ASSESSMENT OF ENVIRONMENTAL PERFORMANCE

by

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Executive Summary

Safcor Panalpina is a logistics company that specializes in international supply chain management and consulting services which includes, Systems Integration, Customs Clearing, Freight Forwarding, Contract Logistics, Supply Chain consulting and financial services.

The aim of the project is to investigate and evaluate the current environmental performance of the De-Group process and measure such findings against a framework to subsequently identify critical areas of constraints and non-conformance.

The detailed process lay-out start from where goods are transported from the airport to the warehouse, offloaded, contained and transported to the customers. Focus will be on the handling of Hewlett Packard (HP) products, as HP products generate the largest turnover.

The main literature that is going to be useful during the execution of this project and aid in evaluating environmental performance include Supply-Chain Operations Reference Model (SCOR),International Standard Organization ISO (14001) and current environmental legislation applicable to warehousing.

Evaluation of Safcor Panalpina's environmental performance yields a percentage of 38.48%, presenting them as "concerned citizens" and not as "pro-active". Safcor Panalpina has an environmental policy in place, with no visible signs of implementation. For Safcor Panalpina to reach goals set in the environmental policy, they will have to consider the gap analysis and recommendations suggested in Section 9. Continuous evaluation of these process elements according to the framework indicated in Section 10, will give a real time status report of its environmental performance. Furthermore, a pro-active approach to the environmental aspects of process elements is necessary to minimize the effects that the upcoming carbon tax law will have on the company.

It is not ideal to optimize the environmental performance of the De-Group process in isolation. High environmental performance as well as the implementation of specific environmental initiatives will result in a competitive advantage. However, integration of environmental management in all aspects of the business cycle will not only be a prerequisite for future environmental performance excellence but will also be a condition to stay in business. Companies that do not have systems, resources and programs to prevent for example:

- accidents resulting in environmental damage,
- use of non – recyclable packaging when biodegradable equivalents are available, and
- manufacturing of products that cause more environmental damage than those of competitors

will simply not be able to do business – not because of regulatory action, but because of loss of customer support.

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1. Introduction

1.1 Background on Safcor Panalpina

Safcor Panalpina is a logistics company that specializes in international supply chain management and consulting services which include Systems Integration, Customs Clearing, Freight Forwarding, Contract Logistics, Supply Chain consulting and financial services.

One of the key focuses of logistics is to deliver a product that satisfies consumers at the lowest possible cost. A variety of creative measures may be used to cut specific costs and to reduce overall costs. The organization is devoted exclusively to the movement of cargo while providing a comprehensive door-to-door service for consignments of any size by sea, air, rail or road, to and from anywhere in the world and throughout South Africa. It is widely considered to be the leader in its field, with 100 years of solid experience in air and sea freight. It is committed to delivering a world class product as an established organization with a proven track record. This commitment is strengthened by the Panalpina Global Network and the extensive Third-Party Logistics (3PL) offerings within the Bidfreight organization.

Safcor Panalpina's Key industries include: Oil and Gas, Electronics/High Tech, Telecommunications, Automotive, Pharmaceuticals, Mining, FMCG/Fashion and Construction/ Engineering.

1.2 Background to Global Environmental Performance

Environmental Performance is essentially a measure of how efficient the company is in terms of protecting the environment. Protecting the environment can benefit the business in a number of ways. While the business must comply with environmental legislation, there is much more to be gained by taking the commitment further.

Bragg, Knapp and McLean (1994), suggest that managers in industry from oil and chemicals through to those not traditionally considered to have significant environmental impacts are realizing that they must take an urgent interest in their environmental performance for four principal reasons: regulatory pressures and costs, liability, public scrutiny and perhaps most importantly competitive opportunities.

Translating environmental goals into specific targets and/ or activities can add value in the modern business environment. Costs can be significantly reduced by minimizing energy and resource usage as well as disposed waste. This project would therefore not only benefit the environment but also lead to enhanced performance of the business processes.

1.3 Problem Statement

Eco-innovation is becoming a conceptual reference point for many regional and international public policies and management strategies. Safcor Panalpina has initiated this project to determine the environmental performance of their De-Grouping process as part of a long term environmental strategy.

The specific objectives of the project are:

- Translating environmental goals into specific targets and/ or activities and ranking them according to importance,
- providing a structure or framework for measuring environmental performance, linking performance to specific process elements, and
- identifying where environmental performance can be improved.

2. Project Aim

The aim of the project is to investigate and evaluate the current environmental performance of the De-Group process and measure such findings against a framework. This will enable the identification of critical areas of constraints, non-conformance and where improvements can be made.

3. Project Scope

This project will focus on the De-Group function within Safcor Panalpina. The De-Group function consists of importing and exporting goods to and from Safcor Panalpina's warehouse situated close to O.R Tambo Airport.

The detailed process lay-out starts from where goods are transported from the airport to the warehouse, offloaded, contained and transported to the customers. This process is restricted in terms of

high airport security within the cargo area, prohibiting the observation and analyses of the process elements applicable to that section.

Focus will be on the handling of Hewlett Packard (HP) products, as HP products generate the largest turn over.

The objectives require investigation, evaluation and recommendations in terms of the company's environmental performance, but do not include the implementation thereof.

4. Literature Review

4.1 Green Supply Chain Stages and Factors

It is an increasing global trend to realize the importance of a service or product's effect on the environment. Environmental effects must be optimized in terms of minimizing the negative environmental impact.

Companies' responsiveness to environmental issues can be categorized in five stages as seen in *Table1*.

Table 1: Stages of responsiveness to Environmental Issues

Stage	General mind set of corporate managers	Resource commitment	Support and involvement of top management
Pro-active	Environmental management is a priority	Open-ended funding	Actively involved (part of strategy)
Pragmatist	Environmental management is an important business function	Generally sufficient funds	Aware and moderately involved
Concerned citizen	Environmental management is a worthwhile function	Consistent yet minimal budget	Commitment in theory
Fire fighter	Environmental issues should be addressed only as necessary	Budgets for problems as they occur	Piecemeal involvement
Beginner	Environmental management is a cost	Minimal resource commitment	No involvement

Source: Adapted from Post et al (2002).

Post et al (2002) argue that businesses should strive to reach the status of an ecological sustainable organization. Table 1 illustrates the ideal of a pro–active attitude in response to environmental issues instead of acting only when there is pressure from governments or powerful groups.

A pro-active approach towards environmental issues is important in creating a Green Supply Chain. The average profitability gains and the factors responsible for Green Supply Chain profitability of a company are tabulated in *Figure1* and *Table2*.

Table 2: Factors responsible for Green Supply Chain profitability

		Logistics	Automobile	FMCG	Chemical	Construction	Electronics
	● Cost ○ Profit						
Green Procurement	Substitute for Hazardous Material			●	●	●	●
	Minimal Usage of Raw Material		●	●	●	●	
	Supplier Development		●	●	●	●	●
	Reduced Resources Consumption	○	○	○	○	○	○
	Improved Quality of Raw Material		○	○	○	○	○
Green Production	Process Design		●	●	●		
	Product Design		●		●		●
	Higher Efficiency	○	○	○	○	○	○
	Employee Satisfaction	○	○	○	○	○	○
Green Logistics	Alternative Fuels	●	●				
	Logistics Optimization	●		●		●	
	Vehicle Maintenance	●	●			●	
	Optimized Truck Load	○				○	
	Fewer Trips	○				○	
	Longer Life of Vehicles	○	○				
Green Packaging	Packaging Material	●		●			●
	Packaging Thickness	●		●			●
	Lesser Packaging Material	○	○	○			○
Green Marketing	Market Estimation	●	●	●	●	●	●
	Increased Market Share	○	○	○	○	○	○
	Corporate Image	○	○	○	○	○	○
Supply Loops	Waste Collection	●	●	●	●	●	●
	Waste Reprocessing	●	●	●	●	●	●
	Reduced Cost of Disposal	○	○	○	○	○	○
Carbon Management	Carbon Credits	○	○	○	○	○	○

Source: Emmett, S. and Sood, V. (2010)

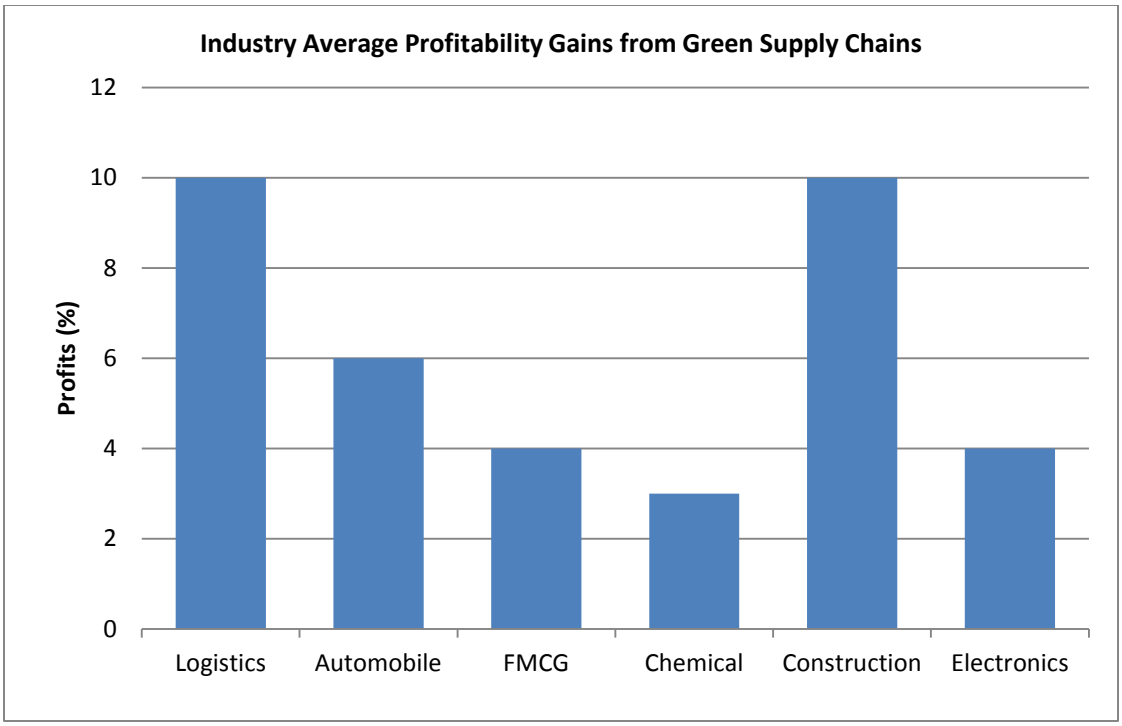

Figure 1: Estimated by industry the profitability enhancement from Green Supply Chains

Source: Emmett, S. and Sood, V. (2010)

4.2 Environmental Management System Standard (ISO 14001)

As stated by the South African Bureau of Standards (SABS) this standard specifies requirements for an environmental management system (EMS) to enable an organization to develop and implement a policy and objectives which takes into account legal requirements and other requirements to which the organization subscribes, and information about significant environmental aspects. It applies to those environmental aspects that the organization identifies as those which it can control and those which it can influence. It does not itself state specific environmental performance criteria.

ISO 14001 is applicable to any organization that wishes to establish, implement, maintain and improve an environmental management system, to assure itself of conformity with its stated environmental policy.

All the requirements in ISO 14001 are intended to be incorporated into any environmental management system. The extent of the application will depend on factors such as the environmental policy of the organization, the nature of its activities, products and services, the location and the conditions in which it functions.

Benefits of implementing ISO 14001

The ISO 14001 requirements are practical tools for organizations who are not satisfied with mere compliance with legislation. These practical tools are for organizations with a vision to understand that implementing a strategic approach can bring return on investment in environmental related measures.

This approach requires the organization to critically evaluate areas where its activities have an environmental impact. It can lead to benefits such as:

- reduced cost of waste management,
- savings in consumption of energy and materials,
- lower distribution costs,
- improved corporate image among regulators, customers and the public and
- a framework for continual improvement of environmental performance.

4.3 Supply-Chain Operations Reference Model (SCOR) 8.0 & SCOR 9.0

The Supply-Chain Reference Model (SCOR) is the product of the Supply-Chain Council (SCC), an independent, not-for-profit, global corporation with membership open to all companies and organizations interested in applying and advancing the state-of-the-art in supply-chain management systems and practices. The SCOR-model captures the Council's consensus view of supply-chain management. The SCOR-mode; provides a unique framework that links business process, metrics, best practices and technology features into a structured system to support communications among supply-chain partners and to improve the effectiveness of supply-chain management and related supply-chain improvement activities.

4.4 Green Supply-Chain Operations Reference Model (GreenSCOR) 9.0

New process elements have been added in SCOR 9.0 to manage waste disposal processes as part of the Green SCOR integration.

4.5 Carbon Footprint

A carbon footprint is the total set of greenhouse gas (GHG) emissions caused by an organization, event, product or person. Greenhouse gases can be emitted through transport, land clearance, and the production and consumption of food, fuels, manufactured goods, materials, wood, roads, buildings, and services. Reporting is often expressed in terms of the quantity of carbon dioxide.

GHG is categorized as direct or indirect emissions. Emissions are listed in one of the three possible scope areas.

Scope 1: Direct Green House Gas (GHG) emissions

Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment. Direct CO2 emissions from the combustion of biomass shall not be included in scope 1 but reported separately.

Scope 2: Electricity indirect GHG emissions

Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the

organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.

Scope 3: Other indirect GHG emissions

Scope 3 is an optional reporting category that allows for the treatment of all other indirect emissions. Scope 3 emissions are a consequence of the activities of the company, but occur from sources not owned or controlled by the company. Examples of Scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services.

4.5 Overview of an Effective Approach

Bragg, Knapp and McLean (1994), determined that long-term improvement in environmental performance requires top down management commitment and integration of environmental management systems into business activities. To do this successfully, one needs to:

- understand the range of activities and the associated environmental issues and risks, the principle environmental stakeholders and their needs, and the given current environmental performance,
- plan and organize the response,
- implement programs and procedures to improve performance,
- establish control mechanisms (e.g. auditing and quality control) to check that systems are in place and functioning effectively and efficiently, and
- to measure and communicate actual environmental performance.

This approach is presented graphically in *Figure 2*. Applying it can lead to significant improvements in environmental performance as well as a range of associated benefits, as shown in *Figure 3*.

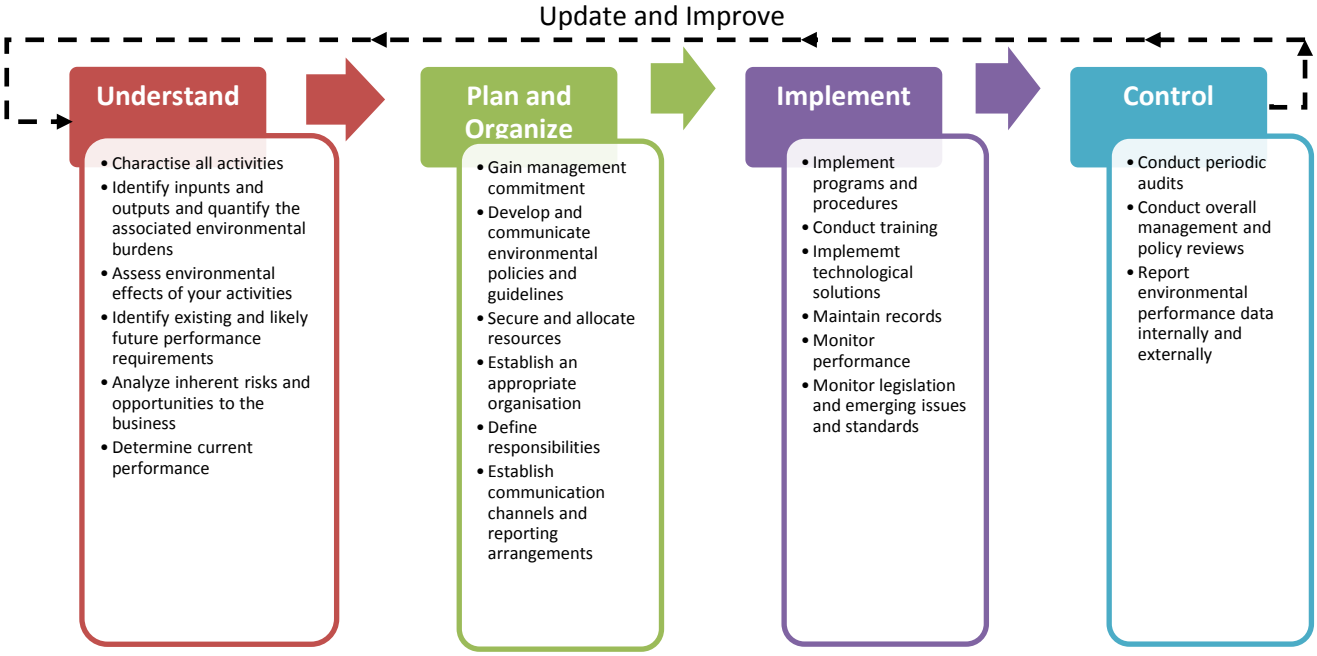

Figure 2: Basic Approach for Improving a Company's Environmental Performance

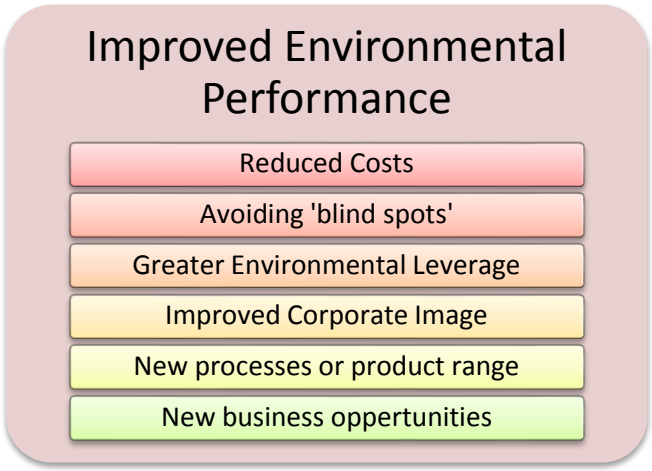

Figure 3: Benefits of Developing Effective Environmental Management

Source: Bragg, S., Knapp, P. and McLean, R. (1994)

4.1.1 Understanding activities and performance

In agreement with Bragg, Knapp and McLean (1994), the first stage in any effective long term strategy to improve performance is to understand the current situation. This will enable one to develop an appropriate and successful plan of improvement. It is one of the most critical tasks in the approach to environmental management. It involves a number of steps summarized in *Figure 4*.

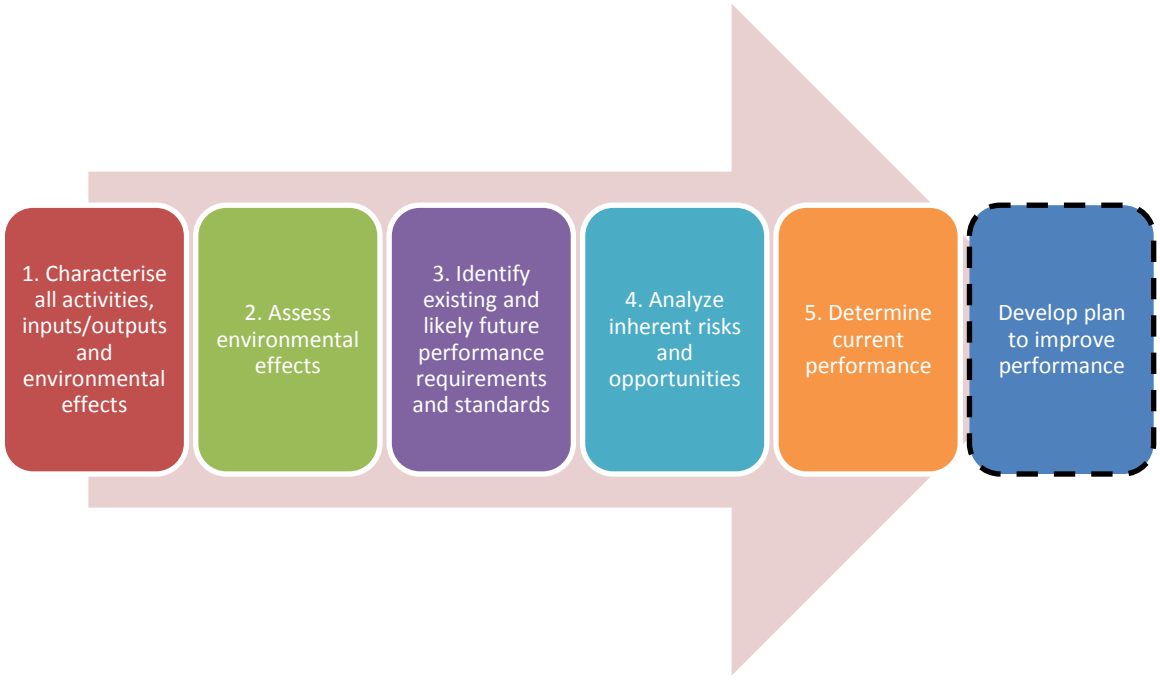

Figure 4: Steps in understanding activities and Environmental Performance

Step 1: Characterising all activities, Inputs/Outputs and Environmental Effects

This step involves identifying past, current and planned business activities that have or could have an effect on the environment. The complete lifecycle needs to be considered as well as the inputs and outputs of each stage that could be causing an environmental effect. At a given stage in the product life cycle, resources such as raw materials, energy and water may be used and water effluents, air emissions, and solid and hazardous wastes emitted into the environment. Such inputs and outputs represent the burden placed on the environment. Where burdens cannot be measured directly, estimates may be made using process data or mass balances.

Step 2: Assessing Environmental Effects

Once environmental burdens and their potential effects have been identified, one needs to make a judgment about their impact on the environment. It would be costly and unrealistic to reduce all potential environmental effects, so one should prioritize them, based on how significant the effect is. Significance depends on the existence of:

- regulatory and other requirements governing burdens (e.g. Carbon dioxide - CO2),
- regulatory and other requirements governing quality of the environment (e.g. air quality standards),
- scientific evidence (e.g. Sulfur dioxide - SO2 is known to cause acid rain), and
- public perceptions of the environmental effect.

Step 3: Identifying Existing and Likely Future Performance Requirements

Knowing which performance requirements need to be met is a key part of the initial review process. This may include:

- regulatory requirements, including national and regional laws as well as regulatory permits, consents and authorizations at local level, and
- the company's own internal standards. These are driven by the nature of the business and may exist at corporate level and at site or activity level.

Step 4: Analyzing Inherent Risks and Opportunities

The inherent risks or opportunities to the business can be determined by considering:

- likelihood of occurrence and threat of regulatory action,
- financial implications, for example:
    - fines, increased capital expenditure, and
    - savings through waste reduction and better environmental planning,

- significance of the effect on the environment, for example:
    - importance of targets affected,
    - scale of damage, and
    - longevity of impact,
- public and business community reaction, and
- competitive positioning for example:
    - identification of emerging issues, and
    - development of proactive management and performance reporting.

Step 5: Determining Current Performance

This step involves determining how well management is performing in terms of:

- environmental burdens and effects associated with activities with regard to meeting existing performance requirements and
- recognized environmental management practices.

5. Approach

The approach will include the strategy followed in order to reach the objectives previously defined in the Problem Statement such as:

- conducting the research needed to reach the objectives of the project include accessing:
    - University of Pretoria's Library,
    - World Wide Web,
    - Safcor Panilpina's documents, and
    - industry professionals,
- methods used to gather findings include the use of:
    - process mapping using Microsoft Office Visio (2010),
    - best practices (International Organization for Standardization - ISO),
    - Supply- Chain Operations Reference Model (SCOR),
    - literature,
    - surveys,
    - interviews,
    - observations, and
    - Environmental Performance Evaluation created by P.Ncube (2007).
- results will be presented using visual diagrams, tables and percentages.

6. Process Lay-out

The De-Group process was observed and documented in Figure 5. This process lay-out illustrates the overall process flow, and does display detail of process elements.

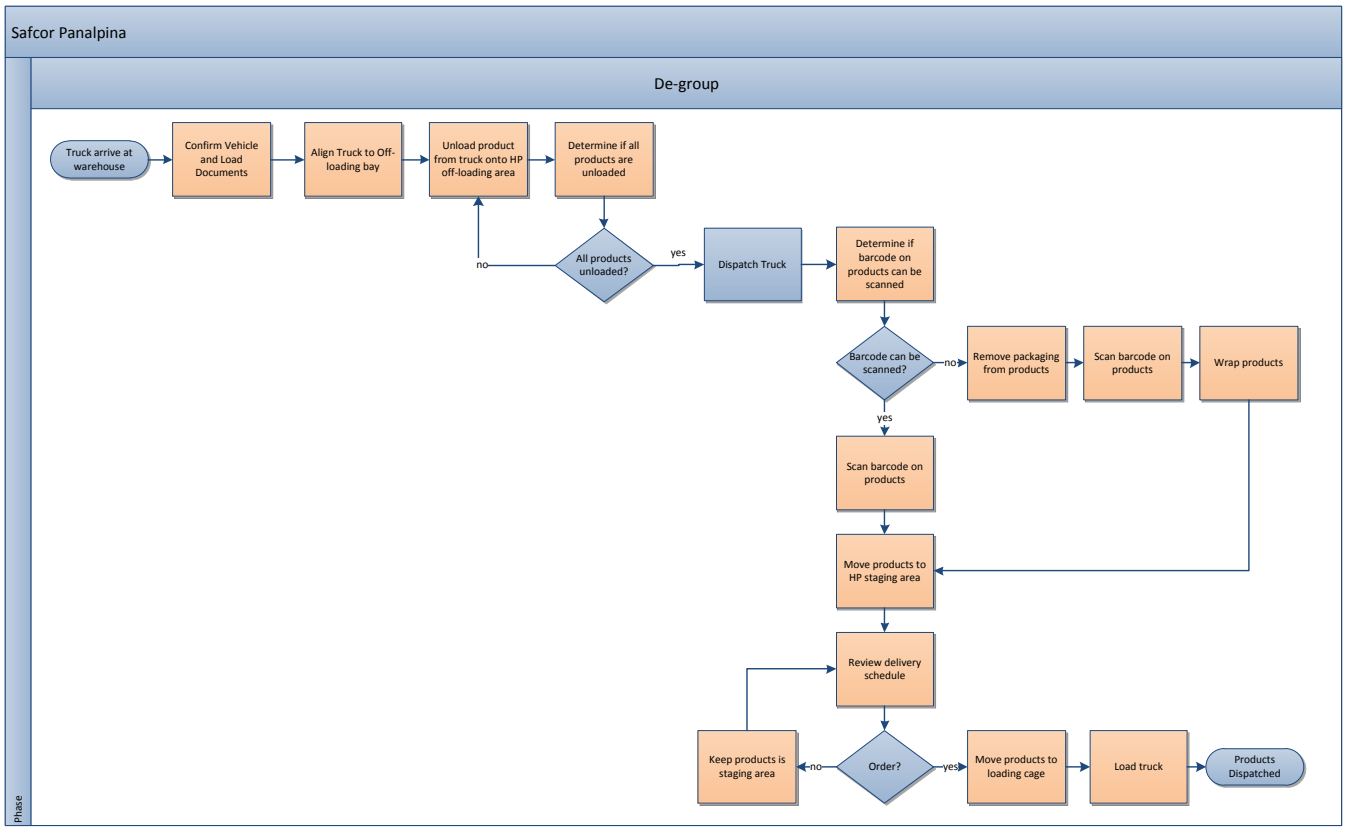

Figure 5: De-Group Process Layout

7. Environmental Policy

7.1 Environmental Policy Standard according to ISO 14001

Jackson, S. (1996) states that an organization defines the scope of its Environmental Management System (EMS). This section of ISO 14001 requires a policy for that defined organization. Many large and medium – sized companies have multiple environmental policies: corporate level, business level, and site or facility level. In this case, the policy of interest is the one that reflects the defined scope of the EMS. That policy should be consistent with any policies above it.

ISO 14001 Requirements*

ISO 14001, section 4.2, Environmental Policy, requires the following:

Top management shall define the organization's environmental policy and ensure that it

a) is appropriate to the nature, scale and environmental impacts of its activities, products or services,
b) includes a commitment to continual improvement and prevention of pollution,
c) includes a commitment to comply with relevant environmental legislation, regulations and other requirements to which the organization subscribes,
d) provides the framework for setting and reviewing environmental objectives and targets,
e) is documented, implemented, maintained and communicated to all employees, and
f) is available to the public.

The detailed requirements for setting objectives and targets are covered in clause 4.3.3 of ISO 14001. There should be a logical link between the environmental policy and these goals in order to translate them into specific targets and/ or activities.

ISO 14001 Requirements*

ISO 14001, section 4.3.3, Objectives and Targets, requires the following:

> The organization shall establish and maintain documented environmental objectives and targets, at each relevant function and level within the organization.
>
> When establishing and reviewing its objectives, an organization shall consider the legal and other requirements, its significant environmental aspects, its technological options and its financial, operational and business requirements, and the views of interested parties.
>
> The objectives and targets shall be consistent with the environmental policy, including the commitment to prevention of pollution.

A policy has no value if it is not used, kept up to date, and maintained as a meaningful part of the management system of the organization.

7.2 Safcor Panalpina Environmental Policy

Safcor Panalpina is part of the Bidfreight division within the Bidvest company. This partnership requires Safcor to adhere to Bidvest's Environmental Policy. Safcor Panalpina's environmental policy can be viewed in Appendix B. Listed below are the environmental responsibilities that Safcor Panalpina commits to:

- Adhere to or exceed environmental regulations relevant to its operations internationally.
- Identify, mitigate and manage the environmental impacts and risks of its products and services.
- Optimise consumption of raw materials and energy, and minimise waste through applying a 'reduce, re-use, recycle' philosophy.
- Work in partnership with its suppliers, customers and other relevant business partners, within its sphere of influence, to redesign and reduce the environmental impact of products, services and other business activities.
- Unlock the creative potential for sustainable solutions by working with employees to embed an environmental consciousness throughout the organisation.
- Include environmental considerations in its business decisions.
- Work with its appropriate government departments, civil society groups and other stakeholders to identify and resolve environmental issues relevant to Safcor Panalpina.
- Set measurable targets and timelines.

Studying the established responsibilities and current De-grouping process, it can be determined whether there are specific targets and/objectives to reach environmental goals in terms of specific process elements.

8. Environmental Performance Evaluation

To draw meaningful conclusions, a rating system based on environmental performance criteria is relied upon. This approach follows the methodology used by the Massey University Centre for Business and Sustainable Development in New Zealand, to assess the environmental performance of companies. The New Zealand methodology is based on the UK Environmental Index for Business engagement. According to the Centre for Business and Sustainable Development (2005:4) the Index is the UK's pre-eminent benchmarking tool and is highly regarded by analysts as well as businesses for its integrity and usefulness. This fact is attested to by Skillus and Wenneberg (1998), who note that such an index is used to test how companies have equipped themselves with tools to minimize their impact on the environment.

As determined by Ncube, P. (2007), the criteria consists of six measurable attributes adapted for the purpose of this project (see Appendix A). This criteria bears a resemblance to the contents of ISO 14001 and has been specifically developed for its ability to be applied across numerous corporate sectors that reflect the diverse range of companies making up South Africa's top companies. This criterion is used to analyse companies that provide for (and have):

- leadership and commitment to addressing environmental issues through appropriate allocation of responsibilities and development of policies and objectives,
- the measurement and management of the impact of such operations on the environment,
- environmental management systems (EMS) linked to defined environmental policy and objectives,
- adequate reporting and communication of their environmental performance,
- implemented environmental/ product stewardship programs/ approaches, and
- allocated budget/committed financial resources to deal with environmental issues.

Each criterion is supported by a number of sub criteria to provide additional meaning and balance to the main criteria. Performance against each criterion was rated between 0 – 4 (0= poor; 4= excellent) and then weighted to ensure that each aspect measured is linked to the aggregate performance as determined by the total scores. It is important to emphasize that the criterion is not exhaustive but is designed to provide insight into particular critical aspects of each company's responsiveness to environmental issues.

P.Ncube states that it is accepted that this approach provides a relatively consistent benchmark for environmental management and performance of all participating companies and that it is comprehensive and all – inclusive, and therefore meets the purpose of this study.

Evaluation of Safcor Panalpina against these criterion yields a conformance percentage of 38.04%. It is apparent that there are numerous opportunities for improvement. This percentage is an indication of a case where an environmental policy exists, with no indication of successful execution. This identifies Safcor Panalpina as a "concerned citizen" and not "pro-active" in the stages of responsiveness to environmental issues tabulated in Table 1.

9. Gap Analysis and Recommendations

Observations and interviews were conducted to determine the current status of process elements as well as how tasks are completed. Analyses of elements indicate several areas that can be improved upon. Process elements that require change are stipulated below, with recommendations on how environmental performance can be improved, accompanied by advantages as a result of the improvement. Consequently this section addresses the first objective stating that environmental goals should be translated into specific targets and/ or activities and ranked according to importance.

Process elements include:

	Process Element	Gap	Recommendation	Advantages
1	Procurement of Transporters	Procurement is based on costs associated with services	Create a Transporter Assessment Sheet that addresses criteria applicable to elements in the transportation process that influence the environment.	Competitive advantage in terms of marketing the company as using only the most environmental friendly transporters.
			Use comparative analysis of Transporter Performance in sourcing decisions.	Improving Safcor Panalpina's carbon footprint in terms of Scope 3 & decreasing Carbon Tax paid.
				Suppliers are evaluated, selected and qualified with criteria matched to business requirements and competitive needs given that environmental goals and competitive needs will need to be redefined to include environmental elements.
2	Electricity Usage	Light usage is uncontrolled. The automatic day-night switch is bypassed during the day by unauthorized staff, resulting in electricity wastage.	Continuously ensure that day-night switch is fully functional.	A fully functional day-night switch ensures adequate lighting when required.
			Cover light switches with a lockable box, with exclusive access to the warehouse manager only.	Restricted access through the warehouse manager will eliminate unnecessary use of electricity – leading to a decrease in the electricity bill as well as the Scope 2 value of the carbon footprint figure.
3	Electricity Resource	No electricity is self-generated.	Install solar panels to generate electricity.	Decrease in the Scope 2 value contributing to the carbon footprint figure.
4	Packaging Wastage	Packaging is removed from the products on pallets	Integrate an Environmental Management System (EMS) that ensures all pallets arrive with an	Scanning from the barcoded list will prevent staff having to remove and re-apply packaging.

		in order to scan barcodes.	attached A4 paper list identifying stock item's description with its accompanying barcode.	
				Decrease in waste.
5	Packaging Application	Application of packaging is not done according to a specific method. Plastic wrap is over/under applied.	Determine effective method for re-wrapping products, and train employees in the execution there of.	Prevention of wrapping resulting in over use of plastic or damage to products due to the lack thereof.
6	Material Disposal	Material removed from products is placed aside in an unmarked area or bin. No specification is given to the contents of bins or action to be taken on contents.	Allocate marked areas/containers for material that is to be recycled, re-used or given to employees etc.	Material is sorted according to material type.
				No risk of losing re-usable material to recycling.
				No re-sorting of materials for recycling purposes.
7	Packaging material for recycling	Employees are allowed to take any recycle material for personal use.	Train employees on the methods and importance of recycling.	Although employees are re-using the material that is to be recycled, this will ensure that they in turn properly dispose of the re-used material. Giving this information to employees does not directly impact the company's budget, but it does assist the environment.

Source: Supply-Chain Council Technical Development Steering Committee and Project Teams. (2006) Supply-Chain Operations Reference Model (SCOR) Version 8.0.

Process elements and their required changes are ranked according to importance in *Table 3*. Importance is determined by the impact it has on the environment. Impact likelihood ranges from red=large to orange=medium to yellow=small. Avoided best practises as well possible act contraventions are also listed.

Table 3: Process Elements ranked according to importance

Process Elements	Identified Gap s	Impact Likelihood	Best Practice Avoided	Possible Act Contraventions
1. Procurement of Transporters	Restricted Criteria		☑	
2. Electricity Usage	Uncontrolled Usage		☑	
3. Electricity Resource	None generated		☑	
4. Packaging Wastage	Unnecessary Removal		☑	
5. Application of packaging	No method for application		☑	
6. Material Disposal	Unmarked areas and containers		☑	✓
7. Packaging material for recycling	Employees not briefed on recycling			✓

Process elements may not currently be regulated by laws, but the possibility of future regulation does laws are instated. Laws in the National Environmental Management Waste Act that indicate possible future regulations are listed in Appendix C.

10. Structure for measuring environmental performance

The structure for measuring environmental performance will be focused on the De-Grouping process only. Factors within this process that effect the environment will form the criterion for evaluation.

Observation and information of the de-group process provided clear areas that effect the environmental performance of the De-Group process. The criterion is listed and individually weighted according to importance in Appendix D. Criterion includes Transporters, Packaging, Material Handling, and Resources used.

Evaluation will be expressed as a percentage indicating the degree to which the process is performing in terms of the environment. The criteria can expand continuously, as environmental responsibilities or process elements increase.

11. Carbon Tax

The importance of the company's environmental performance improvement is determined not only by the deterioration of natural resources, but also by the impending carbon tax law that is soon to be a reality.

Terence Creamer stated in the mining weekly that South Africa will seek to finalize its carbon tax policy by mid-year and may announce its implementation during the 2012 Budget, despite the absence of a global carbon price or a binding international agreement to deal with the climate changing threat.

South Africa, which produces around 500-million tons of carbon dioxide equivalents (CO_2e) yearly, ranks among the world's 20 biggest emitters of greenhouses gases (GHG). During the Copenhagen climate negotiations of 2009, the country voluntarily announced that it would move to reduce domestic GHG emissions by 34% by 2020 and by 42% by 2025 from a "business as usual" baseline, subject to the availability of adequate financial, technological and other support. The National Treasury favours a direct tax on carbon emissions, which it says will "impose the lowest distortion" on the economy and the discussion document argues that a tax of R75/t CO_2e, increasing to around R200/t CO_2e "would be both feasible and appropriate to achieve the desired behavioural changes and emission reduction targets".

Head of tax policy Cecil Morden refused to be drawn into how much revenue would be collected through the imposition of the new tax, saying only that the National Treasury would only make such calculations once the scheme had been fully designed and modelled. In a recent exercise, Deloitte calculated that government could collect an additional R82.5-billion, based on a price of R165/t of CO_2e.

But Morden warned that South Africa could not afford to adopt a wait-and-see approach, notwithstanding the lack of progress on reaching a globally binding accord. He also cautioned that a number of countries were already considering border tax adjustment policies, which could result in the imposition of taxes on products imported from countries not participating in global emissions reduction agreements.

The South-African National Energy Association (SANEA) also states that South Africa hopes the taxes will influence behaviour among consumers and industries, including Eskom and Sasol, which are among the country's top emitters.

12. Conclusion

Evaluation of Safcor Panalpina's environmental performance yields a percentage of 38.48%, presenting them as "concerned citizens" and not as "pro-active". Safcor Panalpina has an environmental policy in place, with no visible signs of implementation. For Safcor Panalpina to reach goals set in the environmental policy, they will have to consider the gap analysis and recommendations suggested in Section 9. Continuous evaluation of these process elements according to the framework indicated in Section 10, will give a real time status report of its environmental performance. Furthermore, a pro-active approach to the environmental aspects of process elements is necessary to minimize the effects that the upcoming carbon tax law will have on the company.

It is not ideal to optimize the environmental performance of the De-Group process in isolation. High environmental performance as well as the implementation of specific environmental initiatives will result in a competitive advantage. However, integration of environmental management in all aspects of the business cycle will not only be a prerequisite for future environmental performance excellence but will also be a condition to stay in business. Companies that do not have systems, resources and programs to prevent for example:

- accidents resulting in environmental damage,
- use of non – recyclable packaging when biodegradable equivalents are available, and
- manufacturing of products that cause more environmental damage than those of competitors

will simply not be able to do business – not because of regulatory action, but because of loss of customer support.

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Appendix A

Rating 0 = no rating; 1 = very poor; 3 = good ; 4 = exceptional	0	1	2	3	4
1. STRATEGIC ENVIRONMENTAL LEADERSHIP AND POLICY	**WEIGHT = 10**				
i) A board member or senior executive has environmental responsibilities					
• Board member/executive responsible for and reports on the environmental performance of the company					✓
• Senior line executive performs environmental and other responsibilities and reports on the environmental performance of their entities					
• Responsibilities form part of senior managers in the company					
• Each division is responsible for own activities					
• No board member/executive or senior personnel allocated responsibility/not clear					
ii) Responsibilities and authority for personnel who manage, perform and verify work affecting the environment defined and documented					
• Responsibility and authority are fully documented and integrated					
• Responsibility and authority are documented with some integration					
• Responsibility and authority are allocated but not fully documented			✓		
• Responsibility and authority are partially identified					
• Responsibility and authority not allocated/ not clear					
iii) **The company has a well-defined/written, documented and implemented corporate environmental policy/statement**					
• Well-defined policy and integrated into the organization's management system					
• Policy stated but seems not to be fully integrated				✓	
• Policy exists/mentioned but not fully defined					
• Statement on responsibilities stated/ Policy is being developed					
• No policy exists/ not clear from information					
2. ENVIRONMENTAL OBJECTIVES, PERFORMANCE TARGETS AND INDICATORS	**WEIGHT = 10**				
i) Objectives and targets throughout the organization					
• Detailed goals and objectives set and continuous measures for progress towards these goals units established					
• Objectives & targets establishes and progress measured in parts of organization					
• Objective & targets established in some parts of the organization			✓		
• Some objectives and targets mentioned for parts/compliance focus only					

•	Objectives not established or stated/ not clear					
ii)	**Indicators linked to targets and objectives**					
•	Indicators developed and fully integrated with operations					
•	Indicators developed for the organization					
•	Indicators developed for parts of the organization			✓		
•	Indicators being developed for the organization/ compliance focus					
•	No indicators have been developed/ not clear					
iii)	**Measuring the company's direct and indirect environmental impact**					
•	Performance measured against all of the above and improvement trends established					
•	Performance measured against most and trends established against some of them					
•	Performance measured against less than 50% of the above and trends established					
•	Some form of performance measures mentioned/ being developed					
•	No performance measures established/ not clear	✓				
3.	**ENVIRONMENTAL MANAGEMENT SYSTEM (EMS) LINKED TO POLICY & OBJECTIVES**	**WEIGHT = 5**				
•	EMS established for all processes and is certified to ISO 14001 or equivalent and has external independent annual audits and measures performance towards objectives					
•	EMS established, is certified with no external audits					
•	EMS established in part of company					
•	EMS is being developed and systems will be put in place once it is complete		✓			
•	No EMS being developed or contemplated/ not clear					
4.	**REPORTING/COMMUNICATING ENVIRONMENTAL PERFORMANCE**	**WEIGHT = 10**				
i)	**Communication environmental performance to stakeholders**					
•	The company accurately reports on the environmental impact of all of its activities, compares its current environmental performance with its performance in previous reporting years and its report is part of/ separate from its annual report, as well as accepts feedback from stakeholders					
•	Report as above but with no feedback provided for					
•	Report as above but with no feedback and comparative assessment provided					

•	Some form of environmental or related reporting provided for		✓			
•	No form or report provided					
ii)	**Internal Communication procedures**					
•	Communication procedures and training demonstratively affective and responsibilities established					
•	Communication procedures in place and working, awareness established					
•	Communication procedures established					
•	Some communication procedures exist/ being established		✓			
•	Communication procedures not yet developed					
iii)	**Internal environmental audit process in the company**					
•	Internal environmental audit process in place corporate-wide with external verification					
•	Internal environmental audit process partly in place in more than 50% of the company with external verification					
•	Internal environmental audit process partly in place in less than 50% of the company					
•	Internal environmental audit process being developed		✓			
•	No audit process established					
5.	**PRODUCT STEWARDSHIP**	**WEIGHT = 5**				
i)	**Consideration of the life-cycle environmental impacts of products, processes an services**					
•	Evidence that the company takes environmental responsibility for its processes, products or services throughout their life-cycle and that it considers the environmental and ethical position of other companies with which it invests, forms contracts or forms any type of partnership					
•	Policy in place but implementation not well-documented					
•	Responsibility limited to own products and processes					
•	Policy being developed and is yet to be implemented					
•	No policy or product stewardship/ not clear from report	✓				
ii)	**Environmentally focused supplier program in the company**					
•	Program developed and communicated. It requires all customers and suppliers to demonstrate responsible environmental management and commitment					
•	Program requires more than 50% of customers and suppliers to demonstrate responsible environmental management and commitment					

• Less than 50% of suppliers required to demonstrate responsible environmental management					
• Program limited to certain type of companies only					
• No program or commitment exists/ not clear for report	✓				
6. FINANCIAL COMMITMENTS	**WEIGHT = 5**				
• Increasing and separate budget allocated every year for environmental issues beyond compliance throughout the organization					
• Same amount of budget allocated each year for environmental issues					
• Budget allocated in certain functions towards environmental issues					
• No specific budget allocated but funds sourced as part of CSR or similar		✓			
• No funds allocated/ not clear from report					

Appendix B

ENVIRONMENTAL POLICY

The adoption of responsible environmental business principles and a proactive approach to environmental management are part of sustainable business practices. All corporations, irrespective of their sector, have an impact on the environment and thus need to play a pro-active role in using their spheres of influence to develop economically, environmentally and socially sustainable operations. Safcor Panalpina recognises its responsibilities in this regard.

Safcor Panalpina commits to:

- Adhere to or exceed environmental regulations relevant to its operations internationally.
- Identify, mitigate and manage the environmental impacts and risks of its products and services.
- Optimise consumption of raw materials and energy, and minimise waste through applying a 'reduce, re-use, recycle' philosophy.
- Work in partnership with its suppliers, customers and other relevant business partners, within its sphere of influence, to redesign and reduce the environmental impact of products, services and other business activities.
- Unlock the creative potential for sustainable solutions by working with employees to embed an environmental consciousness throughout the organisation.
- Include environmental considerations in its business decisions.
- Work with its appropriate government departments, civil society groups and other stakeholders to identify and resolve environmental issues relevant to Safcor Panalpina.
- Set measurable targets and timelines.

Regions and Functions are responsible for staying abreast of environmental best practices relating to their areas of operation and developing innovative solutions to environmental issues. The Safcor Panalpina Environmental Policy is endorsed and supported by the Safcor Panalpina Board and is the responsibility of the Risk Committee. This Committee will oversee the establishment and maintenance of relevant management structures and processes to achieve the objectives of this environmental policy. The policy objectives will be reviewed periodically and, if necessary, updated. The committee will review performance against objectives, which will be reported annually in the Bidvest Sustainability Report.

Appendix C

Part 2
National norms and standards, provincial norms and standards and waste service standards

National norms and standards

7. (1) The Minister must, by notice in the *Gazette*, set national norms and standards for the—

(a) classification of waste;
(b) planning for and provision of waste management services; and
(c) storage, treatment and disposal of waste, including the planning and operation of waste treatment and waste disposal facilities.

(2) The Minister may, by notice in the *Gazette*, set national norms and standards for—

(a) the minimisation, re-use, recycling and recovery of waste, including the separation of waste at the point of generation;
(b) extended producer responsibility;
(c) the regionalisation of waste management services; and
(d) the remediation of contaminated land and soil quality.

Part 2
General duty

General duty in respect of waste management

16. (1) A holder of waste must, within the holder's power, take all reasonable measures to—

(a) avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated;
(b) reduce, re-use, recycle and recover waste;
(c) where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner;
(d) manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour or visual impacts;
(e) prevent any employee or any person under his or her supervision from contravening this Act; and
(f) prevent the waste from being used for an unauthorised purpose.

(2) Any person who sells a product that may be used by the public and that is likely to result in the generation of hazardous waste must take reasonable steps to inform the public of the impact of that waste on health and the environment.

Part 3
Reduction, re-use, recycling and recovery of waste

Reduction, re-use, recycling and recovery of waste

17. (1) Unless otherwise provided for in this Act, any person who undertakes an activity involving the reduction, re-use, recycling or recovery of waste must, before undertaking that activity, ensure that the reduction, re-use, recycling or recovery of the waste—

(a) uses less natural resources than disposal of such waste; and
(b) to the extent that it is possible, is less harmful to the environment than the disposal of such waste.

(2) The Minister may, after consultation with the Minister of Trade and Industry and by notice in the *Gazette*, require any person or category of persons to—

(a) provide for the reduction, re-use, recycling and recovery of products or components of a product manufactured or imported by that person; or
(b) include a determined percentage of recycled material in a product that is produced, imported or manufactured by that person or category of persons.

Part 5
Storage, collection and transportation of waste

General requirements for storage of waste

21. Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that—

(a) the containers in which any waste is stored, are intact and not corroded or in any other way rendered unfit for the safe storage of waste;
(b) adequate measures are taken to prevent accidental spillage or leaking;
(c) the waste cannot be blown away;
(d) nuisances such as odour, visual impacts and breeding of vectors do not arise; and
(e) pollution of the environment and harm to health are prevented.

Storage of general waste

22. (1) Any person who generates general waste that is collected by a municipality must place the waste in a container approved, designated or provided by the municipality for that purpose and in a location approved or authorised by the municipality.

(2) Waste that is reusable, recyclable or recoverable and that is intended to be reduced, re-used, recycled or recovered in accordance with this Act or any applicable by-laws need not be placed in a container contemplated in subsection (1).

Appendix D

Rating 0 = no rating; 1 = very poor; 3 = good ; 4 = exceptional	0	1	2	3	4
1. Transporters	**WEIGHT = 10**				
i) Select suppliers with an active Environmental Management System (EMS)					
• All suppliers have an active EMS.					
• More than 50% of suppliers have an active EMS.					
• Less than 50% of suppliers have an active EMS.					
• Suppliers have an EMS, but it is not active.					
• None of the selected suppliers have an active EMS.					
ii) Select ISO 14001 firms					
• All suppliers are ISO 14001 certified.					
• More than 50% of suppliers are ISO 14001 certified.					
• Less than 50% of suppliers are ISO 14001 certified.					
• In the process of establishing records of ISO 14001 certified suppliers.					
• No record of ISO 14001 certified suppliers.					
iii) Track and compare supplier environmental records					
• Supplier sourcing decisions are based on comparative analysis of supplier performance in terms of tracked environmental records.					
• Supplier sourcing decisions are based on comparative analysis of supplier performance in terms of environmental records.					
• Existing supplier environmental records, but not used in sourcing decisions.					
• In the process to establish environmental records for suppliers.					
• No supplier environmental records.					
iv) Monitor supplier environmental compliance					
• All suppliers have 100% environmental compliance.					
• More than 50% of suppliers attempt or strive towards 100% environmental compliance.					
• Less than 50% of suppliers attempt or strive towards environmental compliance.					
• In the process of monitoring supplier environmental compliance.					
• No monitoring of supplier environmental compliance.					
2. Packaging	**WEIGHT = 5**				
iv) Collaborate with supply chain partners					
• Collaborate with all supply chain partners to optimize product packaging.					
• Collaborate with most supply chain partners to optimize product					

	packaging.					
•	Attempt to collaborate with supply chain partners to optimize product packaging.					
•	Plan to collaborate with supply chain partners to optimize product packaging but not active.					
•	No plans to collaborate with supply chain partners to optimize product packaging.					
v)	**Use/purchase reusable packaging/pallets**					
•	Always use/purchase reusable packaging.					
•	More than 50% of products use reusable packaging.					
•	Less than 50% of products use reusable packaging.					
•	In the process of identifying suitable reusable packaging.					
•	No efforts to use/purchase reusable packaging.					
vi)	**Minimize Packaging**					
•	Effective method for wrapping products, and trained employees for the dedicated execution there off.					
•	Effective method for wrapping products, but not always practiced by trained employees.					
•	Effective method for wrapping products, but employees is not trained in the execution thereof.					
•	In the process of establishing an effective wrapping process.					
•	No effective method					
3.	**Waste**	**WEIGHT = 5**				
i)	**Dedicated/marked areas for waste**					
•	Allocate marked areas/containers for material that is to be recycled, re-used or given to employees etc.					
•	Allocated areas but none are marked accordingly.					
•	In the process of allocating marked areas/containers for material that is to be recycled, re-used or given to employees etc.					
•	A general area dedicated to waste.					
•	No marked areas allocated to material that is to be recycled, re-used or given to employees etc.					
4.	**Energy Efficient Buildings**	**WEIGHT = 10**				
iv)	**Utilize energy efficient lighting & heating systems in warehouse**					
•	Energy efficient lighting & heating is used throughout the warehouse.					
•	Energy efficient lighting & heating is only used in parts of the warehouse.					
•	Energy efficiencies are used but no plan for heating.					
•	In the process of planning the use of energy efficient lighting and heating.					
•	No attempt to use energy efficient lighting or heating in the warehouse.					

5. Product Handling					**WEIGHT = 5**	
iii)	**Minimize Vehicle fuel use**					
•	Product handling executed using optimal routes & consolidated loads.					
•	Implemented protocols for optimal routes & consolidated loads not continuously executed.					
•	Existing protocols for optimal routes and load consolidation, but not fully implemented.					
•	In the process of establishing optimal routes and consolidation protocols.					
•	No optimal routes or consolidation protocols.					
iv)	**Use alternative fuel/high efficiency equipment**					
•	High efficiency and low environmental impact equipment is used					
•	Blended use of high efficiency and alternative fuel equipment is used					
•	Some high efficiency equipment is used					
•	Planning to switch to high efficiency /alternative fuel equipment					
•	No alternative/high efficiency equipment is used					
6. Communicate environmental requirements					**WEIGHT = 5**	
•	Environmental requirements are communicated to all personnel.					
•	Environmental requirements communicated to selected personnel.					
•	Environmental requirements established but not communicated.					
•	In the process of identifying environmental requirements.					
•	No identified environmental requirements.					
7. Pollution Prevention program					**WEIGHT = 5**	
•	All personnel aware and briefed of the pollution prevention program.					
•	Pollution prevention program with limited communication.					
•	Establish pollution prevention program but no execution.					
•	In the process of forming a pollution prevention program.					
•	No pollution prevention program.					
8. Track foreign environmental requirements					**WEIGHT = 5**	
•	End to end logistics chain environmental requirement tracking and a legislation and regulation adherence.					
•	The logistics chain is tracked and legislation is adhered to					
•	Minimum requirements are met in terms of legislation but not all areas are tracked					
•	Only some requirements are met and some areas tracked.					
•	No attempt to track foreign environmental requirements.					
9. Environmental Training					**WEIGHT = 5**	

• All personnel successfully completed environmental training.					
• Environmental training not/partially completed by all most personnel.					
• Environmental training available but not executed.					
• In the process of forming an environmental training program.					
• No environmental training program.					

Appendix E

SCOR 8.0				
Metric ID	**Metric Name**	**pg**	**Best Practices**	**Description/ Definition**
ES.2	**Assess Supplier Performance**	**102**	Supplier Performance Assessment System:	"Assess Supplier Performance" is the process of measuring actual supplier performance against internal and/or external standards, providing feedback to achieve and maintain the performance required to meet the customers' business and/or competitive needs.
ES.7	**Manage Supplier Network**	**111**	Establishment of criteria to rank suppliers	Utilize supplier delivery, quality, price performance as well as any other criteria such and terms and conditions, or environmental standards
SCOR 9.0				
P1.4	**Establish & Communicate Supply-Chain Plans**	**179**	Communicate environmental requirements	Include environmental requirements in communication.
			Collaborate with supply chain partners	Supply chain partners collaborate to improve the environmental performance of the supply chain.
P2	**Plan Source**	**180**	Select Suppliers with EMS	Select suppliers with active EMS systems.
			Track supplier environmental records	Processes to identify suppliers with good environmental records.
			Purchase environmental friendly materials	Purchase environmental friendly materials.
P2.2	**Identify, Asses and Aggregate Product Resources**	**184**	Identify recyclable/Re-usable materials	Identify recyclable/reusable materials.
			Minimize packaging	Work with suppliers to minimize packaging requirements and use re-usable packaging material.
P4	**Plan Deliver**	**194**	Minimize Vehicle fuel use	Plan the use of high efficiency, low emissions, or alternative fuel vehicles where possible.
P4.2	**Identify, Asses and Aggregate Delivery Resources**	**199**	Use Reusable Packaging	Use reusable packaging where possible.

EP6	**Manage Integrated Supply Chain Transportation**	**218**	Consider emissions in transportation decisions	Integrate environmental emissions considerations to transportation decisions.
EP8	**Manage PLAN Regulatory Requirements and Compliance**	**220**	Monitor supplier environmental compliance	Determine supplier environmental compliance performance/ Actively participate in regulation development.
			Environmental Management System (EMS)	Implement an Environmental Management System to track and manage environmental performance and performance against regulatory requirements.
S1.4	**Transfer Product**	**234**	Implement pollution prevention program	Implement rigorous and comprehensive pollution prevention program and include environmentally preferable purchasing.
			Utilize alternative fuel vehicles	Utilize alternative fuel vehicles.
			Utilize high efficiency vehicles	Utilize high fuel efficiency vehicles.
S3.2	**Select Final Suppliers and Negotiate**	**244**	Select ISO 14001 firms	Select firms that are ISO 14001 certified or similar.
ES.2	**Assess Supplier Performance**	**250**	Supplier environmental performance criteria	Develop a set of environmental performance criteria for suppliers.
ES.4	**Manage Product Inventory**	**266**	Utilize Maintenance free batteries	Utilize Maintenance free batteries in warehouse/short haul vehicles.
			Energy efficient buildings	Utilize energy-efficient lighting and heating systems throughout warehouse and production areas.
			Reusable Pallets	Utilize reusable pallets.
ES.8	**Manage Import/ Export Requirements**	**274**	Track foreign environmental requirements	Maintain and manage current foreign environmental regulations.
M3.4	**Produce and Test**	**316**	Provide environmental Training	Provide environmental training to all employees.
EM.6	**Manage Transportation (WIP)**	**333**	Utilize non-wood or recycled pallets	Utilize non-wood or recycled pallets.
D1.3	**Reserve Inventory and Determine Delivery Date**	**347**	Include Environmental Costs	Include environmental costs in inventory carrying costs.
D1.7	**Select Carriers and Rate Shipments**	**352**	Select Carriers with EMS	Select carriers that have adopted an EMS or otherwise demonstrated environmental commitment.
			Select compliant carriers	Select carriers that have not violated environmental laws.