GREENING THE ECONOMY – A CASE STUDY TO IDENTIFY A DIFFERENT APPROACH TO ENCOURAGE SUSTAINABILITY

by

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ABSTRACT

GREENING THE ECONOMY – A CASE STUDY TO IDENTIFY A DIFFERENT APPROACH THAT WILL ENCOURAGE SUSTAINABILITY

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Climate change is a reality. It is evident in the changes in the weather patterns and the consequences thereof. The South African government seems to be committed to sustainability and has a number of market instruments in place to reach the targets that were set at the Kyoto Protocol. However, considerable transformation is needed to change the behaviour of businesses, to green the economy and to encourage sustainability.

This study examined the different market instruments available by the government to promote/enforce sustainability. It came in the form of environmental taxes and incentives. The aim was to understand the mechanism behind these instruments by reviewing other literature. A conclusion was reached that neither would drive the change that is required to address the problem of sustainable behaviour of businesses.

A local listed company was selected and researched to identify ways in which the business uses by-products in a resourceful way that is both good profitability as well as the environment.

The study was extended to a similar foreign company and further innovative ways of greening the economy were identified.

A conclusion was reached that greening the economy can be economically viable as well as sustainable.

KEY WORDS:

Greening the economy

Sustainability

Tax allowances

Tax incentives

OPSOMMING

VERGROENING VAN DIE EKONOMIE – ’N GEVALLESTUDIE OM ’N ANDER BENADERING TE IDENTIFISEER WAT VOLHOUBAARHEID SAL AANMOEDIG

deur

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Klimaatsverandering is ’n werklikheid. Dit is duidelik te sien in die veranderings in die weerspatrone en die gevolge daarvan. Die Suid-Afrikaanse regering blyk toegewyd te wees tot volhoubaarheid van die omgewing en markinstrumente is daargestel om die Kyoto-doelwitte te bereik. Aansienlike transformasie word egter vereis om die optrede van sakebedrywighede te verander, om die ekonomie te vergroen en om volhoubaarheid aan te moedig.

Die studie het die verskillende beskikbare markinstrumente ondersoek wat tot die regering se beskikking is om volhoubaarheid te bevorder/af te dwing. Dit bestaan in die vorm van omgewingsbelastings en -aansporings. Die doelwit was om die meganismes van die instrumente te verstaan deur ander literatuur te raadpleeg. ’n Gevolgtrekking is gemaak dat nie een van die instrumente die nodige verandering tot gevolg sal hê om die volhoubare optrede van sakebedrywighede aan te spreek nie.

’n Gelyste plaaslike maatskappy is gekies en ondersoek om voorbeelde te identifiseer waar sakebedrywighede neweprodukte aanwend wat beide vir die omgewing sowel as die maatskappy se winsgewendheid goed is.

Die studie is uitgebrei na ’n soortgelyke buitelandse maatskappy en verdere innoverende maniere is geïdentifiseer om die ekonomie te vergroen.

'n Gevolgtrekking is bereik dat dit wel moontlik is om die ekonomie te vergroen sowel as om volhoubaar sake te doen.

SLEUTELWOORDE:

Vergroening van die ekonomie

Volhoubaarheid

Belastingaansporings

Belastingtoegewings

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

The environment can be described as the surroundings or conditions in which a person, animal, or plant lives or operates (Johnson, 2012). The environment is a public "good". It belongs to everyone. In order to leave a legacy for future generations, the environment should be properly managed and protected. If not, future generations will be left with an empty shell, an inhabitable earth (Global Humanitarian Report, 2009:ii).

Climate change is an example of such failure as a result of human activity. Parmesan (2012) defines climate change as the change in climate attributed mainly to the combustion of fossil fuels. This causes greenhouse gas (GHG) emissions that alter the composition of the atmosphere beyond the natural variability of climate.

As a result of these GHGs, the earth is getting warmer. "Effects of global warming should be understood clearly to understand the definition of global warming. The effects are catastrophic in nature because as the temperature of the globe rises, rainfall patterns will change and give rise to droughts and floods. The polar ice caps and glaciers will melt, elevating sea levels. This increase in sea levels will amplify the erosion of coastal areas. Increased temperatures will give rise to high humidity levels, thus increasing the incidents of epidemics." (Global Warming Definitions, 2011)

It is evident that something needs be done to ensure the survival of the human race, and the urgency of adopting sustainable business practices is clear.

The government has shown its commitment to this burning issue by introducing a number of market instruments to support the achievement of their environmental objectives: air passenger departure tax, levy on plastic bags, electricity levy, the carbon emission tax on passenger vehicles and various incentives to encourage the saving of energy and to

promote the generation of alternative renewable energy sources (The Income Tax Act No. 58 of 1962) (The Customs and Excise Act of 1964). Innovation with regards to research and development may also be eligible for reward through various research and development incentives (The Income Tax Act No. 58 of 1962). These instruments will be discussed briefly in the literature review in Chapter Two.

The government has provided two market instruments to influence business behaviour: environmental taxes and incentives. Is it possible that there are other resourceful ways, other than those implemented by the government, to utilise finite resources in an economical manner to ensure sustainability for all?

1.2 PROBLEM STATEMENT

Taxes are generally perceived as “punishment”. This perception was tested and proven by Alm and McClellan (2012:8). In a letter to Jean-Baptiste Leroy, Benjamin Franklin (1817) famously wrote: “In this world, nothing can be said to be certain except death and taxes.” With this negative perception businesses are not forthcoming in changing their behaviour to reduce pollution. Additional environmental taxes are charged to consumers, with no positive changes made to the impact that businesses have on the environment.

Incentives, on the other hand, although perceived in a positive light, might be more costly to the government and one would assume, in the long run, that they are not sustainable.

How does one go about changing business practices that will positively affect the environment as well as the bottom line?

1.3 PURPOSE STATEMENT

The main purpose of the study is to identify tools for greening the economy that are not limited to taxes and incentives raised by the government only. Greening the economy translates to being sustainable. To be sustainable one needs to use resources in a responsible way. An example would be to find alternative uses for waste and by-products before sending them to landfills.

Firstly, the study will look at the current taxes and incentives provided by the South African government in a practical scenario.

Secondly, the study will try to identify additional ways that can contribute to sustainable business practices from the case study.

Thirdly, the study will expand to include a similar European international company, so as to identify additional examples that can be applied to the South African environment.

1.4 RESEARCH OBJECTIVES

The study will be guided by the following research objectives:

- The study aims to perform a literature review on the policies and programmes that have been implemented by the government and to examine other studies that have been conducted to identify alternatives to the current approach to greening the economy.
- The study aims to select an international company, listed on the Johannesburg Securities Exchange (JSE) and one that also features on the JSE's Social Responsibility Investment (SRI) Index of 2012; and perform a case study to identify current market instruments and incentives that are being utilised, as well as other initiatives that are being implemented to foster sustainable business practices (also economical) from a South African perspective.
- The study aims to track down the foreign counterpart within the selected group, to identify the business methods applied by the counterpart that could be of use in the South African business setting, resulting in the greening of the economy.

1.6 DELIMITATIONS AND ASSUMPTIONS

1.6.1 Delimitations

The study has several delimitations related to the context, constructs and theoretical perspectives of the study. Firstly, it will be limited to the context of a listed South African company in the paper industry, with a similar foreign counterpart.

Secondly, the study will focus on finding alternatives to promote environmental sustainability in practices.

Finally, the study's literature review will primarily be limited to literature relating to the South African government's perspective on environmental taxes and incentives, and different viewpoints (both local and international) regarding environmental taxes and incentives. Current environmental taxes and incentives legislated in South Africa will only be discussed briefly. The review will not examine the comparison of carbon taxes versus cap and trade market instruments.

1.6.2 Assumptions

The assumptions, on which the study is based, are as follows:

- Global warming is caused by human activity which results in the emission of large amounts of CO_2.
- Environmental taxes and incentives are not the only instruments available to encourage sustainable business practices.
- Business can make use of resources in a more efficient way, which will lead to economic growth.
- The voluntary disclosure of sustainability measures by the JSE in the form of the SRI Index is reliable.

1.7 DEFINITION OF KEY TERMS AND ABBREVIATIONS

Climate change – This refers to the change in weather patterns over decades (http://www.ecolife.com/define/climate-change.html).

Global warming – This is defined as the rise in the temperature of the earth's surface air and oceans (http://www.ecolife.com/define/climate-change.html).

Greenhouse gas – A greenhouse gas (GHG) is a gas that takes up and discharges radiation within the atmosphere (http://www.ecolife.com/define/greenhouse-gas.html).

Kyoto Protocol – This is an international agreement that commits its members by setting internationally binding emission reduction targets (http://unfccc.int/kyoto_protocol/items/2830.php).

Non-annex 1 party – This consists mainly of non-developing countries (http://unfccc.int/parties_and_observers/items/2704.php).

Pigouvian tax – "A special tax that is often levied on companies that pollute the environment or create excess social costs, called negative externalities, through business practices. In a true market economy, a Pigouvian tax is the most efficient and effective way to correct negative externalities." (http://www.investopedia.com/terms/p/pigoviantax.asp)

The following abbreviations were used in the proposal:

Table 1: Abbreviations used in this document

Abbreviation	**Meaning**
BRICS countries	BRICS is a formal grouping of major developing nations, including Brazil, Russia, China and India.
CO_2	Carbon dioxide
CRS	Centre for Resource Solutions
Customs and Excise Act	Customs and Excise Act No 91 of 1964
EU	European Union

EEA	European Environment Agency
FSC	Forest Stewardship Council
GHG	Greenhouse gases
ITA	Income Tax Act No. 58 of 1962
JSE	Johannesburg Security Exchange
UNFCCC	The United Nations Framework Convention on Climate Change
JSE	Johannesburg Security Exchange
SRI Index	Social Responsibility Investment Index
SFPE	Sappi Fine Paper Europe

1.8 RESEARCH DESIGN

The research focuses on finding alternatives to greening the economy. It undertook to gather information about market instruments that are available to promote sustainability from a governmental prospective and how it was applied to a selected company. It further assessed initiatives undertaken by the selected company to promote sustainable business practices.

A company was chosen based on its social responsibility index performance and it was studied in depth. The study is expanded in Chapter Five to compare sustainability practices to a foreign counterpart.

Due to the nature of the research, the research design is in the form of a case study.

1.9 BRIEF OVERVIEW OF CHAPTERS

This mini-dissertation consists of six chapters. Chapter One serves as an introduction to the study. Chapter Two is a literature review which provides a foundation for the current available market instruments that can function as tools to promote sustainable business practices. Chapter Three is a description of the research methodology followed. Chapter Four investigates practical usage of these instruments and identifies other methods to improve sustainability. Chapter Five expands on these methods by investigating a

comparable foreign business. Chapter Six deals with the conclusions reached, based on the case studies performed in chapters Four and Five.

CHAPTER 2

LITERATURE REVIEW

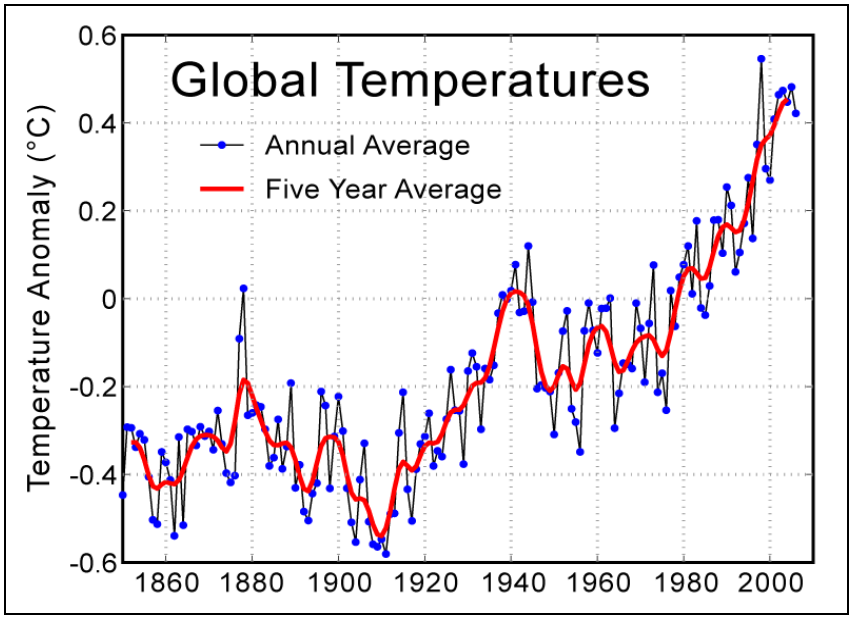
2.1 INTRODUCTION

The environment is a public “good”. It belongs to everyone. In order to leave a legacy for future generations, the environment should be properly managed and protected. If not, future generations will be left with an empty shell, an inhabitable earth (Global Humanitarian Forum, 2009:ii).

An example of such failure due to human activity is climate change. Climate change is defined as the change in climate attributed mainly to the combustion of fossil fuels. This causes GHG emissions, which alter the composition of the atmosphere, beyond the natural variability of climate change (Parmesan, 2012).

As a result of these GHGs, the earth is warming. This phenomenon is known as global warming. Since the mid-20th century, global surface temperature has been on the increase (see Figure 1 below):

Figure 1: Increase of global temperatures over the last century

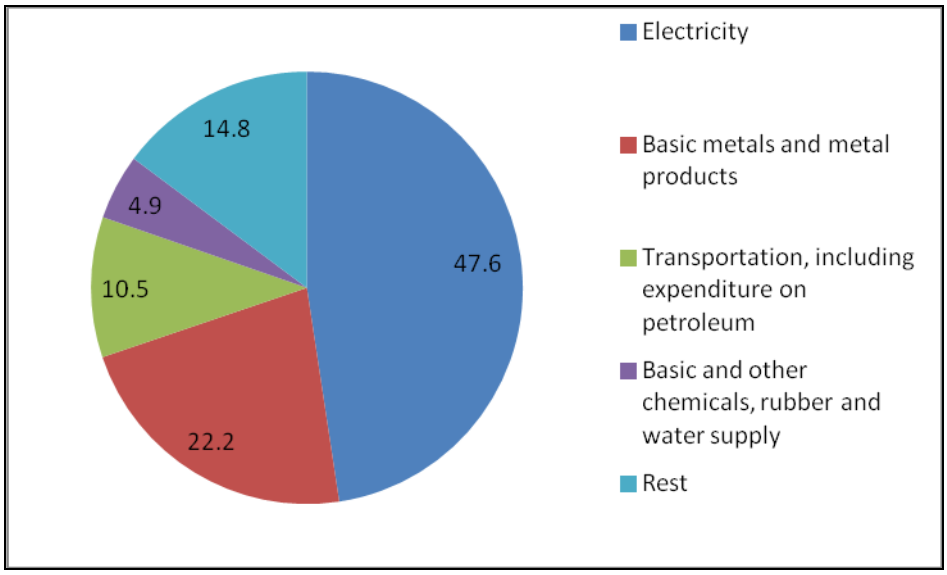


Source: www.globalwarmingdefinition.org/global-warming-definition-a-catrastrophe-for-earth/

The United Nations Framework Convention on Climate Change (UNFCCC) serves as the global corpus to address climate change. "The associated Kyoto Protocol is an international agreement that classifies countries by their level of industrialisation and commits certain countries to GHG emission-reduction targets." (National Treasury, 2010:3)

"South Africa, a non-annex 1 developing country is ranked among the top 20 countries measured by absolute carbon dioxide emissions (CO_2e). The biggest portions of South Africa's emissions are produced by the electricity sector, followed by the metals industry and the transport sector, and can be summarised as follows:

Figure 2: Summary of CO_2 emissions by sector



Source: (National Treasury, 2010:17)

"During the 2009 Copenhagen (Cop 17) climate change negotiations, South Africa voluntarily announced that it would act to reduce domestic GHG emissions by 34 per cent by 2020 and 42 per cent by 2025." (National Treasury, 2010:13)

Government has shown its commitment to these targets "and a more environmentally sustainable economy through a range of policies and programmes" (National Treasury, 2011:10). These will be discussed briefly in the next section.

2.2 CURRENT POLICIES AND PROGRAMMES IN PLACE:

The Income Tax Act No. 58 of 1962 (ITA) contains the following sections that can be seen as tax measures to protect the environment:

- Section 12B of the ITA provides an accelerated wear and tear allowance over a three-year period, on a 50, 30, 20 basis for assets used in the generation of electricity from sunlight, wind, hydro or biomass.

- Section 12D of the ITA provides a deduction of 5% per annum for the costs of lines or cables used in the transmission of electricity.

- Section 12I of the ITA provides incentives that are designed to support Greenfield investments (a new industrial project that utilises only new and unused manufacturing assets), as well as Brownfield investments (expansions or upgrades of existing industrial projects). The incentive offers support for both capital investment and training expenses.

  The capital investment allowances are split between projects with preferred status and those without. The allowances are subject to limits, depending on the type of project and geographical area.

  In order to qualify for these investments, certain efficiency requirements must be met. All projects must be approved by the Minister of Trade and Industry by no later than 31 December 2015.

- Section 12K of the ITA provides relief from income and capital gains tax by the originator of the carbon credit after 11 February 2009. As a result, expenses incurred in producing carbon credits will not be allowed as a deduction for expense purposes.

- Section 12L of the ITA provides a tax deduction for tax payers who are energy efficient. The allowance will apply in the first year that an energy saving is achieved. The deduction is dependent on an “energy efficiency savings certificate”, subject to

regulations issued by the Department of Energy. Deductions will be available until 2020.

It is important to note that the tax incentive is not restricted to electricity use; energy sources like coal, other fossil fuels and diesel also qualify (Moreira. 2012:170).

- Section 37A of the ITA aligns tax policy with environmental regulation. It allows for a tax deduction for expenses incurred to rehabilitate the environment around mining areas.

- Section 37B of the ITA allows for accelerated wear and tear on certain permanent environmental capital expenditures related to manufacturing.

- Section 37C of the ITA allows a deduction of 10% of the lesser of the cost or market value of land declared a national park or nature reserve in terms of an agreement under Section 20(3) or 23(3) of the National Environmental Management: Protected Areas Act (57/2003) if the declaration is endorsed in the title deed of the land for a duration of at least 99 years.

The government also introduced environmental levies that could be seen as “deemed taxes”. A deemed tax is a tax disguised as a levy.

These deemed taxes are levied in terms of the Customs and Excise Act No 91 of 1964 (the Customs and Excise Act):

- An electricity levy levied on electricity generated from non-renewable and nuclear energy sources. The levy does not apply to electricity generated from renewable resources (SARS; 2009:2).

  Section 54FA.01 of the Customs and Excise Act has been implemented with effect from 1 July 2009, to make provision for the following:

  - Electricity producers who generate electricity from non-renewable sources in an electricity generation plant with an installed capacity exceeding 3 megawatt (MW), but not exceeding 5 MW, must register with the Commissioner.

- Electricity producers who generate electricity from non-renewable sources in an electricity generation plant with an installed capacity exceeding 5 MW must license a Customs and Excise manufacturing warehouse."

Before companies can start producing or generating electricity from non-renewable sources, they must register with SARS Excise and obtain a license. Producers must self-asses and pay over the excise duty on a monthly basis. Levies are stipulated in schedule 3B in the tariff book (SARS[a], 2012).

- Section 54FB of the Customs and Excise Act levies a motor vehicle emissions tax on the quantity of CO_2 gases emitted by a vehicle that exceeds 120g/km plus value-added tax with effect from September 2010. An additional tax is charged if the baseline is exceeded (SARS[b], 2010:3).

  The levy is payable by the manufacturers of these vehicles in South Africa. "Relevant entities in the RSA must license with SARS excise before they start to manufacture or otherwise deal in motor vehicles on which the applicable levies have not been paid." Manufacturers must self-asses and pay over the excise duty on a quarterly basis. Levies are stipulated in part 3D of Schedule No.1 of the Customs Tariff Book (SARS[c], 2012). In practice, the levy is charged to the consumer.

- Section 54A and B of the Customs and Excise Act imposes the levy on plastic bags. It is raised with the intention to set up a national recycling programme, which would both clean up the environment and create thousands of jobs in the recycling industry. Manufactures must register with SARS before producing or selling plastic bags on which applicable levies have not been paid. Manufacturers must self-asses and pay over the excise duty on a quarterly basis. Levies are stipulated in part 3A of Schedule No.1 of the Customs Tariff Book (SARS[d], 2012).

  In practice, the levy is charged to the customer. Due to pressure from plastic bag manufacturers, the fixed charge of the bags was reduced by 44% in 2005. Additionally, the fixed pricing fell away and it is left to the retailers to determine their own charge per bag, which now varies from retailer to retailer (Blaine, 2012).

Carrier bags, with certain exceptions, manufactured “in the Republic are restricted to bags with a thickness of more than 24 microns and which comply with SABS printing requirements” (SARS[e]. 2010:7).

A Section 21 company called Buyisa-e-bag was formed in 2005 as a vehicle to facilitate the plastic bag levy collections, as well as job creations. However, due to a legal technicality it had to be dissolved in 2011. The company collected R65 million over the period, but no benefit was reported. Currently, plastic bag levies that are collected go in the Fiscas in the general “pool” without accomplishing the intended function (Blaine, 2012).

Dikgang, Leiman and Visser (2010:1) found that based on the steady increase in the demand for plastic bags, the policy failed partially. The imposed levy is too low to achieve long-term reduction.

- Section 47B of the Customs and Excise Act outlines an international air passenger departure tax charged to air passenger departure on flights to Southern African Customs Union member states and other international destinations (SARS[f], 2012:4).

- A levy is charged on electric filament lamps (non-energy-saving light bulbs) if used in the Republic of South Africa (RSA). The levy is payable by the manufacturers of these products in South Africa. These manufactures must register with SARS excise. Manufacturers must self-asses and pay over the excise duty on a monthly basis. Levies are stipulated in Schedule 3C of the Customs Tariff Book (SARS[g], 2011:7)

2.3 HOW DOES ONE APPROACH THE PROBLEM OF SUSTAINABILITY?

It is evident that certain measures are required to encourage and promote sustainable business practices. However, how does one quantify harm done to the environment due to human activity when the extent of the harm is uncertain and possibly irreversible?

Weisbach (2012:453) addressed the timing of environmental taxes. Should it be imposed earlier and/or at a higher rate when there is still uncertainty about the reversibility of the harm to the environment, or later to allow society to learn about the extent of the harm, before regulating these taxes? The problem was converted into a complex mathematical formula, but will not be discussed or disclosed.

Based on the outcome of the above formula, the writer concluded that "environmental taxes should be set equal to the anticipated expected marginal harm from pollution given the data currently available and should not be raised or lowered." (Weisbach, 2012:470)

Weisbach's major contribution was quantifying environmental taxes, thereby confirming/supporting raising a tax in order to reduce the effect on the environment (Weisbach, 2012:470).

Which is better, to tax or to incentivise? Let us take a closer look at the workings of market instruments as tools to encourage a "more environmentally sustainable economy" as well as other additional instruments identified by other studies.

2.3.1 Environmental taxes as a tool

The primary objective of an environmental tax is to encourage environmentally positive behaviour change by charging a predetermined amount based on consumption. These taxes are normally structured in relation to objectives set by the government.

One such environmental tax is carbon emissions tax. There has been much hype in the press about it since the government instructed National Treasury to draft a discussion paper on the matter (National Treasury, 2010). National Treasury released an updated policy paper on 2 May 2013 and requested final comments on the carbon tax policy (National Treasury, 2013).

Carbon emission tax is a tax levied on the carbon content of energy products. It aims to reduce GHGs by pricing it directly. It is a type of Pigouvian tax. Arthur Pigou developed the rationale for environmental taxation during the first half of the 20th century. "A carbon tax is

one way in which external costs (carbon dioxide) can be internalised into consumption and production decision" (National Treasury, 2010:5). A carbon emission tax is a tool to hold large industries accountable by taxing the amount of emissions the corporation produces (Karrapan, 2010:6).

The biggest portion of South Africa's carbon emissions is produced by the electricity sector, as was demonstrated in Figure 2. "The South African economy is energy intensive, with fossil fuels accounting for more than 90 per cent of the primary energy demand." (National Treasury, 2010:16)

South Africa, as a developing country, is not tied to carbon emission reduction targets set in the Kyoto Protocol. However, due to the burning issue of global warming and other countries introducing green taxes, the lack of green taxes might be seen as a form of industrial subsidy by the South African government, and it could influence exports negatively (Laage, 2010:4). The playfield must be levelled in order to stay competitive in the international market.

The Minister of Finance, Pravin Gordon, announced in the 2013 budget speech that a carbon emissions tax of R120 per ton of CO_2 will be introduced in January 2015. The initial carbon emissions tax is set relatively low and will rise significantly over the next five to ten years and beyond (National Treasury, 2013).

Which businesses will be affected? "The Carbon Disclosure Project (CDP) is a voluntary international initiative in which companies can participate by submitting annual reports on their emissions profile." Table 2 summarises the carbon emissions estimate per firm, as disclosed in the CDP 2010. The list is limited to the top ten emitters.

Table 2: Top 10 CO_2 emitters

Company	tCO_2e
ESKOM	224,700,000
Sasol	61,678,000
BHP Biliton	21,355,000
Arcelor Mittal SA	10,730,360
Anglo American	8,850,000

Company	tCO_2e
Pretoria Portland Cement Company	5,129,030
Sappi	4,778,698
Mondi	4,420,810
SAB Miller	1,449,442
Gold Fields	1,308,764

Source: National Treasury (2010:36)

One of the biggest concerns of the proposed carbon emissions tax is the rise in the cost of electricity. South Africa's only electricity supplier, Eskom, is reliant on coal to produce electricity. The CDP 2010 estimated Eskom's CO_2e at 224,700,000. This will bring Eskom's liability to R26 billion. In 2012, Eskom published profits of R13.2billion (Donnely, 2012). No further comments are necessary to explain the dire situation.

2.3.2 Environmental incentives as a tool

An incentive is the opposite of a tax. Its purpose is to motivate or incite (Oxford, 1990). As was discussed earlier in the study, there are a number of tax incentives in place to encourage implementing energy-efficient technology. The World Resources Institute confirmed effectiveness of tax incentives to drive the development of renewable energy technologies (Nortje, 2010:10)

Nortje (2010) tried to establish whether renewable energy incentives identified by The Centre for Resource Solutions (CRS) might be relevant to the South African scenario. The CRS, situated in the United States of America, "performed a study on tax for renewable energy and found that tax incentives are effective, powerful and highly flexible instruments to encourage the development of renewable energy". Various types of tax incentives as well as guidelines were identified in the study done by CRS, which Nortje found could be applied to the South African scenario.

2.3.3 A comparison between taxes and incentives – is one better than the other?

Taking a step back, there are a variety of environmental taxes and environmental incentives already implemented or implementable in the South African scenario. Is one better or more effective than the other in changing the behaviour of big businesses?

Taxes are normally perceived in a negative light, as an obstacle to doing business. This perception was tested and proven in a study done by Alm and McClellan (2012:8).

The environmental taxes already legislated in South Africa, discussed under “deemed taxes” as well as the proposed carbon emissions tax (to be introduced in 2015), will in most cases be charged onto the consumer (Styan, 2010, Van der Merwe, 2010). One would have to ask whether companies would in fact change their production and consumption patterns if these additional taxes were passed onto the consumers. Additional taxes will effect income distribution and international industrial competitiveness.

Another big concern regarding environmental taxes is what the taxes collected will be used for. Will the government channel the money to the research and design of energy-efficient technologies? Or will the government use the revenue collected in other ways? An example of this problem is the revenue collected on the plastic bag taxes. According to Styan (2010), Treasury raked in about R360 million between 2004 and 2009 – of that only R65 million will be used for environmentally friendly projects.

Interestingly, a different conclusion was reached by Nakada (2010:561). The paper demonstrated that by introducing environmental taxes, contrary to most research, output growth would increase. Based on the models used in the study, it showed that output growth will decrease in the short run, but by introducing environmental taxes it will promote research and development activities. The benefit of these activities exceeds the short-term losses in the economy. Although the models used in the journal are very technical, the writer definitely added a different perspective to the viewpoint that environmental taxes will negatively affect growth.

If not taxes, do incentives hold the key to changing the behaviour of big businesses? According to a study done by Fredriksson (2001:78), incentives might in fact increase pollution and reduce net revenues. Although the foundation of Fredriksson's study is based on America's political structure (where lobbying groups can influence governments with their contributions), his conclusion is relevant to this case study. In the study, net revenue is defined as "the aggregate pollution tax revenue minus aggregate pollution abatement subsidies (a subsidy on the inputs used for pollution control)". Thus, net revenues will reduce as pollution abatement subsidies increase. The implied increase in pollution relates to tax policy reform in the American political scenario.

Fredriksson does raise the question of funding. Does the South African government have adequate funding available to finance the environmental incentives?
On the positive side, environmental incentives may result in new (green) jobs. "Sectors with green jobs potential include renewable energy, building and construction and natural resource management." (National Treasury, 2011)

2.4 HOW DOES ONE PROMOTE SUSTAINABILITY?

"The pressure is growing for companies to build long-term resilience in their business. The unprecedented debt crisis that has hit many parts of the world has sparked a growing understanding that short-termism can bring an established economic system to breaking point. As some national economies have been brought to their knees in recent months, we are reminded that nature's system is under threat through the depletion of the world's finite natural resources and the rise of greenhouse gas emissions." (Carbon Disclosure Project. 2012:2)

"Environmental taxes refer to taxes intended to promote ecologically sustainable activities via economic incentives" (SARS. 2006:16). Environmental taxes are also referred to as green taxes.

The market instruments already discussed focus on renewable energy. The proposed study wishes to expand on other possible sustainable business practices.

What does sustainability mean? In short, it is the ability to continue an activity in the long run. If the earth's finite resources are used irresponsibly there will not be much left for generations to come. The matter of sustainability by South African companies listed on the JSE is addressed in the King Report.

The King Report places sustainability at the centre of good corporate governance. On request of the Institute of Directors, the King Committee on Corporate Governance issued the King Report on Corporate Governance. Three reports were issued in 1994 (King I), 2002 (King II), and 2009 (King III) (SAICA. 2008).

King I, published in 1994, was the first corporate governance code for South Africa. The objective was to establish "recommended standards of conduct for boards and directors of listed companies, banks, and certain state-owned enterprises. It included not only financial and regulatory aspects, but also advocated an integrated approach that involved all stakeholders". (SAICA. 2006)

The code was revised and renamed King II in 2002. It included new sections on sustainability, the role of the corporate board, and risk management. It became applicable from March 2002. (King, 2002:10)

In the King III report, compiled in 2009, governance, strategy and sustainability were integrated. The code of governance was applicable from March 2010 (King, 2009:11).

Sustainability in the King Report includes reporting of financial information with sustainability issues of social, economic and environmental impacts. The report is referred to as the "triple bottom line".

Although compliance with the King Report is not law, it is a listing requirement by the Johannesburg Stock Exchange to compel listed companies to report on sustainability.

Because of the burning debate around sustainability in the global and particularly the South African context, the JSE launched the Social Responsible Investment Index (SRI) in

May 2004. The ground-breaking initiative has been a driver for increased attention to responsible investment (JSE, not dated).

The King Report urges companies to embrace the triple bottom line practices when doing business, however these practices must be balanced with returns on shareholder investments (JSE, not dated).

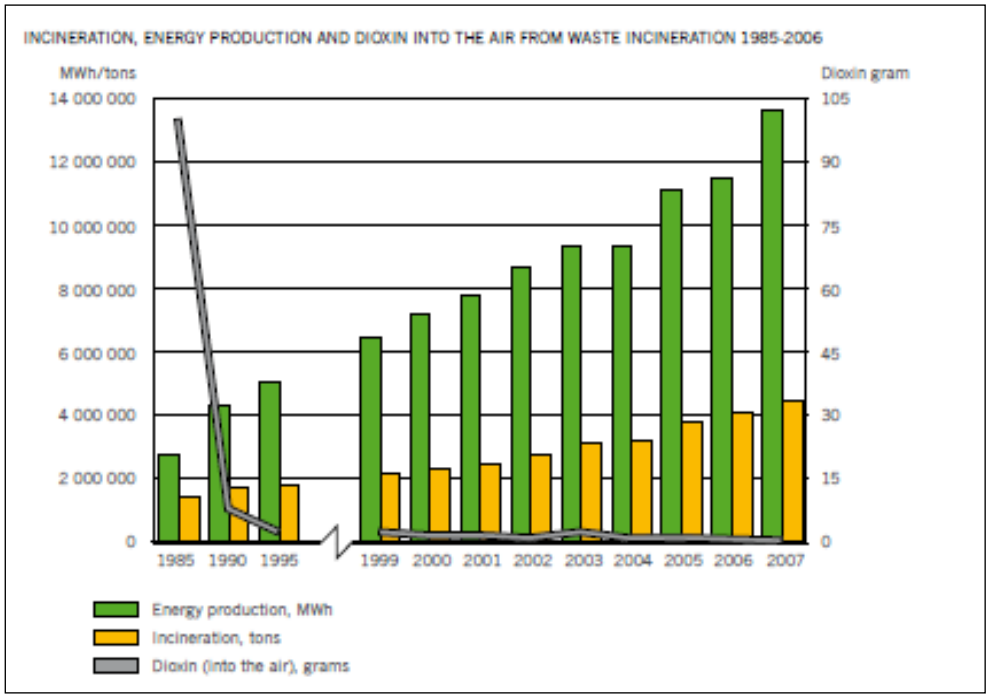
The SRI Index provides guidance on what listed company practices need to encompass as well as a criteria to measure the triple bottom line performance of listed companies. The aim of the SRI Index is to compile an index of those companies that meet the criteria requirements. “It further offers an aspirational sustainability benchmark, recognising those listed companies incorporating sustainability principles into their everyday business practices and to serve as a tool for investors to assess companies on a broader base.” (JSE, not dated)

It seems that from the policies implemented by the government as well as big businesses, South Africans do recognise the need to do more to manage the earth’s resources in a sustainable manner.

2.5 IS IT POSSIBLE? – A PRACTICAL EXAMPLE

A great example of resources used efficiently is the waste-to-energy project in Sweden. “In Sweden, waste is a well-established source of energy. Each Swede produces just over half a ton of household waste every year, the vast majority recovered and or reused, and only four per cent is landfilled. The Swedish waste-to-energy programme is an environmental, financially safe and stable contribution to the country’s energy supply” (Avfall Sverige AB, not dated:3). Putting organic waste into landfills has been forbidden in Sweden since 2005. Waste incineration has largely replaced landfills and emissions of the greenhouse gas methane from landfills have thus fallen dramatically (Avfall Sverige AB. not dated:4). See Figure 3 below:

Figure 3: Summary of incineration, energy production and dioxin into the air from waste incineration 1985-2006



Source: (Avfall Sverige AB, not dated:5)

A significant part of Europe's energy needs is serviced by the energy recovery method. (Avfall Sverige AB, not dated:4). "In Sweden alone, waste incineration generates as much energy as 1.1million cubic metres (m^3) of oil, which reduces carbon dioxide (CO_2) emissions by 2.2 million tons per year. This is as much CO_2 as 680,000 petrol-powered cars emit in a year." (Avfall Sverige AB, not dated:4)

"Recovering energy from waste exploits a resource that would otherwise be wasted" (Avfall Sverige AB, not dated:10). The energy is used to produce district heating, electricity and a small amount is used to provide district cooling. In 2007, it produced electricity demands for almost 250,000 normal-sized homes and heating 810,000 homes"(Avfall Sverige AB, not dated:20). Sweden can be seen as the global leader in dealing with recycling waste due to continuous development by municipalities, companies and private players. Sweden has a number of laws and control measures in place to manage the waste field (Avfall Sverige AB. not dated:8).

The European Unions' (EU) aim for waste management is to avoid creating waste at all. Programmes like waste-to-energy will provide the means to do so. The benefits can be

seen in the latest report issued by the European Environment Agency (EEA), a scientific body set up to inform EU policy makers. The report stated that cuts in greenhouse gas emissions have almost reached the 20% target set for 2020. The European Union is very committed to meet its target for renewable energy consumption set by the bloc (EEA. 2013).

2.6 CONCLUSION

The objective of this chapter was to better understand policies and programmes that have been implemented by the government and to examine other studies that have been conducted to identify alternatives to the current approach to the greening of the economy.

It is evident that there is no clear-cut answer on how to resolve the problem of sustainability. The government cannot be held solely responsible for the actions of corporate citizens. Nevertheless, is it evident that innovation and resourcefulness is required to ensure our survival.

CHAPTER 3

RESEARCH DESIGN AND METHODS

3.1 INTRODUCTION

This chapter deals with the research design as well as methods that will be used to obtain the necessary information in order to meet the objectives set out in the onset of the study.

It further outlines the quality and rigour of the research design as well as ethics that was upheld during the study.

3.2 DESCRIPTION OF INQUIRY STRATEGY AND BROAD RESEARCH DESIGN

The philosophy on which the case study was based is as follows:

- Global warming is caused by human activity due to the emitting of large amounts of CO_2.
- Environmental taxes and incentives are not the only instruments available to encourage sustainable business practices.
- Business can make use of resources in a more efficient way that will lead to economic growth.

The research strategy is a qualitative, empirical, exploratory inquiry in the form of a case study.

Qualitative research focuses on phenomena that occur in a natural setting and involve capturing and studying the complexity of the phenomenon (Leedy & Ormond, 2012:140). Empirical research closely links to qualitative research in that it is based on observation and not theory. The study gathered information by means of the observation of policies and practices that have already been implemented.

The research is also exploratory in nature in that it aimed to seek new insights into a phenomenon, asked questions, and assessed it in a new light (Saunders, Lewis &

Thornhill, 2012:670).The researcher aimed to identify resource-efficient alternatives that could lead to new sources of growth and greening the economy, resulting in the sustainability of finite resources.

Saunders *et al* (2012:666) defined a case study as “a research strategy that involves the empirical investigation of a particular contemporary phenomenon within its real-life context, using multiple sources of evidence”.

“Case studies are designed to gain an in-depth understanding of a situation. Case studies are differentiated from other types of research in that they are intensive descriptions and analyses of a single unit or bounded system.” (Merriam. 1998:18)

A case study as a strategy was the most appropriate approach to the research as the researcher observed and analysed a phenomenon that has not been considered before. Due to the unique nature of the topic, a study on a similar topic has not been performed.

3.3 SAMPLING

The forest industry has been receiving a lot of criticism from environmentalists about deforestation and as a result contributing to the global warming phenomenon.

The starting point of the research was to select a listed company, in the paper and pulp industry, from the SRI index, as published by the JSE. The SRI is an independent compilation and is an excellent external source to identify businesses that place high importance on sustainability efforts.

The selected company was studied in depth to firstly identify current tax incentives utilised by the business so as to establish whether current incentives motivate businesses to be green. Secondly, it was studied to identify other sustainability efforts in place that resulted in the company being acknowledged on the SRI.

International companies are ahead of South African companies as developed countries have the monetary capacity to research creative ways to utilise resources more efficiently.

The study examined an international business in the same industry as the selected company to identify useful methods that could apply in the South African environment.

3.4 DATA COLLECTION

The researcher needed the following data sources to conduct the case study:

- tax information on incentives applied in South Africa by elected local company
- environmental polices implemented in South Africa by elected local company
- policies adopted by a foreign company that promote more sustainable usage of resources

The researcher collected extensive data on the events on which the investigation focused by way of personal interviews and analysing of company documents. It entailed extended periods spent on site and regular interaction with the relevant people.

3.5 DATA ANALYSIS

The researcher gathered the data by way of personal interviews and observation of past company documents. Personal interviews included discussions with tax managers, both local and international, of the selected companies.

Collected data was against past financial information to ensure accuracy of data supplied to the researcher.

3.6 ASSESSING AND DEMONSTRATING THE QUALITY AND RIGOUR OF THE PROPOSED RESEARCH DESIGN

The aim of the case study was to encourage sustainable business practices, whether in the form of incentives or other resourceful ways.

Data gathered by way of interview was substantiated by historical actions as well as financial information, ensuring that other researchers revealed the same information.

3.7 RESEARCH ETHICS

The research was based on historical data collected from both a local and international business.

Permission was obtained from management to use data in the case study. Management has been asked to sign an informed consent form. Annexure A contains the consent form that was used in the study. Once data were collected, management reviewed the research to ensure confidential information has not been disclosed.

CHAPTER 4

CASE STUDY BASED ON SAPPI SOUTHERN AFRICA

4.1 INTRODUCTION

Sappi South African (Sappi) was chosen as the case study since the company is listed on the JSE and performed very well on the SRI Index. Sappi trades all over the world, matching the predetermined requirements set out for the study.

Sappi is a global leader in the supply of paper and dissolving wood pulp. It has operations in South Africa, North America and Europe (Sappi, 2011:1).

In this chapter, the focus will be on the South African region. Sappi was formed in South Africa in 1936 to serve consumers with locally produced paper and pulp, and its operations include the following (Sappi, 2011:1):

- Sappi Forests:
  Sappi Forests cater for more than 70% of South Africa's wood requirements from owner and manager timber plantations. These plantations stretch over of 554,000 hectares of land. Sappi's Lomati sawmills supply sawn timber to the construction industry. Sappi harvests 35 million trees and plants 37 million trees each year (Sappi. 2012:3).

- Sappi Specialised Cellulose:
  Dissolving wood pulp, known as cellulose, a product made from wood, is sold to convertors for a wide range of consumer products, such as clothing, cellular phone screens, cellophane wrap for sweets and flowers, pharmaceutical and household products, and make-up such as lipstick. Sappi is the world's largest manufacturer of dissolving wood pulp and most of the production is exported (Sappi. 2012:3).

- Sappi Paper and Paper Packaging:
  This operation includes five paper and pulp mills as well as the Johannesburg-based headquarters. Their portfolio includes the following ranges: containerboard, graphics

and speciality papers, kraft papers, news print, office paper, tissues, security paper and pulp (Sappi. 2012:3).

- Sappi Refibre

  The division recycles post-convertor and post-consumer waste. The business model is designed based on 100% outsourcing of collection of waste paper and paper board products (Sappi. 2012:3).

- Sappi Technology centres

  Sappi has three technology centres. Two are focused on chemical cellulose developments and innovations and on tree breeding and propagation respectively. The third, based at the Innovation Hub in Pretoria, focuses on pulping and bleaching work (Sappi. 2011).

4.2 SAPPI'S SUSTAINABILITY OUTLOOK

Sappi embraces the principles of the triple bottom line as prescribed in the King Report. Prosperity, People and Planet, also known as the 3 P's, describes Sappi's holistic view to sustainability. The key sustainability issues for 2012 for the planet were to:

- mitigate climate change (Sappi. 2012:46),
- promote energy security (Sappi. 2012:48),
- minimise waste (Sappi. 2012:50),
- use water responsibly (Sappi. 2012:52), and
- conserve biodiversity (Sappi. 2012:60).

Numerous accolades were won in 2012 to substantiate Sappi's attitude towards responsible and sustainable business practices (Sappi. 2012:8):

- Recognition as one of the 10 Best Performers on the JSE Socially Responsible Investments (SRI) Index
- Increased disclosure score in the Carbon Disclosure Project to 88% (2011:80%)
- Winning four awards in the PMR Africa Mpumalanga awards (PMR Africa is an established professional market research and risk management company)

- Winning the Corporate Social Investment Leadership Award in the Sunday Times Top 100 Companies Award for Project Grow and the KwaDukuza education initiative
- Sappi's Tugela Mill's gold certificate in the chemical category of a competition organised by the Institute of Waste Management of Southern Africa and provincial regulators
- Nominated in three categories in the Enviropedia Ego-logic Awards

4.3 THE BIG ISSUE: PAPER COMES FROM TREES – HOW CAN THE INDUSTRY BE ENVIRONMETALLY FRIENDLY?

Plants use a process called photosynthesis to convert carbon dioxide (CO_2) into organic compounds essential for their growth, storing carbon and releasing oxygen in the process. This exchange process is vital for the survival of all living beings (Blankenship, Govindjee, Berkowitz, Archie, Portis, Shopes, 2012).

Due to their size, extensive root system and rate of growth, trees absorb a lot more CO_2 than smaller plants. The process of absorbing CO_2 is known as a carbon sink. The increase in demand for responsibly grown timber and harvested commercial timber has led to a significant expansion of commercial forests and plantations across the globe, adding millions of hectares of carbon sink every year (Bormann, Meyer, Schowalter, Hausen, 2012).

4.3.1 How can chopping down trees be good for the environment?

Younger trees convert more CO_2 into oxygen than older trees (Prentice, 2001). Thus by following responsible harvesting practices, foresting adds valuable oxygen to the atmosphere, curbing global warming. Sappi only harvests trees from sustainably managed farms. All wood grown on Sappi-owned, -leased or -managed land is Forest Stewardship Council (FSC) certified. The FSC chain of custody certification helps customers to choose products that contribute to global conservation, community well-being and economic stability (Sappi, not dated:8).

Some interesting facts about Sappi's forests (Sappi, not dated:8):

- While growing and before harvesting, the trees in Sappi's commercial plantations absorb 13 million metric tons of carbon every year. This is roughly equal to the CO_2 produced by 120,000 Boeing 747 flights between London and Johannesburg – or 5% of all commercial aircraft in the world – in a year.
- Sappi plantations release more than eight million tons of life-giving oxygen annually."
- Based on a greenhouse gas inventory calculation process called the Forestry Industry Carbon Assessment Tool (FICAT) co-developed by some of the main pulp and paper industry bodies worldwide, Sappi forests absorb more carbon than what is emitted.

4.4 CURRENT TAX ALLOWANCES UTILISED BY SAPPI

In an interview conducted with Izel van den Heever, Tax Manager of Sappi South Africa on 1 October 2013, she confirmed that the following tax allowances are utilised:

4.4.1 Income Tax

Sappi utilises the following sections, relating to environmental incentives, in terms of the Act:

A number of Sappi mills generate their own electricity with a by-product from the pulping process called black liquor. The equipment used to generate electricity, qualifies for a 50:30:20 write off in terms of Section 12(B) of the Act.

Sappi embarked on a massive capital expansion project, known as Project Go-cell, at its Ngodwana Mill to increase its chemical cellulose output by 210 000 tons per year. It was reported in the publication *Engineering News* on 15 February 2013 that the expansion is valued at $340 million. The expansion qualified Sappi for the additional investment and training allowances in respect of industrial projects granted by Section 12(I) of the Act. S12(I)(2) allows for a deduction in addition to other allowances claimed under other

sections, for instance 11(e) and12(C) Section 11(e) and 12(C) relates to wear and tear on machinery.

The Act limits the additional allowance R900 million in the case of any greenfield project with preferred status, or R550 million in the case of any other greenfield project. Based on the reported capital expenditure, Sappi will qualify for an additional allowance of R550 million in the 2013 tax year.

4.4.2 Customs and Excise Act

In terms of the amendment of rules (DAR/93) of paragraph 54FA.10 of the Customs and Excise Act of 1964, a levy is charged on electricity generated from non-renewable sources. As explained under the black liquor heading below, there are three Sappi mills that produce electricity from steam and they qualify for an exemption of the levy.

4.5 DOWN TO BUSINESS:

Sustainability does not only refer to environmental issues, but also the profitability of the business. The reality is that businesses must find a way to balance the triple bottom line to survive in the long term without doing it at the cost of the environment. Sappi is in business to make money, to supply paper and pulp to customers at a reasonable price in such a manner that is sustainable, both for financial purposes and for the environment.

It has been established that the paper and pulp industry is good for the environment, but based on the numerous accolades received, which initiatives have Sappi undertaken to promote sustainability?

4.5.1 Input:

Fibre, water, energy and chemicals are the key raw materials in pulp and paper manufacturing – fibre being the most important source. Sappi uses wood fibre (timber), bagasse (sugar cane residue) and recovered fibre as input (Sappi[a]. 2011:18).

The benefits of harvesting trees from sustainable forest practices have already been discussed.

Paper produced at Sappi's Stanger Mill in South Africa uses around 60% sugar cane fibre to produce the Triple Green paper range. "The sugar cane fibre, called bagasse, is the remaining fibre after sugar has been extracted from harvested cane" (Sappi[c], 2011). The bagasse is conveniently sourced from surrounding sugar farmers. As a result of the supply being so close, less fuel is used in the manufacturing process. Bagasse is also more energy efficient in comparison to other fibre sources. Bagasse is a renewable source and also removes carbon dioxide from the atmosphere. (Sappi[c]. 2011)

Recovered fibre is used at Sappi's Enstra, Cape Kraft and Re-fibre Mill. Recovered fibre is recycled paper waste. Paper waste can be recycled up to five times (Sappi. 2012:22).

4.5.2 Output:

Sappi managed to reduce the amount of solid waste sent to landfill sites by 18.6% over the last five years (Sappi, not dated:13). The continuing attempt to reduce waste can be contributed to the following on-going projects:

4.5.2.1 Lignosulphates

"Lignosulphates originate from pulping chemicals disposed of through a chemical recovery plant where they are converted into a saleable product for industrial use." (Sappi[a], 2011)

Lignosulphate is a chemical compound frequently used in manufacturing, the construction industry, and even around the house. According to Creamer (2013), lignosulphate is a vital component to the construction process as it reduces the water required by up to 9%, which, in turn, results in improved compressive strength and easier workability of the cement. He further points out that "synthetic counterparts to lignosulphate (derived from renewable raw materials) are derived from non-renewable raw materials, including naphthalene sulfonates, melamine sulfonates and polycarboxolates, with dust-suppression

rival products made from calcium chloride and bitumen" (Creamer. 2003). Lignosulphate is therefore a more sustainable alternative to its synthetic counterparts.

4.5.2.2 Black liquor

"Black liquor is the spent cooking liquor for the pulping process which arises when pulpwood is cooked in a digester, thereby removing lignin, hemicelluloses and other extractives for the wood to free cellulose fibres. The resulting black liquor is an aqueous solution of lignin residues, hemicelluloses, and the inorganic chemicals used in the pulping process. Black liquor contains slightly more than half of the energy content of the wood fed into the digester." (Sappi[b], 2011:18)

In layman's terms, it is the residue that remains after wood is pulped. It is then concentrated in an evaporator and burnt in a recovery boiler to generate electricity and steam, which is required to run the paper mill. This has two advantages. Firstly, burning renewable fuel means no additional carbon is added to the atmosphere. Secondly, the use of black liquor reduces the purchase of fossil energy such as fossil-based power and fuels (Sappi, 2012:13).

In 2012, 40% of Sappi's fuel demand was obtained from renewable fuel, predominantly from black liquor.

4.5.2.3 Refibre business

Sappi's waste paper division is called Sappi Refibre. This division reflects the broad nature of Sappi's commitment to re-use what many classify as waste. The division recycles post-convertor and post-consumer waste. "One of the advantages of recycling paper is that 40% less energy is used to make paper using reclaimed fibre than to use new or virgin fibre, and air emissions are reduced by up to 70%." (Sappi, not dated:19)

Agents, who source used paper from homes, offices, wholesalers and retailers, provide Refibre with the required input (Sappi, 2010).

It is estimated that the paper recycling industry provides over 20 000 informal jobs. Sappi

has a 20% market share in the industry and one can thus reason that Sappi is indirectly responsible for creating and maintaining 4 000 jobs (Sappi, 2010).

Paper produced at Sappi's Enstra Mill in Springs produces the Typek range, which is made of 50% recycled paper waste (Sappi, 2012:3).

Twenty seven per cent of paper sales were recovered in the 2012 financial year (Sappi, 2012:13).

4.5.2.4 Other

- Sappi returns approximately 91.5% of extracted water back into watershed, mostly into the same rivers and lakes from which it was extracted or into agricultural irrigation systems (Sappi, Not dated:13).

- Almost half (45%) of the water requirements from Sappi's Enstra's is sourced from recycled sewerage water (Sappi, 2011:19).

- Sappi also has a tree-farming scheme called Project Grow. It involves buying timber from subsistence farmers who have access to between one and 20 hectares of land. Sappi provides finance up front for input costs and sets it off from proceeds generated from harvest (Sappi, 2012:42).

- Boletus Mushrooms CC, a company based in Amsterdam, is contracted to pick bole (or Porcini) mushrooms in all Sappi pine plantations (Sappi, 2012:43). Plantations provide the perfect environment for the growing of mushrooms as it grows best under a layer of pine needles (Joubert, 2012). The South African crop is highly sought after overseas.

  A percentage of each harvest is donated to the Vusisizwe Nursery Project, a project aimed at promoting entrepreneurial skills (Sappi, 2012:43).

4.6 CONCLUSION

Based on the case study, it seems that the government's market instruments do provide some benefit for big businesses that are committed to sustainability.

However, it seems that substantial long-term change is fostered through resourceful tactics and forward thinking. As much as one would like to think that Sappi implemented all these sustainability business practices due to good corporate citizenship, the bottom line does play an important part.

This chapter aimed to identify alternatives to greening South Africa's economy and it is clear from Sappi's "processes that it is possible.

CHAPTER 5

CASE STUDY BASED ON SAPPI FINE PAPER EUROPE

5.1 INTRODUCTION

“Sappi Fine Paper Europe (SFPE) is the leading European producer of coated fine paper used in premium magazines, catalogues, books and high-end print advertising” (Sappi Europe, 2011). It consist of eight mills based in Finland, Germany, the Netherlands, Austria and the head office located in Austria (Sappi Europe, 2011).

5.2 GREEN INITIATIVES

According to the latest sustainability report, (Sappi Europe, 2011:22) SFPE is committed to reducing waste sent to landfill. This is possible as a result of using by-products and waste in an efficient way, as will be discussed below.

Management is committed to reduce its human footprint and invested a lot of time and effort to find ways to act responsibly towards the environment. It is seen as an investment in the future of the company. (Sappi Europe, 2011:24).

5.2.1 By-products

Biogas – At the Alfeld Mill, biogas, produced during the waste-water treatment, is used to generate energy. This provides energy for 1.2% of the mill’s demand (Sappi Europe, 2011:22).

Steam - At the Gratkorn Mill, steam produced in the manufacturing process is used to warm up its gas supplies. By making use of the steam, less fossil fuels are used (Sappi Europe, 2011:22).

Lignosulfonate – This is a by-product from the pulping process and it is very useful in the building industry. “It is non–toxic and environmentally friendly. The by-product has been

used in building materials at high-profile locations such as the Frankfurt International Airport buildings" (Sappi Europe, 2011:22).

"Sappi Europe's mill in Maastricht has installed a heat exchanger in the chimney of its plant to capture warmth, which is then used to warm and cool nearby buildings in the Mosae Forum."(Sappi Europe, 2011:24)

Black liquor created during pulping is a great source of renewable energy and is burned to produce steam and power (Sappi Europe, 2011:24).

5.2.2 Waste

At Maastricht Mill, paper granules derived from "waste sludge is dried and sold to farmers as bedding for cows". It is more hygienic than sawdust as it does not stick to the cows' skin as much. As a result, there are less white cells in the milk, making it healthier for the consumers. The paper granules bind well with water, making the cleaning of the stable easier and it can be composted on the land afterwards (Sappi Europe, 2012). It is also used in making bricks. (Sappi Europe, 2011:27).

"Sludge left over from effluent treatment contains fibres and biomass – a perfect source of energy. Alfeld Mill turns the sludge into pellets and uses it as fuel" (Sappi Europe, 2011:27). Around 18,000 tons of waste has been used in the process and resulted in the reduction of "900 truck journeys over an average distance of 100 km" (Sappi Europe, 2011:27).

5.2.3 Other

45% of SFPE's deliveries go by rail or canal. To reduce their carbon footprint, they switched from road to rail wherever possible and as a result reduced 5000 truck deliveries. When trains use hydro electricity from their own hydro power plants, it represents CO_2 reductions of 30,339 tons a year (Sappi Europe, 2011:22).

5.3 CONCLUSION

In section 2.5 of this study, it was mentioned that the European Union reported that they will be able meet carbon reduction targets way before the 2020 deadline. The Swedish waste to energy project as well as the abovementioned innovations by SFPE make it clear how they will accomplish these targets.

The objective of this chapter was to identify business practices by foreign companies that could be applied in the South African environment and it is evident that South African business can learn a lot. The most apparent idea is the use of waste/by-products for fuel for electricity. Although South Africa does not have extreme weather conditions like Europe, South Africa has serious electricity shortages; thus any relief to the grid would ensure further business growth and in the long run benefit the South African economy as a whole.

South Africa also does not have canals like Europe, however rail is a more environmentally friendly option than road. If the government can ensure reliability, big businesses should be incentivised to use it as a preferred method of transportation until such time as faith has been restored.

CHAPTER 6

CONCLUSION

6.1 INTRODUCTION

Global warming is a reality and climate change as a result thereof has been confirmed. The consequences are dire and immediate action is required. Based on the government's commitment shown at the Kyoto Protocol, they seem serious about their intentions to change South Africa's footprint on the environment.

One, however, asks when, by who and how much is required? This study aimed to investigate just that: to identify alternatives to greening the economy, other than the market instruments offered by the government.

The focus is placed on sustainable business practices. Sustainability is required to curb global warming by using finite resources in a responsible manner.

6.2 SUMMARY OF FINDINGS

This study was conducted with the following research objectives:

- The study aimed to perform a literature review on the policies and programmes implemented by the government and examine other studies conducted to identify alternatives to the current approach of greening the economy.
- The study aimed to select an international company, listed on the Johannesburg Securities Exchange (JSE) also featuring on the JSE's Social Responsibility Investment (SRI) Index of 2012; and perform a case study identifying current market instruments and incentives that have been utilised, as well as other initiatives that have been implemented to foster sustainable business practices (also economical) from a South African perspective.

- The study aimed to track down the foreign counterpart within the selected group, identifying business methods applied by the counterpart that could be of use in the South African business setting, resulting in the greening of the economy.

Chapter Two addressed the first objective. Firstly, the study aimed to establish what is available in terms of current market instruments offered by the government in terms of the Income Tax Act as well as the Customs Duty Act. These sections were not examined in detail. Secondly, other studies were reviewed to understand the matter of sustainability and sustainable business practices. Is it better to incentivise or to tax; is one better than the other in motivating business to change? Thirdly, the study examined how to promote sustainability and it seems that the King Report, together with the JSE, compels businesses to report on sustainability and as a result encourage good behaviour. Lastly, a practical example was discussed that imitated the main aim of this study, namely to prove that it is possible to green the economy.

In Chapter Three, the research design and methods were established to fulfil the remaining objectives accordingly.

Chapter Four examined the selected company for the case study in depth. The study supplied background as to what the company does and where they do it, as well as motivation as to why the company is an excellent choice based on past accolades received. A number of examples were provided where the company resourcefully applied finite resources in a sustainable way.

Chapter Five provided a foreign prospective and further means were recognised to green the economy.

6.3 IMPLICATIONS OF THIS STUDY

Climate change is a global problem and is therefore the responsibility of every global citizen. The study aimed to identify ways to green the economy in a way that will result in tangible change.

The government has a number of market instruments in place, in the form of incentives and subsidies, but it seems inadequate when considering the size of the problem we are facing.

The study investigated two case studies: a local company as well as a related company based in Europe. These companies are both in the paper manufacturing business and were therefore relevant to the case study.

The South African company provided a number of good examples of how waste and by-products can be applied resourcefully while generating profit, as opposed to being dumped in a landfill.

On investigation of the European company it furthermore became clear that there is much more to be learnt with regard to this matter. It seemed that very little waste landed up in landfills, and in more ways than one resulted in a greener economy.

6.4 RECOMMENDATIONS AND FUTURE RESEARCH

As a result of the laws laid down by the European Union, waste may not be sent to landfills and this practice is heavily fined. Companies do not have an alternative but to find resourceful ways to dispose of waste/by-products. A study of the Waste Management Act would provide insight into governments' true intention regarding sustainability.

Relevant questions would include:

- Does the Act limit waste sent to landfills (quantity and quality)?
- Does the Act levy heavy fines on companies that do not comply?
- Does the Act reward compliance and innovation in any way?
- Is compliance easy or does the red tape hinder it?

6.5 CONCLUSION

The study set out to find alternatives to greening the economy. The two case studies proved that it is possible. Sustainable business practices are vital. The study also demonstrated that it doesn't have to be one or the either – profit is possible while being environmentally responsible at the same time.

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&vid=10&hid=127&bquery=(AU+(Weisbach))+AND+(TI+(Should+environmental+taxes+%22be%22+precautionary))&bdata=JmRiPWFwaCZkYj1hd24mZGI9YXN1JmRiPXJmaCZkYj1ubGFiayZkYj1idWgmZGI9Y2luMjAmZGI9YzhoJmRiPWNqYSZkYj1kZGgmZGI9bmxlYmsmZGI9ZW9haCZkYj1lcmljJmRiPWZsaCZkYj04Z2gmZGI9aHhoJmRiPWhjaCZkYj1obGgmZGI9bHBiJmRiPWx4aCZkYj1mNWgmZGI9Y21lZG0mZGI9bWRjJmRiPXJ2aCZkYj1uZmgmZGI9b2FoJmRiPXBkaCZkYj1id2gmZGI9cmloJmRiPXN3aCZkYj1zM2gmZGI9dHJoJmRiPXRuaCZkYj1memgmZGI9bDBoJmRsaTA9TkwmZGx2MD1ZJmRsZDA9bmxhYmsmdHlwZT0xJnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl [Downloaded: 2013-01-30].

Appendix A:

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Economic and Management Sciences

Informed consent for participation in an academic research study

Dept. of Taxation

GREENING THE ECONOMY – A CASESTUDY TO IDENTIFY A DIFFERENT APPROACH TO ENCOURAGE SUSTAINABILITY

Research conducted by:
Ms. A.M. Marais (11348926)
Cell: 074 950 000

Dear Respondent

You are invited to participate in an academic research study conducted by Annie Margaretha Marais, a Masters student from the Department of Taxation at the University of Pretoria.

The purpose of the study is threefold: firstly, to establish whether current legislative policies promote environmental sustainability and how it is utilised, secondly to identify resourceful practices already applied to promote sustainability locally and lastly whether South African companies can benefit from practices implemented overseas that encourages the effective use of resources.

Please note the following:

- This study involves the collection of historical data as well as personal interviews with management.
- Your participation in this study is very important to us. You may, however, choose not to participate and you may also stop participating at any time without any negative consequences.
- Please answer the questions in the attached questionnaire as completely and honestly as possible. This should not take more than 10 minutes of your time
- The results of the study will be used for academic purposes only and may be published in an academic journal. We will provide you with a summary of our findings on request.
- Please contact my supervisor, Mr S.G Nienaber (Gerhard.Nienaber@up.ac.za) if you have any questions or comments regarding the study.

Please sign the form to indicate that:

- You have read and understand the information provided above.
- You give your consent to participate in the study on a voluntary basis.

Respondent's signature **Date**