☐ Not known

Comment:

43. Please indicate what types of environmental audit programs are in place within your organization.
- ☐ Answer:
 - ☐ Corporate audit program in place since_____
 - ☐ Divisional audit programs for divisions representing____% revenue
 - ☐ Site-based audits conducted by individual operations representing____% of revenue
 - ☐ Not applicable. Please provide explanations in the comment box below.
 - ☐ Not known

Comment:

44. Are environmental audit programs in place across the whole organization for the following business partners?
- ☐ Answer:
 - ☐ Key suppliers are audited on average every_____ years
 - ☐ Third-party manufacturers are audited on average every_____ years
 - ☐ Waste handling and disposal sites are audited on average every_____ years
 - ☐ Not applicable. Please provide explanations in the comment box below.
 - ☐ Not known

Comment:

45. Which parts of your organization are certified to ISO 14001 or EMAS?
- ☐ Answer:
 - ☐ Individual operations representing____% of revenue
 - ☐ Divisions/business units (e.g. Research and Development, procurement, logistics) representing____% of revenue
 - ☐ Corporate headquarters since_____
 - ☐ Not applicable. Please provide explanations in the comment box below.
 - ☐ Not known

Comment:

46. Please complete the following table (or attach documents) with your company-wide environmental data and explain trends. (Note: significant environmental incidents are incidents which resulted in extensive or long-term impairment of ecosystem function, contamination or shortage of surface/ground water supply, chronic illness, permanent disabling injury, fatality or extensive property damage to the public, irreparable damage to highly valued structures or sacred locations)

☐ Answer:

Parameter	Unit	1998	1999	2000	2001	Comments
Hazardous waste	tons					
Waste disposed to landfill	% of total waste generated					
Incidents	Number					

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

GHG Emissions and Carbon Strategy

47. Please indicate the organizational coverage of your GHG inventory.

☐ Answer:

- ☐ wholly owned entities/facilities representing____% of total revenue
☐ entities/facilities that are controlled but not wholly owned
☐ jointly controlled assets/entities
☐ entities not controlled but over which the company has significant influence

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

48. Please indicate the scope of your GHG inventory (according to WBCSD/WRI Protocol or other).

☐ Answer:

- ☐ Direct GHG emissions (i.e. Scope 1 of WBCSD/WRI Protocol)
☐ GHG emissions from imports of electricity, heat or steam (i.e. Scope 2 of WBCSD/WRI Protocol)
☐ Other indirect GHG emissions (i.e. Scope 3 of the WBCSD/WRI Protocol)

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

49. Please indicate which independent organization verifies your GHG inventory.

☐ Verified by_____

- ☐ Not externally verified
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

50. On what is your strategy for reducing/managing carbon risk based?

☐ Answer:

- ☐ intra-company emissions trading
☐ national/international emissions trading

- ☐ Based on carbon sequestration projects
- ☐ Clean Development Mechanisms (CDM)
- ☐ Joint Implementation (JI) projects
- ☐ switching fuel sources
- ☐ reducing carbon intensive operations/technologies/products/services
- ☐ other methods (please specify)

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

51. What is your target for reducing GHG emissions? (inc. sources of emissions covered, baseline, timescale)

- ☐ Target

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Product Design for the Environment

52. Are there programs in place to formally assess and minimise the environmental impacts of product packaging, distribution, use and disposal?

- ☐ Yes

- ☐ No
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

53. Which of the following aspects are formally included in the development and design of new products?

- ☐ Answer:

- ☐ Environmental impacts of product use and maintenance. Please specify_____
- ☐ Environmental impacts of product manufacturing. Please specify_____
- ☐ Environmental impacts of raw materials production. Please specify_____
- ☐ Upgradability and modularity of products
- ☐ Disassembly, reuse and recycling of the product and its components
- ☐ Other_____

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

54. To what extent is your company actively and directly involved in product take back programs (e.g. disassembly, reuse or recycling of the product and its components)? Please indicate the proportion of revenue corresponding to products covered by such programs.

- ☐ Answer:

- ☐ Product take back programs

- ☐ ____ % of revenue

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Social Dimension

Strategic planning

55. Please indicate the three most important social/demographic/cultural trends which could impact your company in the mid-to-long term.

- ☐ _____
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Human Capital Indicators

56. Does your company use Key Performance Indicators (KPIs) in monitoring in-house or supplier/contractor workplace and human rights performance the following issues, and are these externally communicated? Please complete table and provide documents and/or web address.

<input type="radio"/>	Diversity	Discrimination	Freedom of Association	Child Labor	Forced Labor	Layoffs and HSE	Others (Please specify)
KPI	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Externally communicated	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

57. Is a system in place to collect and handle employee grievances and complaints (e.g. help line or independent Ombudsman ensuring employee anonymity)?

- ☐ Yes
☐ No
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

58. Does your company publicly endorse (having signed or publicly acknowledging adherence to) one or more of the following charters/frameworks?

- ☐ Answer:
- ☐ UN Universal Declaration of Human Rights
 - ☐ ILO Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy
 - ☐ OECD Guidelines for Multinational Enterprises
 - ☐ Other charters related to labour practices/HR issues, please specify and attach: _____
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

Documents (pages):

http://

Management attention to Human Resources

59. Does your company have a documented HR strategy agreed with the CEO and the top management, and how frequently is it discussed?
- ☐ Yes, documented, discussed and agreed yearly
 - ☐ Yes, documented, discussed and agreed but biannually or less frequently
 - ☐ No
 - ☐ Not applicable. Please provide explanations in the comment box below.
 - ☐ Not known

Comment:

60. In management reporting and discussions, does your company regularly work with employee-oriented measures of financial performance (e.g. sales per employee, value-added per employee)?
- ☐ Yes, employee-oriented measures of financial performance are a priority
 - ☐ Yes, but other measures are our primary focus
 - ☐ No
 - ☐ Not applicable. Please provide explanations in the comment box below.
 - ☐ Not known

Comment:

61. In management reporting and discussions, does your company regularly work with employee-oriented measures to understand the drivers of financial performance (e.g. employee utilization, competences or motivation)?
- ☐ Yes, these are critical performance drivers
 - ☐ Yes, but other measures are our primary focus
 - ☐ No
 - ☐ Not applicable. Please provide explanations in the comment box below.
 - ☐ Not known

Comment:

62. Does your company have a medium-term workforce and skills plan comparing current employees and their skills with the future number of employees required and new skills required to execute the business plan for your important job categories?
- ☐ Yes, Available for all business /performance units
 - ☐ Yes, Available for most business units
 - ☐ Yes, Available for some business units
 - ☐ Not available
 - ☐ Not applicable. Please provide explanations in the comment box below.

☐ Not known

Comment:

Documents (pages):

http://

Workforce capabilities

63. Please indicate the percentage of employees hired based on a validated selection test in 2001.

- ☐ ___%
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

64. Please provide the number of external qualified applicants per hire in 2001.

- ☐ _____ qualified applicants
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

65. Please indicate the percentage of skilled employees (managerial, professional and technical employees) leaving the company in the course of the past year relative to the total average number of skilled employees during the year.

- ☐ ___%
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

Of those skilled employees (managerial, professional and technical employees) leaving, what percentage did so involuntarily for reasons of personal poor performance or staff layoffs?

- ☐ ___ % of total leaving
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

66. Please indicate the percentage of employees receiving a regular (e.g.annual) explicit performance appraisal.

- ☐ ___%
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

67. Please indicate the percentage of your workforce that is systematically outplaced or re-assigned because of weak performance each year.

- ☐ ___ %
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

68. Please indicate the percentage of employees for whom clearly defined career paths are available.

- ☐ ___ %
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

69. Please indicate the percentage of employees for whom there is a company training program, specific to their job category (e.g. specific to the company's sales managers) which must be taken before or within a defined time period after taking up their position.

- ☐ ___ %
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Employee satisfaction

70. Do you regularly track and benchmark employee satisfaction against industry peers with regard to the following issues?

- ☐ Answer:
☐ Rewards and recognition
☐ Leadership
☐ Supportive/collaborative team environment
☐ Personal development possibilities
☐ Job satisfaction/opportunity to make a difference
☐ Working environment (Health and safety, social climate, etc.)
☐ Identification with corporate values and strategy
☐ Others, please specify _____
☐ No
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

71. Do you make the results of your employee satisfaction survey publicly available? Please attach documents and/or web address.

- ☐ Yes, please specify: _____
☐ No
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Remuneration, benefits, flexible work-schemes

72. Please indicate the percentage of company stock which, as part of a company organised stock ownership plan, is owned by:

<input type="radio"/>		Percentage of company stock (%)
	Board members / CEO	
	Senior Management	
	Middle Management / other employees	

☐ Not applicable. Please provide explanations in the comment box below.

☐ Not known

Comment:

73. Please indicate the percentage of the company's shares that are covered by options owned by employees as part of the company option plan.

<input type="radio"/>		Percentage of company's shares (%)
	Board members / CEO	
	Senior Management	
	Middle Management / other employees	

☐ Not known

☐ Not applicable

Comment:

74. Please indicate the percentage of employees that received shares or equivalent forms of compensation.

<input type="radio"/>	Type	Percentage of Board Members / CEO (%)	Percentage of Senior Management (%)	Percentage of Middle Management / other employees (%)
	Restricted Stocks			
	Stock Options			
	Savings Related Plans			
	Others, please specify:			

☐ Not applicable. Please provide explanations in the comment box below.

☐ Not known

Comment:

75. Please indicate the percentage of total compensation which is - on average - performance related.

☐ CEO and business unit managers and their respective direct reports:___ %

☐ Sales and sales management:___ %

☐ Other employees:___ %

☐ Not applicable. Please provide explanations in the comment box below.

☐ Not known

Comment:

76. Among "other employees" are there important job categories which stand out as having high performance-related compensation?

☐ Yes

☐ No

☐ Not applicable. Please provide explanations in the comment box below.

☐ Not known

Comment:

If yes, please list these job categories and indicate the percentage of their total compensation which is, on average, performance-related:

<input type="radio"/>	Job category	% of performance related compensation

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

77. For top management (CEO and business unit managers and people directly reporting to them), what percentage of performance related pay is constituted by:

<input type="radio"/>	Type	Percentage
	Stock Options (Valued at time of grant using Black Scholes or other valuation approach) or similar	
	Other long term compensation (or similar)	
	Profit shares (or similar)	
	Sales or order commission (or similar)	
	Bonus pool based on profit, divided up based on management assessment	
	Scorecard target bonus set in relation to salary granted on basis of management assessment	
	Others, please specify:	

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

78. Please indicate the percentage of your company's workforce whose variable remuneration and compensation (including bonus and all incentive schemes) is linked to environmental, corporate citizenship and corporate responsibility performance.

- ☐ ___% of total workforce
☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

79. Please indicate the types of employee benefits provided by your company in countries where government schemes do not exist.

- ☐ Answer:
- ☐ Pension plans
 - ☐ Health insurance
 - ☐ Medical care for employee families
 - ☐ Accident insurance
 - ☐ Disability insurance/programs
 - ☐ Mortgages & loans
 - ☐ Others, please describe: _____
- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

80. Does your company offer the choice of pension plans with a sustainability/socially responsible component to its employees?

- ☐ Yes, please attach documents and/or web address:

☐ No

- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

External stakeholders

81. Please indicate how your company engages with external stakeholders at a corporate level, providing documents with examples of such engagement.

- ☐ Answer:
- ☐ Irregular briefings/meetings, when necessary.
 - ☐ Irregular information provided when necessary.
 - ☐ Irregular project teams, when necessary.
 - ☐ Regular briefings/meetings. Average frequency:_____ per year.
 - ☐ Ongoing project teams._____ teams currently working.
 - ☐ Regular written information provided. Average frequency:_____ per year.
- Please provide documents:

-
- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

82. Does your company regularly track the satisfaction and/or complaints of the following stakeholders?

- ☐ Answer:
- ☐ Customers
 - ☐ Shareholders
 - ☐ Suppliers
 - ☐ Trade Unions
 - ☐ Communities
 - ☐ Government
- ☐ Not applicable. Please provide explanations in the comment box below.
☐ Not known

Comment:

Documents (pages):

http://

Public reporting

83. Does your company report publicly and regularly (at least yearly) on the following issues? Please send and refer to documentation and/or web address.

- ☐ Answer:
- ☐ Corporate Governance, documented in:_____
 - ☐ Corporate risk management, documented in:_____
 - ☐ Environmental management/performance/liabilities, documented in:_____
 - ☐ Organisational learning/knowledge management, documented in:_____
 - ☐ Human capital, Employment practices, human rights, documented in:_____

- ☐ Engagement with external stakeholders and communities, documented in: _____
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

84. Please indicate the organisational coverage (approximate number of employees covered) of your publicly available social reports (i.e. employee, stakeholder and community relations reporting).
- ☐ ___ % of total employees
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

Documents (pages):

http://

Organizational learning

85. Please indicate if formal organizational learning/ knowledge management systems are in place at your company and the percentage of employees involved in them.
- ☐ Formal systems in place covering approximately ___% of total employees
- ☐ Formal systems are not in place
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

Please indicate the aims of these systems.

- ☐ Answer
- ☐ Increase efficiency
 - ☐ Support innovation
 - ☐ Reduce risk, early warning system
 - ☐ Enhance learning and the intellectual capital of the firm
 - ☐ Improve understanding of strategy and vision
 - ☐ Categorize and structure information
- ☐ Not known
- ☐ Not applicable. Please provide explanations in the comment box below.

Comment:

86. Please indicate the tools/processes widely used by your company in managing organizational learning.

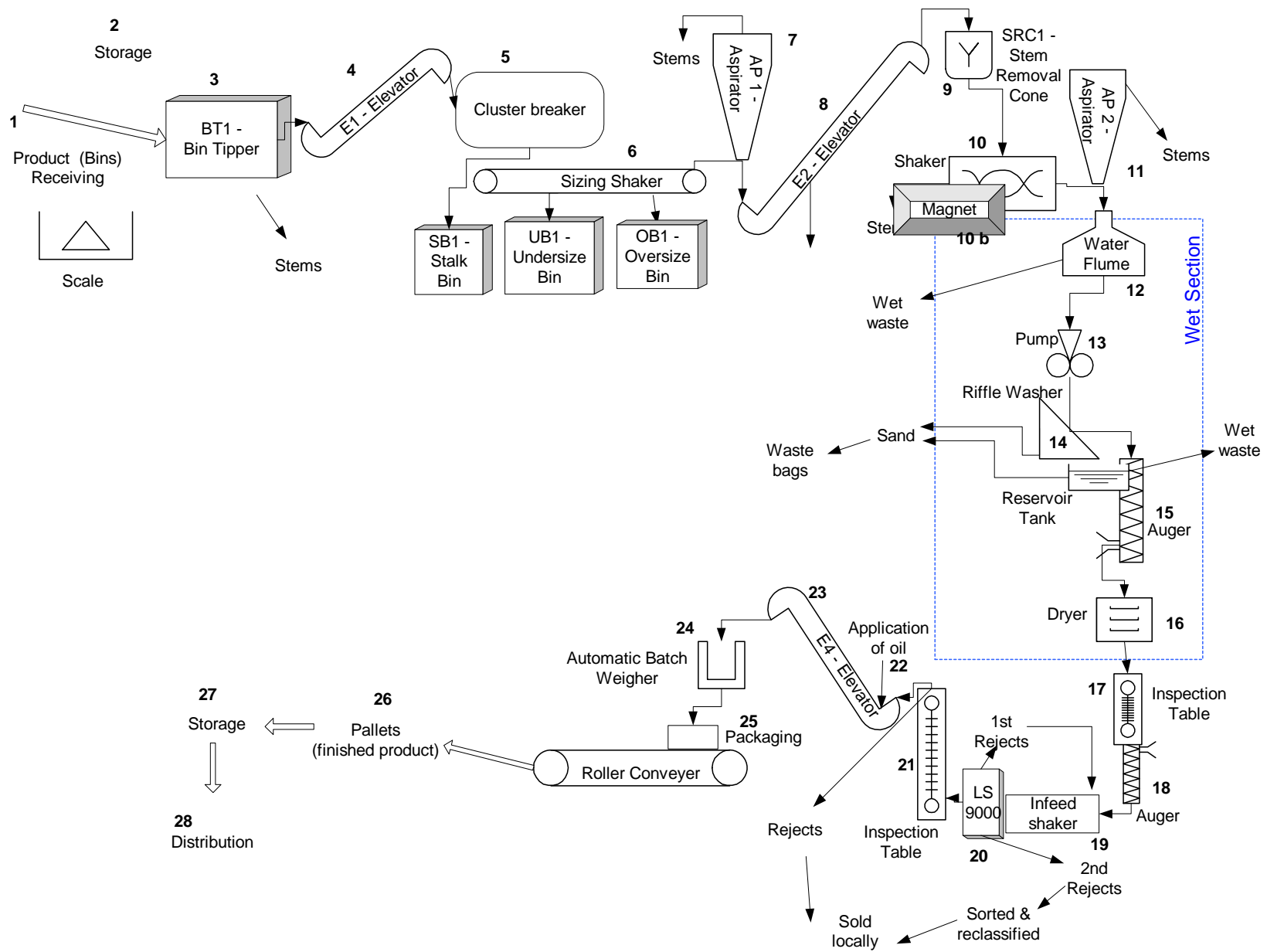
- ☐ Answer:
- ☐ Experts directories
 - ☐ Informal knowledge/learning networks
 - ☐ Formal knowledge/learning networks with regular meetings and staff support
 - ☐ Intranet based knowledge repositories/databases
 - ☐ Intranet based interactive knowledge platforms integrated into daily work processes
 - ☐ Peer group Key Performance Indicator comparisons across Business Units
 - ☐ Systematically accessible descriptions of best practice processes
 - ☐ Collaboration/ knowledge sharing as formal feedback criterium
 - ☐ Bonus directly related to collaboration/ knowledge sharing
 - ☐ Company academy/ university
 - ☐ Other, please specify _____

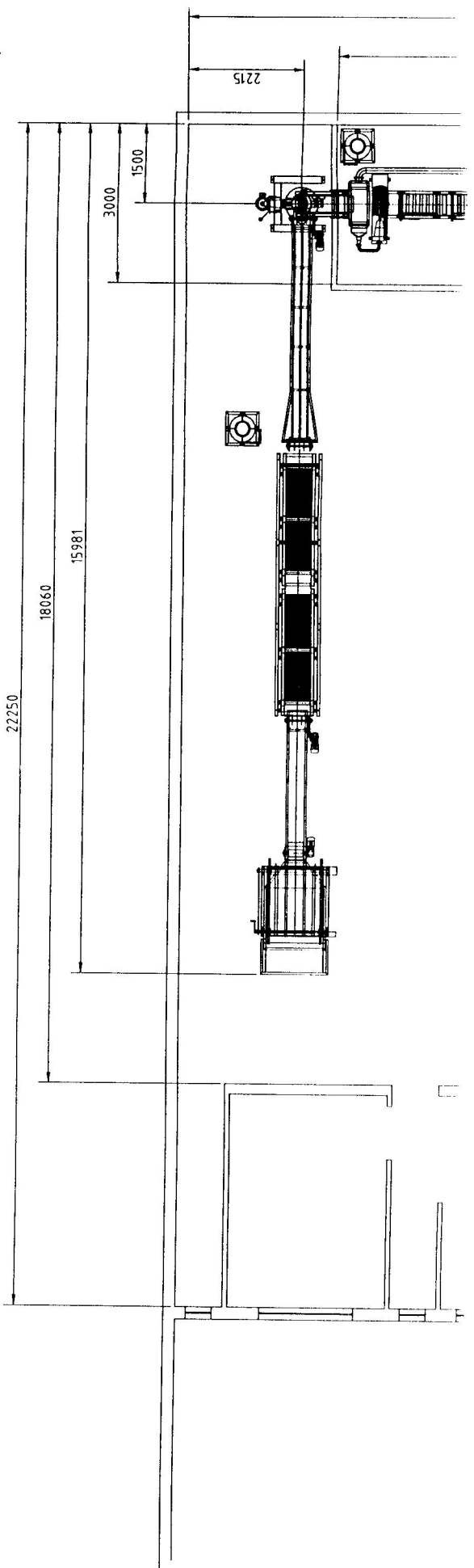
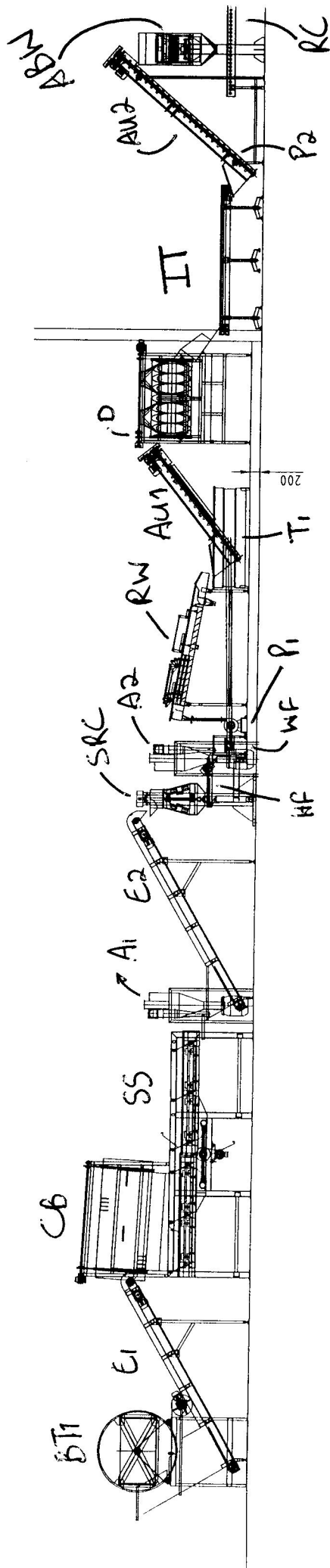
- ☐ Not applicable. Please provide explanations in the comment box below.
- ☐ Not known

Comment:

Documents (pages):

http://





PROCESSING SUMMARY

1. Process

The raisins are stored in wooden crates and held in cold storage at minus 1° C for a minimum of four days. The crates are constructed with spaces between the slats so that good airflow into the product can be achieved while the product is in cold storage. The crates are lined with new shade netting to contain the raisins. The raisins are drawn from the cold storage as and when they are required for an order.

The raisins are transported by road and received at the processing plant in Blackheath. The processing unit is a continuous process. The crates are placed into the machine by means of a gas forklift. The crate is manually tipped with the bin tipper (**BT**) onto an elevator (**E1**) with an even feeder to control the process flow. The raisins then pass through the cluster breaker (**CB**) - a big rotating perforated drum that tumbles the product and breaks up any clusters of raisins. The stalks continue in the drum are rejected out of the cluster breaker into the stalk bin (**SB1**). The raisins then fall through and onto the sizing shaker (**SS**). The sizing shaker classifies the raisins into three sizes. The over and under sized berries are rejected into crate **UB1** and the over sized berries are rejected into crate **OB1** at the side of the shaker.

The raisins are then passed through the mouth of an aspirator (**A1**) that sucks away the loose light little bits of sticks, leaves and dust that may be among the product. The raisins are lifted by elevator (**E2**) to the stem remover. The stem remover (**SRC**) drops the raisins and stems onto a hopper (**HF**) with a slotted sieve that allows the loose stems to fall through onto a tray.

The raisins are transported by the hopper to the next aspirator (**A2**), which removes the last of the dust, stems and other bits and pieces. The raisins then fall into a water flume (**WF**) that is attached to a pump. The pump (**P1**) lifts the raisins up and onto the riffle washer (**RW**) creating a turbulent effect allowing the raisins to be washed. The water supply has been passed through a carbon filter removing all the chemical elements normally used in municipal water. The water also receives a low concentration of ozone. This acts as a sterilizer, cleaning the system and taking care of any minerals in the water and preventing the formation of bacteria. The water is continuously circulated through the carbon filter which then removes the excess ozone from the water.

The riffle washer drops the product into an auger (**AU1**) that transports it into the dryer (**D**). From the dryer the product is passed onto the inspection table (**IT**) where the bad product is removed by hand. The inspection table feeds onto the next auger (**AU2**). The auger is equipped with a dosing pump (**P2**) that applies the oil to the product. This allows the oil to be evenly spread over the product.

The auger supplies the automatic batch weigher (**ABW**) unit that weighs the product and discharges it in 12.5 kg loads into a liner that is in a cardboard tray on a roller conveyor (**RC**). The bag is partially heat-sealed and the volume of air in the bag is replaced with nitrogen. The bag is then fully sealed and closed with a lid that has no opening at the top. The boxes are placed onto a pallet and packed 10 cartons per layer 14 high and wrapped on the pallet ready for shipping. The cartons are all individually labelled with the grade, gross weight, net weight, batch no., product size, WCR logo, certification body logo and certificate no., (as per example).

A plan of the layout of the plant and the process flow are attached for further reference.

2. **Process Control**

The quality control has been developed with the implementation of both an ISO14000 and HACCP system. The systems have grown with the plant giving us the opportunity to take a closer look at all the critical elements of the process.

The suppliers are all issued with a unique number that is used on all documentation and can be traced through all levels of processing. The farmers tag all the bins and this tag remains on the crate until it is placed into the machine for processing. When the crates are released from cold storage for transport to the processing line it is accompanied by a sterilization certificate and delivery note. The crates are weighed once they have been received at the processing line in Blackheath. The weights are registered on a spreadsheet for further processing. The bin tags are removed and registered against the weights along with the delivery note number and the certificate date. A sample is drawn from the crates based on the root of the quantity of crates received. The sample is then sent for analysis of the moisture and the bacteria level of the product.

The HACCP system will enable us to keep track of the critical points that will require attention.

3. **Maintenance and Cleaning**

The system is maintained hygienically with the aid of organically certified sterilizers and cleaning aids as supplied by Agro Organics

(attached please find the product specification of Bio-steriliser and Bio-wash). All bearings are lubricated using only food grade lubricants and all gearboxes that are mounted above the production line have drip trays.