

**PROPOSED VEHICLE GREEN TAXES IN SOUTH AFRICA:  
WHAT ARE THE PROSPECTS OF IT ACHIEVING ITS PURPOSE?**

Mini dissertation by

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## SUMMARY

### PROPOSED VEHICLE GREEN TAXES IN SOUTH AFRICA: WHAT ARE THE PROSPECTS OF IT ACHIEVING ITS PURPOSE?

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As part of environmental fiscal reform initiatives the South African government proposed, *inter alia*, increases in vehicle customs and excise duties (*ad valorem*) and the licensing fees of fuel-inefficient vehicles. Consequently it is proposed that the existing *ad valorem* excise duties on motor vehicles be adjusted to incorporate carbon dioxide (CO<sub>2</sub>) emissions as an environmental criterion from 1 March 2010. The purpose of these proposed vehicle green taxes is to discourage the acquisition and use of vehicles with higher carbon dioxide emissions and fuel-inefficient vehicles. The prospects of it achieving the aforementioned purpose could however be affected by the design of the proposed vehicle green taxes and the provisions of the Income Tax Act 58 of 1962. An extended literature review (non-empirical study) was performed. Literature on studies in Japan, European Union countries and fiscal reform instruments implemented in United States were reviewed. Certain weaknesses in, and alternatives for, the proposed vehicle green taxes were noted. The focus on consumers is probably the most important weakness which could be addressed by the implementation of a “feebate” policy (with the focus on vehicle manufacturers and “fuel economy technology”). Based on the findings of this study it is also apparent that certain provisions of the Income Tax Act 58 of 1962 do allow for a tax deduction if the proposed vehicle green taxes are incurred (depending on the category of the taxpayer). The possible tax deduction could impair the ability of the proposed vehicle green taxes affecting purchasing and usage behaviour. As section 23(d), of Income Tax Act 58 of 1962, currently does not prohibit these deductions possible amendments thereto should also be considered.

## OPSOMMING

### GROENBELASTINGS OP VOERTUIG IN SUID-AFRIKA VOORGESTEL:

#### WAT IS DIE VOORUITSIGTE DAT DIT HUL DOEL SAL BEREIK?

deur

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As deel van fiskale herformingsinisiatiewe het die Suid-Afrikaanse regering, *inter alia*, toenames in doeane- en aksynsbelasting op voertuie (*ad valorem*) en lisensiefooi op brandstof-ondoeltreffende voertuie voorgestel. Gevolglik is voorgestel dat die huidige *ad valorem* aksynsbelasting op motorvoertuie aangepas word om koolstofdiksied(CO<sub>2</sub>)-emissies as omgewingskriteria vanaf 1 Maart 2010 in te sluit. Die doel met die voorgestelde groenbelastings op voertuie is om die aankoop en gebruik van voertuie met hoë koolstofdiksied-uitlatings en ondoeltreffende brandstofverbruik te ontmoedig. Die vooruitsigte dat die voorgenoemde doel wel bereik sal word, kan egter deur die ontwerp van die voorgestelde groenbelastings en bepalinge van die Inkomstebelastingwet 58 van 1962 beïnvloed word. 'n Uitgebreide literatuuroorsig (nie-empiriese studie) is uitgevoer. Literatuur van studies in Japan, Europese Unie-lande en literatuur rakende fiskale instrumente in die Verenigde State is bestudeer. Sekere swakpunte in, en alternatiewe vir, die voorgestelde groenbelastings op voertuie is geïdentifiseer. Die fokus op verbruikers is waarskynlik die belangrikste swakpunt, wat moontlik deur die implementering van 'n "feebate"-stelsel (wat op voertuigvervaardigers en brandstof ekonomie tegnologie fokus) aangespreek kan word. Gebaseer op die studie se bevindinge is dit ook duidelik dat die huidige bepalinge van die Inkomstebelastingwet 58 van 1962 wel 'n belastingaftrekking sal toestaan (afhangende van die kategorie belastingbetaler), indien die voorgestelde groenbelastings op voertuie aangegaan word. Die moontlike belastingaftrekking kan die vermoë van die voorgestelde groenbelastings op voertuie, om aankoops- en gebruiksbesluite te affekteer, beïnvloed. Aangesien artikel 23(d), van die Inkomstebelastingwet 58 van 1962, tans nie die belastingaftrekkings verbied nie moet moontlike wysiging daaraan ook oorweeg word.



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## LIST OF ABBREVIATIONS

As part of the study the abbreviations listed in Table 1 below was used.

**Table 1: Abbreviations used in this document**

<b>Abbreviation</b>	<b>Meaning</b>
Act	Income Tax Act No.58 of 1962
DME	Department of Minerals and Energy
GPM	Gallon of fuel consumed per mile driven
MPG	Miles per gallon. One mile in the United States converts to 1.609 kilometres in South Africa (Unitconversion.org, 2009). One gallon in the United States converts to 3,785 litre in South Africa (Unitconversion.org, 2009).
OECD	Organization for Economic Co-operation and Development
SAICA	South African Institute of Chartered Accountants
SARS	South African Revenue Services
VAT	Value-added tax



## CHAPTER 1

### INTRODUCTION

#### 1.1 BACKGROUND

The global community is facing immense challenges in dealing with environmental issues since the consequences of pollution and the resulting ecological degradation are not confined to geographical boundaries (Anjum, 2008:1). Climate change is a cause of global warming and is one of the negative results of pollution and greenhouse gas emissions. Climate change also has an impact on the living conditions on the earth as a whole and could also have serious repercussions on growth and development. Therefore actions on climate change, such as fiscal reform, are required across all countries (Anjum, 2008:1).

One of the challenges for the global community is greenhouse gas emissions which contribute to climate change. Based on the figures released by the World Resource Institute in 2000, carbon dioxide (CO<sub>2</sub>) emissions are the most significant contributor to greenhouse gas emissions, representing 77% of total greenhouse gas emissions. The transport sector, in turn, contributes 13,5% to the total carbon dioxide emissions, which is a significant contribution (World Resources Institute, 2000).

In a bid to address the transport sector's increasing carbon dioxide emissions, vehicle green taxes have been introduced by the governments of developed countries (which include Japan, European Union countries and the United States). These vehicle green taxes (or "environmental taxes") refer to taxes whose tax bases are a physical unit of something that has a proven, specific negative impact on the environment (European Commission, 2004:105-109). The purpose of the vehicle green taxes is to serve as deterrent for people not to act in a manner which is not in the best interest of the environment. This is done by either attempting to affect consumers' driving habits (for example increasing fuel taxes which directly affect the usage of vehicles) and/or attempting to affect consumers' purchasing decisions (to encourage the purchase of lower carbon emitting or better fuel economy vehicles).

The concept of green taxes is also not entirely new to the South African economy; transport, vehicle and aviation levies have been in play for years (Jooste, 2007). Over the past couple of years the need for fiscal reform has been identified because of the increased awareness of the negative environmental impact of industry, for example global warming. This includes the reform of the current green taxes regime in South Africa.

The South African National Treasury (2008:12) commented on fiscal reform in South Africa during a workshop which included this subject, held in November 2008. The point was raised that economic growth in South Africa imposes increased demands on its environmental asset base. It is therefore vital that the economic growth occurs in a sustainable manner and that issues such as poverty, inequality and international competitiveness are addressed effectively (South African National Treasury, 2008:12). For South Africa, as a developing country, it is further also a key challenge to ensure an improvement in human development indicators and reduction in poverty levels.

It is therefore clear that the South African government is embracing a new approach to running the finances in South Africa. Their approach seeks to make tax policies kinder to the environment. To that effect the South African National Treasury released a revised discussion paper, *a framework for considering market-based instruments to support environmental fiscal reform in South Africa*, in April 2006. The discussion paper outlines the role that market-based instruments could play in supporting sustainable development in South Africa and established a proposed framework for considering their possible application.

In the discussion paper the South African National Treasury (2006:70-71) proposed, *inter alia*, the following two vehicle green taxes which will be considered in this study:

- an increase in vehicle customs and excise duties (*ad valorem*); and
- an increase in the licensing fees of fuel-inefficient vehicles.

The *ad valorem* excise duties, currently levied in South Africa, on new motor vehicle sales (applicable to passenger and light commercial vehicles sales) are based solely on price (SARS, 2009:11). The South African government proposed that the existing *ad valorem* excise duties on motor vehicles be adjusted to incorporate carbon (CO<sub>2</sub>) emissions as an environmental criterion from 1 March 2010 (SARS, 2009:10-12). The proposal to incorporate an environmental criterion for assessing taxes is in line with the increase in vehicle customs and excise duties proposed in the framework issued by the South African National Treasury (2006:70-71).

The purpose of the proposed vehicle green taxes is to serve as deterrent for people not to act in a manner which is not in the best interest of the environment. Therefore it would attempt to influence consumer purchasing decisions (encouraging the purchase of vehicles with lower carbon dioxide emissions) combined with fuel levies already implemented which influence vehicle usage decisions.

The prospect of the proposed vehicle green taxes achieving its purpose in South Africa may, however, be influenced by the following factors:

- **The design of the vehicle green taxes.** This relates to the type of vehicle green taxes and the stage at which it is levied (for example: purchase, ownership or usage taxes). According to Hayashi, Kato and Val (2001:124), it is important that there is a spread of taxes amongst all three stages. Their study also suggests that levying taxes in some stages might be more effective in reducing carbon dioxide emissions.
- **Legislation.** According to Nieuwoudt (2000:45), legislation will influence fiscal policy and planning as well as the effectiveness of the tax base or instruments being used. Legislation is therefore important, and can be used as a means of enforcement and to provide possible incentives.
- **Consumers' attitude.** Consumers do not always fully value the impact of their actions on the environment (Kunert & Hartmut, 2007:315). This is, however, a market imperfection and could possibly be circumvented if the fiscal reform policy does not merely target consumers in attempt to address environmental concerns.

If the vehicle green taxes proposed in South Africa (in combination with existing vehicle charges and levies) do not represent the optimal spread of taxes, it might not be the most effective method in reducing carbon dioxide emissions. Furthermore, if the current provisions of the Act allowed for a tax benefit as a result of the payments of the proposed vehicle green taxes, it could counteract the ability of the proposed vehicle green taxes in acting as a deterrent.

## **1.2 PROBLEM STATEMENT**

Vehicle green taxes have been proposed in South Africa. However, the prospects that the proposed vehicle green taxes will achieve its intended purpose in South Africa, may be affected if:

- the proposed vehicle green taxes are not designed correctly. The design includes the type of taxes levied (purchase, usage or ownership taxes) as well as the appropriate spread of these taxes, in combination with existing vehicle green taxes. Vehicle green taxes designed to focus extensively on consumers might also not be the most preferred design as consumers possibly do not fully value their impact on the environment; or
- the Act provides relief if the proposed vehicle green taxes are incurred.

The impact of the aforementioned factors on the prospects of the proposed vehicle green taxes achieving its intended purpose need to be considered in order to pro-actively identify possible weaknesses in, and alternatives for, the proposed vehicle green taxes.

### 1.3 RESEARCH OBJECTIVES

The primary objective of this study is to perform a comparative study between the two vehicle green taxes proposed for South Africa and the results of studies related to vehicle green taxes performed in Japan, European Union countries and the United States.

The results of a Japanese study, regarding the effect of vehicle and fuel green taxes on carbon dioxide emissions will be considered, as the purpose of the vehicle green taxes proposed in South Africa will be to reduce carbon dioxide emissions. Vehicle green taxes implemented in European Union countries and the United States will then be considered and a comparative study will be performed between these vehicle green taxes and the vehicle green taxes proposed in South Africa. This will allow for the identification of possible weaknesses in the design of, and alternatives for, the vehicle green taxes proposed in South Africa.

The secondary objective of this study is to consider the possible income tax consequences when the proposed vehicle green taxes are incurred. According to Nieuwoudt (2000:45), legislation will influence fiscal policy and planning as well as the effectiveness of the tax base or instruments that are being used. Based on the comparison between the income tax consequences for different taxpayers, the following will be specific objectives:

- to determine whether the current provisions of the Act would allow for a tax deduction if the proposed vehicle green taxes are incurred. If a tax deduction is allowed it might mitigate the effect of the vehicle green taxes to serve as deterrent (for acting in a manner which is not in the best interest of the environment); and
- to determine whether some taxpayers may be in a more advantageous position if a tax deduction is allowed by the Act. If this is the case, amendments to the Act might be justified to ensure that the South African tax system can be seen as an “equitable” tax system as envisaged by Adam Smith (Venter *et al.*, 2008:3).

Both the primary and secondary objectives of this study have the underlying aim of proactively identifying possible weaknesses in, and alternatives for, the proposed vehicle green taxes. Addressing possible weaknesses, with due consideration of alternatives, could increase the prospects for the proposed vehicle green taxes to achieve its purpose.

## 1.4 DELIMITATIONS

### 1.4.1 Prospects of the proposed vehicle green taxes achieving its intended purpose

In this study, the prospects of the proposed vehicle green taxes achieving its purpose refer to the prospects of the following:

- the purpose of reducing carbon dioxide emissions, which is the aim of the vehicle green taxes as supported by the study performed in Japan by Hayashi *et al.*; and
- the prospects based on the weaknesses identified as result of the comparative study between fiscal instruments implemented in European Union countries and the United States.

For the purpose of this study, the researcher assumes that the prospects of the proposed vehicle green taxes in achieving its intended purpose will be affected if a tax benefit (deduction) is allowed for the vehicle green taxes paid.

### 1.4.2 Considerations in terms of the Act

In terms of the Act, the term “income tax” refers to normal tax (which includes capital gains tax), donations tax and secondary tax on companies.

For the purpose of this study, the implications of the proposed vehicle green taxes were considered only on the following sections of the Act: section 8(1)(b), section 11(a), section 11(e) and section 23.

The implications of the proposed vehicle green taxes on capital gains tax were also considered for the following paragraphs of the Eighth Schedule to the Act: paragraph 1, paragraph 53 and paragraph 20(1)(a).

Apart from those stipulated above, no other income tax implications were considered in this study.

### 1.4.3 Consumers' attitudes

Not all consumers fully value their fuel consumption and its resulting impact of carbon dioxide emissions on the environment (Kunert & Hartmut, 2007:315). Financial implications may therefore be the only consideration for consumers who do not value their impact on the environment. As a result, only significant monetary vehicle green taxes are likely to affect their driving patterns and purchasing decisions.

This study only considers the impact consumers' attitudes could have on the design of vehicle green taxes (with specific reference to the party on which the vehicle green taxes are focused). No attempt was made to incorporate specific consumer preferences in the identification of possible weaknesses in, and alternatives for, the proposed vehicle green taxes.

### 1.4.4 The term "vehicle green taxes"

With reference to "vehicle green taxes" in this study, only the following two types of vehicle green taxes will be considered in a South African context:

- the amendments to *ad valorem* excise duties on vehicles (SARS, 2009:10-12); and
- the increase in vehicle licensing fees as proposed by the South African National Treasury in the discussion paper released for comments during April 2006 (South African National Treasury, 2006:70-71).

The term "vehicle green taxes" used in this study should therefore not be interpreted to include all green taxes levied with regards to vehicles, but only the two types of green taxes mentioned above.

#### **1.4.5 Fiscal reform in developing countries**

The literature review performed in this study, indicated that more comprehensive studies regarding fiscal reform involving vehicle green taxes were performed in developed countries. Therefore, the fiscal reform in developed countries (Japan, Europe Union and the United States) will be considered in performing the comparative study. South Africa is, however, not a developed county, but a developing country (Department of Environmental Affairs and Tourism, 2005:10).

According to Speck (2005:1), the principle of environmental fiscal reform is the same in developed and developing countries; the implementation of such policies is therefore not limited to developed countries and can also be implemented in developing countries. Speck (2005:2) also mentioned that, although it is rather similar in principle, the actual design and approach to fiscal reform will differ. One of the main differences between the approaches to fiscal reform is that while the focus in developed countries is on tax shifting (keeping the total tax burden constant between different taxpayers), in developing countries the revenue raising potential of environmental taxes, will most likely be the key consideration (Speck, 2008:4).

Due to a lack of available literature on green taxes in developing countries, the proposed vehicle green taxes in South Africa will be compared to instruments implemented in developed countries (Japan, European Union and the United States).

#### **1.4.6 Administration by government**

Administration refers to the government's ability to enforce the levying of the proposed vehicle green taxes and the recovery thereof. This study assumes that the government, at both national and provincial level, has the ability to properly administer the proposed vehicle green taxes considered in this study. Therefore the administration of the proposed vehicle green taxes will not be taken into account in considering the prospects of achieving its purpose.



## 1.5 DEFINITION OF KEY TERMS

This study involves a number of key concepts, which includes: *environmental tax*, *green tax*, *discussion paper* and *personal-use asset*. The manner in which these key terms are defined for the purpose of this study is considered below.

**Carbon footprint:** The calculation of an individual's, factory's, or other entity's impact on the environment, measured as the total amount of carbon dioxide (The Green Guide, 2009).

**Discussion paper:** Refers to the revised discussion paper released by the South African National Treasury in April 2006 called: *A framework for considering market-based instruments to support environmental fiscal reform in South Africa*.

**Environmental tax:** The definition for an environmental tax used by the European Commission, the OECD, International Energy Agency ('IEA') and as accepted by the South African National Treasury refers to a tax which's tax base is a physical unit of something that has a proven, specific negative impact on the environment. It was decided to include all taxes on energy and transport and to exclude value added type taxes in the definition. Therefore, the OECD uses the more precise term of "environmentally related taxes" (European Commission, 2004:105-109).

**Fuel economy technology:** This phrase refers to the development in fuel standards which will result in the best possible fuel consumption and the lowest possible carbon dioxide emissions.

**Feebates:** Feebates is a market-based instrument which charges a fee on vehicles with fuel consumption rates above a predetermined threshold, while vehicles below the predetermined threshold receive rebates. This type of instrument has been introduced in Ontario, Canada and Austria (Greene, Patterson, Singh & Li, 2005:758).

**Gas-guzzler taxes:** Gas-guzzler taxes are implemented in United States where a charge is levied on vehicles with a fuel consumption of less than 22,5 miles per gallon ('MPG') (Greene *et al.*, 2005:758). The equivalent of 22,5 MPG in South Africa would be 9,5647 kilometre per litre (refer to Table 1).

**Green tax:** This is the widely used synonym for environmental tax (refer definition above). As the focus of this study is vehicle customs and excise duties (*ad valorem*) and vehicle licensing fees, the term "green taxes" should be construed to represent these two green taxes specifically for the purpose of this study, unless described otherwise. According to Hayashi *et al.* (2001:124), one important characteristic of car-related taxes is that it can be collected in the different stages, namely: purchasing, owning and using.

**Ownership taxes:** Taxes levied while the vehicle is owned, but which do not directly relate to the usage of the vehicle. These taxes are normally recurrent in nature on the ownership or tenure of vehicles (Kunert & Hartmut, 2007:306) and include the payment of an annual license fee and annual taxes for ownership and compensation to road and infrastructure damage (Kunert & Hartmut, 2007:306).

**Personal-use asset:** Term as defined in paragraph 53(2) of the Eighth Schedule to the Act: an asset of a natural person or a special trust that is used mainly for purposes other than the carrying on of a trade.

**Purchase taxes:** Taxes levied during the initial purchase basically involve the payment of the consumption tax (Hayashi *et al.*, 2001:124). These taxes are normally non-recurrent in nature (for example turnover tax, VAT, registration tax and registration fees) (Kunert & Hartmut, 2007:306).

**Usage taxes:** Taxes levied which can be directly attributed to the usage of the vehicle. These taxes are therefore dependent on usage and include fuel taxes (Kunert & Hartmut, 2007:306). Avoidable use-dependent fees (such as tolls fees and parking costs) are excluded since they are to a large extent avoidable by the vehicle owners (Kunert & Hartmut, 2007:306).

## 1.6 ASSUMPTIONS

### 1.6.1 Significance of tax deductions

For any tax benefit to affect taxpayers' economic decisions (in the case of this study, the choice between different types of vehicles and driving patterns which affects carbon dioxide emissions), the tax benefit provided must be significant to the taxpayer, either quantitative or qualitative.

The possible income tax benefits considered in this study might not be quantitative significant (in monetary terms). It would be assumed that income tax benefit could affect the ability of the proposed vehicle green taxes in acting as deterrent, irrespectively of whether or not the income tax benefit is significant. It could therefore affect the prospects of the proposed vehicle green taxes achieving its purpose.

## 1.7 IMPORTANCE AND BENEFITS OF THE PROPOSED STUDY

This study serves as a means of pro-actively identifying the following factors which could affect the prospects of the proposed, but not yet implemented, vehicle green taxes achieving its purpose:

- possible weaknesses in the design of, and alternatives for, the proposed vehicle green taxes; and
- certain income tax provisions of the Act which will have to be amended in order to ensure that no benefit is granted for the proposed vehicle green taxes paid by a taxpayer.

Areas for further focus identified by this study could also serve as a starting point for other research with regards to the fiscal reform in South Africa.

## 1.8 RESEARCH DESIGN AND METHODS

A non-empirical study (extended literature review) was performed and is justified by the following:

- this study involves the analysis of trends and debates relating to the proposed vehicle green taxes (Mouton, 2001:180; Hofstee, 2006:121);
- this study is also exclusively based on secondary data, which is one of the characteristics of extended literature reviews (Hofstee, 2006:121); and
- the purpose of this study is not to produce new, or to validate existing, empirical studies which is one of the characterising limitations of an extended literature review (Mouton, 2001:180; Hofstee, 2006:121).

The extended literature review of this study was performed from an international and South African perspective. The international perspective consisted of studies performed in Japan, Europe Union and United States (countries in which the related instruments were implemented). This was justified by the following:

- academic literature could be obtained with regards to the vehicle green taxes implemented in these countries;
- figures on carbon dioxide emissions released by the OECD (Table 2) indicate that, between 1990 and 2005, the carbon dioxide emissions of South Africa increased by 29,7% compared to an increase of 19,9% in the United States, 14,8% in Japan and a decrease of 1,3% in the 27 European Union countries. The fact that the United States, Japan and 27 European Union countries' carbon dioxide emissions increased less than that of South Africa might be indicative of the effectiveness of instruments implemented by the government to address carbon dioxide emissions in those countries; and
- the fact that the total tonnes of carbon dioxide emissions (Table 2) are significantly higher in the United States, Japan and the 27 European Union countries than in South Africa, implies that the instruments implemented in these countries have been duly considered by the respective governments as the need to curb carbon dioxide emissions is much higher than in South Africa.

The following international literature was reviewed:

- **OECD publications.** These publications were reviewed in order to determine the change in total carbon dioxide emissions in OECD countries between 1990 and 2005. This supported the basis on which the Japanese, United States and European Union studies were included for consideration in the comparative study and for the evaluation of the prospects of the proposed vehicle green taxes in achieving its purpose.
- **Japanese academic article.** In order to support the fact that vehicle green taxes can be effective in reducing carbon dioxide emissions and to conclude on the most effective design for vehicle green taxes. This enabled the identification of possible weaknesses in the design of the proposed vehicle green taxes in South Africa which could, in turn, affect the prospects of these vehicle green taxes.
- **European academic article.** This was used to determine the instruments introduced in the European Union countries and the assessment of their effectiveness in reducing carbon dioxide emissions in those European Union countries. This facilitated the comparative study in the identification of possible weaknesses in, and alternatives for, the vehicle green taxes proposed in South Africa. Weaknesses identified could affect the prospects of the proposed vehicle green taxes achieving its purpose in South Africa and are therefore of paramount importance.
- **United States academic articles.** These articles were used in order to determine the instruments introduced in the United States and the assessment of their effectiveness in improving fuel consumption (which could result in reduced carbon dioxide emissions). This, together with the European academic articles, facilitated the comparative study in the identification of possible weaknesses in, and alternatives for, the vehicle green taxes proposed in South Africa.
- **United States government publications.** In order to quantify the rates at which sales taxes, “gas-guzzler” taxes, petrol and diesel taxes are levied in the different states in the United States. This was done to facilitate the comparative study and to consider whether the proposed vehicle green taxes are excessive or low compared to similar taxes levied in the United States. If the taxes are levied at lower rates in South Africa it might indicate the possibility of further increases as fiscal reform instrument.

The following South African literature was reviewed:

- **Academic article.** In 2001 a study was performed in South Africa by Nieuwoudt, in which it was concluded that certain green taxes might be deductible and that section 23(d) might have to be amended. This study again confirms that the proposed vehicle green taxes might be deductible in terms of the current provisions of the Act. This could affect the prospects of the proposed vehicle green taxes achieving its purpose.
- **Legislation.** The following provisions of the Act will be considered to determine the impact of possible tax deductions on different categories of taxpayers:
  - section 8(1)(b), section 11(a), section 11(e) and section 23; and
  - paragraph 1, paragraph 53 and paragraph 20(1)(a) of the Eighth Schedule.
- **Case law.** The Government of the Republic of South Africa v Grootboom was a pertinent South African court case (2001:1). The principle in this case was that the government is under obligation to implement measures which ensure that the environment is preserved. In the context of green taxes, this principle may imply that national government must uphold a person's right to an environment which is not harmful, by proposing and implementing the necessary fiscal reform to ensure sustainable development and a healthy environment for all (Kirby and Pillay, 2007). This court case emphasised the obligation on government for fiscal reform and highlights the necessity for the proposed vehicle green taxes.
- **Government publications.** The revised discussion paper released by the South African National Treasury in April 2006 served as the starting point for this study, as it contained the proposed green taxes to be levied with regards to vehicles. The Tax Proposals 2009/2010 issued by SARS was then used as basis for the detail of the proposed amendments to the *ad valorem* taxes on vehicles.
- **Newspaper articles.** Newspaper articles, published in South Africa, dealing with the proposed vehicle green taxes were reviewed. Feedback from the public was considered for possible practical implications, or weaknesses, which could affect the prospects of the proposed vehicle green taxes achieving its purpose. The review was also done to assess whether any considerations have been given to the provision of the Act and to determine the current status of the proposed vehicle green taxes.

The newspaper articles were obtained from the following sources: Fin24 website (<http://www.fin24.com/articles>), Wheels 24 website (<http://www.wheels24.co.za>), Beeld Sake 24 and Business Times. The most important keywords and phrases were entered on the Google internet search engine in order to identify electronic newspaper articles and press releases. The following key words, *inter alia*, were entered: “green taxes on vehicles”, “environmental taxes on vehicles”, “fiscal reform in South Africa”, “proposed vehicle green taxes”, “ad valorem changes proposed” and “vehicle green taxes”.

The electronic journals which were reviewed were accessed from the website of the University of Pretoria Library (<http://www.ais.up.ac.za/journals/index.htm>).

## **1.9 BRIEF OVERVIEW OF CHAPTERS**

In Chapter 2 the results of studies performed in three developed countries are considered. The study performed in Japan (which evaluated the effect of vehicle and fuel green taxes on carbon dioxide emissions) is considered to identify possible weaknesses in the design of the proposed vehicle green taxes in South Africa. Taxes and charges on passenger vehicles implemented in the European Union and United States are then considered as starting point for the comparative study in Chapter 3.

In Chapter 3 the vehicle green taxes proposed in South Africa is compared to the results of the studies of developed countries, as investigated in Chapter 2. Possible weaknesses in, and alternatives for, the vehicle green taxes proposed in South Africa are then identified.

In Chapter 4 certain provisions of the Act are considered for provisions which might allow for a tax deduction if the proposed vehicle green taxes are incurred. This chapter also investigates whether or whether not certain taxpayers are in a more advantageous position than others, if a tax deduction were to be allowed.

Chapter 5 contains the conclusion. The likely prospects of the proposed vehicle green taxes achieving its purpose are considered, based on the findings in Chapters 2 and 3. Possible weaknesses in, and alternatives for, the proposed vehicle green taxes are then discussed. The deductibility in terms of the Act, based on the results of Chapter 4, are also concluded on. Chapter 5 closes with final remarks and areas for further focus.

**Table 2: OECD figures on carbon (CO<sub>2</sub>) emission from fuel combustion**

Country	Total, million tonnes of CO <sub>2</sub>	Change 1990 to 2005 (%)	By type of fuel				By sector				
			Million tonnes of CO <sub>2</sub>				Million tonnes of CO <sub>2</sub>				
			Coal	Oil	Gas	Others <sup>1</sup>	Electricity and heat	Industry	Transport	Residential	Other
South Africa	330	29.7	271	59	0	0	206	51	42	14	15
United States	5 817	19.9	2 130	2 456	1 201	27	2 485	636	1 813	347	535
Japan	1 214	14.8	418	620	171	3	472	268	249	67	157
EU27	3 884	-1.3	1 190	1 678	984	31	1 396	640	941	479	427
United Kingdom	529	-5.0	138	191	195	4	195	63	129	79	62
Brazil	339	75.9	50	241	47	0	36	104	138	15	45
China	5 059	128.9	4 171	802	85	0	2 468	1 592	332	243	423
India	1 135	93.5	773	311	50	0	660	232	95	98	48
Ireland	43	41.5	10	25	7	0	15	5	12	6	4
Italy	454	14.0	63	224	163	3	141	84	119	61	47
Korea	448	97.6	180	198	63	6	184	93	86	32	50
Luxembourg	11	7.7	0	8	2	0.1	1	1	7	1	0.1
Russian Federation	1 543	-29.5	429	315	783	15	872	221	206	116	128

<sup>1</sup> Includes industrial waste and non-renewable municipal waste.

Source: OECD (2007:22).



## CHAPTER 2

### RESULTS OF STUDIES PERFORMED IN DEVELOPED COUNTRIES

#### 2.1 BACKGROUND

Caution should be taken when implementing unilateral measures designed to restructure the consumption of energy in the transport, industry and domestic sectors if similar measures are not replicated in competing countries (Ashiabor, 2005:300). This implies that if South Africa implements vehicle green taxes which have not been successfully implemented in other countries, the competitiveness of local motor industry could be affected negatively. From an international perspective, various studies relating to vehicle green taxes as fiscal reform instruments, has been performed. This includes studies performed in Japan, European Union countries and the United States.

A study performed in Japan is considered in this chapter, in order to assess the likely effect vehicle green taxes will have on carbon dioxide emissions based on the different stages (purchase, ownership and usage) at which it can be levied. As emphasised by Hayashi *et al.* (2001:124) it is of utmost importance that there is a spread of taxes amongst all the three stages and not just focused on one stage alone. Hayashi *et al.* (2001:124) also found that levying taxes in some stages might be more effective in reducing carbon dioxide emissions. The consideration of the study performed Hayashi *et al.* will enable the evaluation of the possible effect the vehicle green taxes proposed in South Africa, combined with other vehicle green taxes already implemented (for example fuel levies), will have on reducing carbon dioxide emissions – which is one of the intended purposes of the proposed vehicle green taxes.

Furthermore, the results of studies relating to vehicle green taxes implemented in European Union countries and the United States is also considered in this study. This enables the comparative study, performed in Chapter 3, to identify possible weaknesses in, and alternatives for, the proposed vehicle green taxes.

## 2.2 EFFECTS OF VEHICLE AND FUEL GREEN TAXES ON CARBON DIOXIDE EMISSIONS BASED ON A STUDY PERFORMED IN JAPAN

### 2.2.1 Background

In 2001 a study was undertaken in Japan by Hayashi *et al.* in order to develop a model system and examine the changes different taxation policies had on the following:

- the vehicle market configuration (vehicle users' driving pattern and behaviour towards vehicle class choice and decommissioning);
- the life cycle carbon dioxide emission from automobile transport; and
- the tax revenues for government.

The conceptual framework of the model system developed in the aforementioned study is believed to be general enough to be suitable to whatever data, concepts and other information that is readily available (Hayashi *et al.*, 2001:138). Therefore, the conclusions drawn in that study are also considered to be applicable in a South African context when considering the design of the proposed vehicle green taxes.

Vehicles were categorised into different classes (based on engine size) for the purpose of the study. The study included a sensitivity analysis for the different classes of vehicles which assessed the impact on carbon dioxide emissions as a result of incremental increases in vehicle taxes in each of the following stages:

- purchase taxes (registration and purchase taxes);
- ownership taxes (insurance cost and owning tax); and
- usage taxes (inspection costs and fuel price taxes).

Each of the different stages was found to have a different impact on the reduction in carbon dioxide emissions. Therefore an ideal “mixture” of the different taxes is necessary to obtain the maximum reduction in carbon dioxide emissions (Hayashi *et al.*, 2001:135-138).

### **2.2.2 Purchase taxes**

Purchase taxes include once-off taxes, for example registration taxes.

Findings from Hayashi *et al.* (2001:135-138) indicated that, when increasing the relative cost of purchasing against owning, the lifetime of vehicles are subsequently increased (how long vehicles are kept by the consumers). This results in the vehicle not being replaced as often and therefore the carbon dioxide emissions from the manufacturing of vehicles decrease due to the fact that less vehicles are manufactured. However, because vehicles are not replaced more often, improvements in “fuel economy technology” are expected to play a smaller role in addressing environmental concerns (Hayashi *et al.*, 2001:135-138).

For that reason, purchase taxes should preferably not exceed ownership taxes, as it could result in vehicles not being replaced more often. Replacing vehicles more often could result in older vehicles making place for more modern ones, with improved “fuel economy technology”, which could result in reduced carbon dioxide emissions and fuel consumption.

### **2.2.3 Ownership taxes**

Ownership taxes include once-off and/or recurring taxes, for example insurance cost and annual licensing fees.

Results of the study performed by Hayashi *et al.* (2001:135-138) suggested that increased ownership taxes had a minimal effect on the reduction of carbon dioxide emissions, unless the ownership taxes rate was set in proportion to fuel efficiency or carbon dioxide emissions. Findings from Hayashi *et al.* (2001:135-138) also indicated that an incremental increase in ownership tax resulted in a fairly large shift to vehicles with lower ownership taxes, while purchase taxes were found to have very little effect on the class of vehicles purchased.

Ownership taxes were found to have a significant impact on the vehicles sales mix (different classes of vehicles sold) and this may play a role in the effective reduction in carbon dioxide emissions. If the ownership taxes on fuel-efficient vehicles, and vehicles with lower carbon dioxide emissions, are reduced, it can act as incentive to purchase these types vehicles (Hayashi *et al.*, 2001:135-138).

#### **2.2.4 Usage taxes**

Usage taxes include inspection costs and, the more widely used, fuel price taxes which are directly linked to consumption.

Vehicle usage tax was found to be the most effective fiscal instrument which can be implemented in order to reduce carbon dioxide emissions. As usage taxes are directly linked to the usage of vehicle, it affects the day-to-day decisions of consumers. Most of the reduction came from the decrease in driving distance while only a little shift in the vehicles sales mix was observed (Hayashi *et al.*, 2001:135-138).

Findings from Hayashi *et al.* (2001:135-138) indicated that for an incremental increase in only usage tax, the vehicles sales mix (different classes of vehicles sold) changed a little, as usage tax was not so significant to the purchase behaviour of consumers. These findings support the fact that all consumers do not fully value the benefit of fuel economy and their “carbon footprint” and that a mixture of vehicle taxation (purchase, owning and usage) should be implemented to ensure maximum prospects of achieving its purpose in reducing carbon dioxide emissions.

The socio-economic impact of usage taxes, especially fuel taxes and levies, are also one of the most important factors to consider. As the South African economy grows, it imposes increased demands on its environmental assets base, and it is vital that it does so in a sustainable manner and that issues such as poverty, inequality and international competitiveness is effectively addressed (South African National Treasury, 2008:12).

## 2.2.5 Conclusion

Based on the results of the study, usage taxes were found to be the most effective manner in which to reduce carbon dioxide emissions. However, the authors emphasised that a mixture of purchasing, owning and usage taxes could be a useful means to, not only reduce carbon dioxide emissions, but also to increase the government revenues (Hayashi *et al.*, 2001:135-138). Increased government revenue could enable government to utilise the surplus funds in other initiatives of environmental fiscal reform.

In addition, Hayashi *et al.* (2001:135-138) found that consumers' choices of disposal/repurchase of vehicles (including the choice of class of vehicle) was not much influenced by usage tax, but rather by purchase- and ownership taxes. Implementing purchase- and ownership taxes in attempt to affect consumers' choices with regard to the type of vehicle (and promoting the sale of fuel-efficient, lower carbon dioxide emission, vehicles), would result in increased production and disposal of vehicles.

With reference to increased production, Hayashi *et al.* (2001:135-138) found that the carbon dioxide emissions, due to production and disposal of vehicles, are proportional to the number of disposal/repurchase cases - the change in carbon dioxide emissions by production and disposal is less significant compared to the change in carbon dioxide emissions due to driving. Therefore, a shift in the mix of vehicles sold would result in an increased demand and manufacture of certain vehicles. Hence, despite the increase carbon dioxide emissions, if more fuel-efficient vehicles are bought, the reduction in carbon dioxide emissions will still be beneficial due to the manufacturing of the fuel-efficient vehicles (Hayashi *et al.*, 2001:135-138).

Hayashi *et al.* (2001:135-138) concluded that technology aimed at reducing carbon dioxide emissions in new vehicles sold, was important. If one attempted to influence consumers' choices between vehicles by only implementing ownership taxes, it would not be as effective in reducing carbon dioxide emissions as when one invested in technology (Hayashi *et al.*, 2001:135-138). Therefore the importance of "fuel economy technology" was identified and the comments of Hayashi *et al.* (2001:135-138) supported the fact that the focus of a fiscal reform initiative should not only be on consumers.

## 2.3 PASSENGER VEHICLE TAXATION IN EUROPE

### 2.3.1 Background

In Europe, motor vehicles impair local air quality and therefore it directly affects the quality of life of the citizens. Because of this, the traffic sector's contribution to climate protection is considered as crucial (Kunert & Hartmut, 2007:306). In 1995 the European Commission made the following statement which emphasised the important role fiscal reform can play in curbing carbon dioxide emissions in the transport sector:

“From an ecological perspective, the introduction of components for vehicle and registration taxes that unequivocally deal with carbon dioxide emissions is definitely prudent, especially since tax measures form a pillar of the Community's strategy to reduce carbon dioxide emissions of passenger cars.” (Kunert & Hartmut, 2007:314.)

Over the years, various taxes have been introduced in the different European Union countries in order to “deal” with the carbon dioxide emission situation. In 2001 a study was undertaken by Kunert and Hartmut to analyze the vehicle duties (taxes) in the 27 European Union countries. The results of this study found that taxes and fees related to the registration, ownership and use of vehicles were assessed differently across the different countries - refer to Table 3 (Kunert & Hartmut, 2007:306).

Kunert and Hartmut (2007:306) stated that, although they are assessed differently in principle, taxes on vehicles in European Union countries were levied in the following forms at different stages:

- purchase taxes (turnover tax, registration tax, registration fees);
- ownership taxes (vehicle tax, insurance tax); or
- usage taxes and charges (petroleum tax, value-added tax). Use-dependent fees (tolls, parking costs) are not included, since they can be avoided by the vehicles' owners.

**Table 3: Taxes and charges levied on passenger vehicles in European Union countries**

Country	VAT (%)	Registration		Vehicle tax <sup>1</sup>	Insurance tax (%)	Other charges <sup>2</sup>	Petroleum tax
		tax	fee				
Austria	20	YES	YES	YES	11	—	YES
Belgium	21	YES	YES	YES	9.25	17.85	YES
Switzerland	7.6	—	YES	YES	5	—	YES
Cyprus	15	YES	YES	YES	5	0.58 Euro	YES
Czech Republic	19	—	YES	YES	—	—	YES
Germany	16	—	YES	YES	16	—	YES
Denmark	25	YES	YES	YES	42.9	14	YES
Spain	16	YES	YES	YES	6	3.3	YES
Estonia	18	—	YES	—	—	—	YES
France	19.6	YES	—	YES	18	15.1	YES
Finland	22	YES	—	YES	22	7.5	YES
Great Britain	17.5	—	YES	YES	—	5	YES
Greece	19	YES	—	YES	10	10.4	YES
Hungary	25	YES	—	YES	—	1	YES
Italy	20	YES	YES	YES	12.5	12.85	YES
Ireland	21	YES	—	YES	2	1 Euro	YES
Luxemburg	15	—	YES	YES	4	—	YES
Lithuania	18	YES	YES	—	15	—	YES
Latvia	18	YES	YES	YES	—	—	YES
Malta	18	YES	—	YES	10	—	YES
Norway	25	YES	—	YES	—	—	YES
Netherlands	19	YES	YES	YES	7	—	YES
Portugal	19	YES	YES	YES	9	3.757	YES
Poland	21	YES	YES	—	—	—	YES
Sweden	25	—	—	YES	—	—	YES
Slovakia	19	—	YES	YES	—	—	YES
Slovenia	20	YES	—	YES	6.5	—	YES

<sup>1</sup> Recurrent taxes – similar to the annual licensing fees currently levied in South Africa.

<sup>2</sup> Para fiscal charges on insurance premiums in % or Euros.

Source: Kunert and Hartmut (2007:307).

### 2.3.2 Purchase taxes

Purchase taxes in the European Union countries include VAT, registration tax and registration fees.

When a new passenger vehicle is purchased and first registered, non-recurrent VAT is payable in all European Union countries (Table 3) - this is also the case in South Africa. In most of the countries VAT is calculated based on the net invoice price, as is the case in South Africa, while in four of the countries, the net price plus the respective registration tax serve as the basis for the VAT calculation (Kunert & Hartmut, 2007:307). Sweden is the only country in which VAT is the sole charge levied when acquiring the vehicle - in all the other countries either registration tax, registration fee or both are levied. This indicates the preference of most European Union countries to levy purchase taxes on the initial acquisition of vehicles. Currently in South Africa, only VAT is levied and in some cases *ad valorem* with no other registration fees or registration taxes - this may be indicative that possible new charges could be introduced in South Africa in to curb carbon dioxide emissions.

It was also noted in the study that the basis used in the calculation of the registration taxes varied between the different European Union countries by at least 10 different assessment bases (Kunert & Hartmut, 2007:307). The assessment bases for registration taxes included: the purchase price of the vehicle, the cubic capacity, type of drive train, engine output, age and weight of the vehicle as well as safety equipment. In four European countries the technical characteristics of the vehicles (for example engine rating) are converted in order to generate a modified assessment base (referred to as fiscal horse power) (Kunert & Hartmut, 2007:307).

Among the 18 countries which levy a registration tax, only 8 countries included ecological aspects in their tax assessment basis. Those few considered the aspects of exhaust emissions of criteria pollutants or fuel consumption (Kunert & Hartmut, 2007:307).

In 11 of the European Union countries the registration tax is levied once off (an *ad valorem* tax) - either on the net price or the gross price (Kunert & Hartmut, 2007:307).



The *ad valorem* taxes levied by these 11 countries are assessed, based on the technical characteristics of the vehicle which additionally impact the tax amount levied.

In 7 European Union countries the registration tax is recurring and is designed as a unit tax. This implies that the tax is calculated by taking into account only some technical characteristics of the vehicle (for example the engine size and horse power of the vehicle). Based on the extreme cases registration, taxes of up to 3,000 Euros per year for a standard-size automobile can be levied and, if a useful life of 5 years is assumed, this corresponds to a one-time tax charge of up to 15,000 Euros payable at registration (Kunert & Hartmut, 2007:307). Based on an exchange rate of R10.9608 for one Euro as at 30 June 2009 (South African Reserve Bank, 2009) this could amount to R32,882 per year and R164,412 once off.

A standard-size automobile with a retail price of R500,000 and carbon dioxide emissions of 280 g/km will result in VAT of R61,400 ( $R500,000 \times (14/114)$ ) and *ad valorem* of R88,500 ( $(R500,000 \times 7\%) + (R500,000 \times 10,7\%)$ ) be levied in terms of the proposed two fold *ad valorem* rates. The total registration taxes of R149,900 to be levied in South Africa, is more or less in line with the registration taxes levied in the European Union countries, being R164,412.

The registration fee represents a non-recurrent administrative fee of up to 170 Euros which is charged in 18 of the 27 European Union countries (Kunert & Hartmut, 2007:307). Based on an exchange rate of R10.9608 for one Euro as at 30 June 2009 (South African Reserve Bank, 2009) this could amount to R1,863 payable at registration.

### **2.3.3 Ownership taxes**

These taxes are recurrent in nature (referred to as vehicle taxes in Table 3) and usually levied annually.

For passenger vehicles belonging to private owners, the annual vehicle tax (similar to the annual license fees levied in South Africa) varies significantly between the different European Union countries included in the study. Only vehicle owners from Estonia,

Lithuania and Poland are not levied with any periodic charge while in France, the Czech Republic and Slovakia, it is solely the private owners who are not taxed (Kunert & Hartmut, 2007:307).

As was the case with registration taxes, it was also noted in the study that the basis used for the calculation of the vehicle taxes also varied between the different European Union countries with at least 8 different assessment bases used in the different countries (Kunert & Hartmut, 2007:307-308). In four countries the results of the engine rating (engine size and horse power) was also considered when the vehicle tax was determined. In most of the assessment bases, the type of drive train, cubic capacity and weight of the vehicle were drawn which often resulted in petrol and diesel engines being taxed differently (Kunert & Hartmut, 2007:308).

For a standard-size vehicle, the annual vehicle tax amounts to up to 600 Euros (Kunert & Hartmut, 2007:308). Based on an exchange rate of R10.9608 for one Euro as at 30 June 2009 (South African Reserve Bank, 2009) this could amount to R6,576 per annum.

In addition to the aforementioned ownership taxes, taxes were also levied on liability insurance premiums in 18 of the European Union countries – refer to Table 3. As was the case in Denmark, the tax rates on liability insurance premiums were more than 40% of the premiums and in some countries were even higher as result of tax-like charges (Kunert & Hartmut, 2007:307).

#### **2.3.4 Usage taxes**

Usage taxes can be directly attributable to the use of the vehicle and consists of petroleum tax, miscellaneous other minor charges on petroleum and VAT (Kunert & Hartmut, 2007:308). The details of fuel charges are set out in Table 4 below. It was clear that petroleum taxes were levied in all the European Union countries included in Kunert and Hartmut's study. In addition to the petroleum taxes levied, VAT was also levied on both petrol and diesel in all of the 27 European Union countries - this ranged from 7% to 25% in some countries (refer Table 4).

**Table 4: Fuel prices and charges on fuels in European Union countries**

Country	Consumer prices In Euro per litre		Petroleum tax In Euro per litre		Petroleum tax In percentage (%) <sup>1</sup>		VAT (%)
	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	
Austria	1.10	1.00	0.417	0.302	38	30	20
Belgium	1.29	1.05	0.564	0.333	44	32	21
Switzerland	1.02	1.09	0.471	0.489	46	45	7
Cyprus	0.92	0.89	0.305	0.249	33	28	15
Czech Republic	1.00	0.99	0.400	0.336	40	34	19
Germany	1.29	1.12	0.655	0.470	51	42	16
Denmark	1.28	1.07	0.541	0.367	42	34	25
Spain	1.03	0.94	0.396	0.294	38	31	16
Estonia	0.86	0.84	0.288	0.245	33	29	18
France	1.22	1.07	0.589	0.417	48	39	19
Finland	1.29	0.99	0.581	0.316	45	32	22
Great Britain	1.32	1.37	0.687	0.687	52	50	17
Greece	0.95	0.93	0.296	0.245	31	26	19
Hungary	1.13	1.09	0.423	0.348	37	32	25
Italy	1.26	1.15	0.564	0.413	45	36	20
Ireland	1.07	1.06	0.443	0.368	41	35	21
Luxemburg	1.09	0.90	0.442	0.265	41	29	15
Lithuania	0.88	0.86	0.287	0.245	33	28	18
Latvia	0.85	0.84	0.276	0.236	32	28	18
Malta	0.89	0.85	0.310	0.246	35	29	18
Norway	1.39	1.26	0.527	0.383	38	30	25
The Netherlands	1.42	1.08	0.668	0.365	47	34	19
Portugal	1.22	0.98	0.533	0.314	44	32	19
Poland	1.05	0.96	0.387	0.292	37	30	21
Sweden	1.26	1.12	0.531	0.390	42	35	25
Slovakia	1.01	1.01	0.401	0.375	40	37	19
Slovenia	0.96	0.94	0.377	0.321	39	34	20

<sup>1</sup> Calculated as the petroleum tax for the country as percentage of the consumer price for the country.

Source: Kunert and Hartmut (2007:308).

### 2.3.5 Conclusion

Based on the study undertaken by Kunert and Hartmut, the policies which exist in the European Union countries by which taxes are levied on passenger vehicles, are very diverse (refer Table 3). This is demonstrated by the diverse types of vehicle charges as well as the fact that the assessment basis of these charges, and tax scales, also vary between the different European Union countries. As a result, not only will the monetary amounts of the taxes levied differ between the European Union countries, but also the ratio of the fixed and variable components of these taxes (Kunert & Hartmut, 2007:315).

In light of the competitive impact, the possible ecological impacts and the diversity of the tax policies the European Commission identified the need to bring the tax policies more in line with one another. However, Kunert and Hartmut (2007:315) commented that the restructuring of the policies in European Union countries would certainly be a long and complicated process.

Despite the differences in the taxes levied in the different countries, Kunert and Hartmut (2007:315) concluded that by considering fuel consumption in assessing taxes a step is taken down the right path. This could enable the use of fiscal incentives for reducing the fuel consumption in larger automobile market and towards promoting more efficient use of energy. This argument indicates again that investing in fuel technologies could be beneficial in reducing carbon dioxide emissions.

The study shows that certain European Union countries do currently include environmental considerations (carbon dioxide emissions and fuel consumption) in their tax assessment bases. Among the 17 European Union countries that have registration taxes, three also consider the emissions of the vehicles, and five countries have included fuel consumption in their taxation systems (Kunert & Hartmut, 2007:314). In 10 European Union states, environmental aspects play a role in assessing the vehicle tax; six of them take fuel consumption or carbon dioxide emissions into account while six consider the emissions of the vehicles (Kunert & Hartmut, 2007:314).

Kunert and Hartmut (2007:315) however warn that when taxes which are based largely on carbon dioxide emissions, are introduced, it could be problematic. This may be because only new vehicle buyers can react adequately with their vehicle choice in the new vehicle market.

It is therefore important to consider policies which are aimed at the vehicles already in use. One such policy could provide incentives to scrap existing vehicles for which “fuel economy technology” has not been improved. Again, the socio-economic impact comes into play as used vehicles are primarily owned by the strata of the population that cannot easily access the new vehicles market due to limited funding.

In closing, Kunert and Hartmut (2007:315) stated that consumer preference, with regards to choice of driving distance and types of vehicles, may be small because of imperfections in the market for fuel economy. This market imperfection can possibly be circumvented by an additional instrument (for example the “feebate” policy as considered under 2.4.2) which can shift the focus from the consumers.

A study performed by Peters, Mueller, de Haan and Scholz (2008:1364) in Switzerland also concluded that the public acceptance for a “feebate” policy was comparatively high and that if the changes were considered within a disaggregated car fleet, a reduction in carbon dioxide emissions prevailed (Peters *et al.*, 2008:1364).

## 2.4 INCENTIVES FOR INCREASED FUEL ECONOMY IN THE UNITED STATES

### 2.4.1 Background

In the United States the Energy Policy and Conservation Act was passed in 1975. This established Corporate Average “fuel economy technology” which helped to nearly double passenger vehicle miles per gallon (hereafter referred to as MPG) by 1985 (Greene *et al.*, 2005:757). The focus in the United States is on fuel economy, to lower fuel consumption, which will in turn lower the carbon dioxide emissions.

The study performed by Greene *et al.* in 2005 re-examined the policies available to increase fuel economy in the United States even more. The following three policies were considered:

- **“Feebates”** - A policy which implies that not only will fuel-inefficient vehicle be subject to an additional charge, but that fuel-efficient vehicle would receive a rebate. Therefore the aim is to use the additional taxes raised, on the sale of fuel-inefficient vehicles, as an incentive to consumers for buying fuel-efficient vehicles.
- **Rebates** - Policy in which vehicles with high fuel economy are rewarded by rebates provided by government on the acquisition or development, and/or manufacturing, of these vehicles.
- **“Gas-guzzler taxes”** - The mirror image of rebates, “gas-guzzler taxes” discourage the sale of vehicle with low fuel economy by the levying of additional taxes on these vehicles. No incentive is provided for the purchase of vehicles with higher “fuel economy technology”. This instrument is currently being used in the United States (Greene *et al.*, 2005:758).

All three above mentioned policies are aimed at improving fuel economy which in turn would result in the reduction of the carbon dioxide emissions. Rebates and “gas-guzzler taxes” policies are complementary halves of a “feebate” policy. Because the rebate and gas-guzzler policies individually affect only some of the vehicles affected by a “feebate” policy, their impact on fuel economy may be expected to be individually correspondingly smaller than that of a “feebate” policy (Greene *et al.*, 2005:766).

Improving fuel economy can, in principle, be done by either attempting to affect the consumers' purchasing decisions or by investing in "fuel economy technology". The investment in "fuel economy technology" can be facilitated by providing incentives to vehicle manufacturers.

In the case of rebates and "gas-guzzler taxes" the aim is to affect consumers' purchasing behaviours by encouraging the purchase of higher fuel economy vehicles. Due to imperfections in the market for fuel economy consumer preference, with regards to choice of driving distance and types of vehicles, is expected to have a small impact on increasing fuel economy (Kunert & Hartmut, 2007:315).

The market imperfection with regards to consumer preference can, however, be circumvented. In a "feebate" policy the focus can be placed on providing incentives to vehicle manufacturers to invest in "fuel economy technology". The incentives provided in terms of the "feebate" policy can be generated by levying additional charges on the production of fuel-inefficient vehicles or by earmarking taxes generated from other sources. In a perfect scenario a "feebate" policy should also be made revenue neutral for government to ensure that the policy is not perceived as being just another tax generating initiative. Greene *et al.* commented that to date "feebate" policies have been widely considered but little used (Greene *et al.*, 2005:758).

In closing, Greene *et al.* (2005:770-771) stated that, when compared to a scenario where no policy is implemented, all three policies ("feebates", rebates and "gas-guzzler taxes") have the potential of improving fuel economy. In order to identify whether similar taxes have been implemented (including the two proposed vehicle green taxes) in South Africa, the results of the study performed in the United States as well as the existing taxes implemented in that country, were considered for the purpose of this study. This enabled the identification of possible alternatives for, as well as possible weaknesses in, the green taxes proposed in South Africa.

## **2.4.2 Purchase taxes**

Purchase taxes in the United States include sales taxes, “gas-guzzler taxes” and registration fees.

### **2.4.2.1 Sales tax**

There is no VAT in the United States, however, in some states non-refundable sales tax is levied, which varies from state to state. All states, except for Alaska, Delaware, Montana, New Hampshire and Oregon, levy sales taxes (Tax Foundation, 2008). Some of the states levy these sales taxes at a fixed rate throughout the state though most permit local authorities within the state to levy a variable rate. According to figures released by the Tax Foundation (2008) the states with the highest and lowest sales tax (state rate plus the average local rate) are: Tennessee (9.36%), Washington (8.26%) and New York (8.25%), Maine (5.00%), Colorado (4,75%) and Hawaii (4,38%).

### **2.4.2.2 “Gas-guzzler tax”**

In addition to sales taxes levied in most of the states, the “gas-guzzler tax” is also levied in the United States. These taxes are imposed on the domestic sale, use, or lease by the manufacturer or importer of vehicles with a fuel economy of less than 22,5 MPG with no comparable taxes for light trucks (Greene *et al.*, 2005:758). In a South African context 22,5 MPG converts to approximately 9,5647 kilometres per litre (refer Table 1).

Vehicles with fuel economy of more than 22,5 MPG are not subject to any “gas-guzzler tax”. These taxes range from \$1,000 (for a vehicle with fuel economy of at least 21.5 MPG but less than 22,5 MPG) and can be as high as \$7,700 (for vehicles with a fuel economy of less than 12.5 MPG) (Internal Revenue Services, 2005). Converted at an average rate of R8 for one Dollar (US) , these taxes could range from R8,000 to R61,600. The obvious aim of these taxes is to discourage consumers from purchasing vehicles with lower fuel economy.



“Gas-guzzler” taxes have had a profound effect on the distribution of vehicles sales (the vehicle sales mix) by MPG level (Greene *et al.*, 2005:776). By creating a strong disincentive to fall below the minimum MPG level, it caused a concentration of vehicles just above the minimum MPG level. These taxes nearly eliminated vehicles designed to get less than 22,5 MPG.

The only vehicles with MPG numbers below 22,5 are high priced luxury and performance vehicles which in nature is considered to be non-elastic and therefore consumers are not that sensitive to increases in prices (Greene *et al.*, 2005:770).

#### **2.4.2.3 Registration fees**

Registration fees levied in the United States vary from state to state. The registration fee may be a flat fee or be based on a car’s weight, age or value (or combination of the two). Based on a comparative study performed by the Idaho Transportation Department (2008:2) the average annual registration fee for the United States is \$185.38 and the states with the highest and lowest annual registration fees are Rhode Island (\$941.78) and South Carolina (\$12.00). Based on an exchange rate of R7,7756 for one Dollar (US) as at 30 June 2009 (South African Reserve Bank, 2009) this could amount to R1,441.44 (average annual registration fees in the United States).

#### **2.4.2.4 Feebate policy**

The “gas-guzzler taxes” and a rebate policy are complementary halves of a “feebate” policy. The study performed by Greene *et al.* (2005:770-771) suggested that a “feebate” policy could result in a higher increase in fuel economy than implementing only a “gas-guzzler tax” or rebate policy.

According to Greene *et al.* (2005:758), another advantage of a “feebates” policy is that it would provide a continuing incentive to increase fuel economy. This means that in addition to new “fuel economy technology”, which is expected to be developed by vehicle manufacturers as time goes by, there is an added benefit to further increase fuel economy by means of the incentive provided in terms of the “feebate” policy.

Therefore the “feebates” could result in compounded investments in “fuel economy technology” by providing continuous incentives to the vehicle manufacturers. Greene *et al.* (2005:758) however, also identified the following disadvantages of “feebates” and possible solutions in order to address these disadvantages:

- the possibility that “feebates” will be perceived as a kind of tax. This can be avoided by designing the “feebates” to be revenue neutral and transparent. Government should therefore pay out as much in rebates as what was collected in fees and communicate the policy clearly to consumers; and
- “feebates” will undoubtedly confer different benefits and costs on different manufacturers and consumers, which might affect the competitiveness between different manufacturers and place different burdens on consumers. This disadvantage can be mitigated by establishing different “feebate” schedules for different vehicle classes.

Among the important findings of Davis *et al.* (in Greene *et al.*, 2005:759) was the consistent result that manufacturers’ adoption of “fuel economy technology” accounted for approximately 90 percent of the overall increase in fuel economy brought about by “feebate” policies. Changes as a result of consumers’ choices (between lower and higher fuel economy vehicles) were always noted as a minor factor.

In conclusion, the study performed by Greene *et al.* (2005:759) showed that a “feebate” policy can be effective in improving fuel economy and it supports the view that sales mix shifting is, in general, a more expensive way to increase fuel economy than the adoption of “fuel economy technology”. Given the choice between adjusting vehicle prices to increase the new vehicle fleet average MPG, by means of sales mix shifts, and increasing the use of “fuel economy technology”, manufacturers will mainly opt for the technological solution.

### 2.4.3 Ownership taxes

Ownership taxes in the United States include annual safety inspection fees and, in some states, fees for emissions (“smog”) tests (Just Landed, 2008).

An annual safety inspection is necessary in around 25 states and an additional inspection is compulsory upon resale or transfer in some states (Just Landed, 2008). These annual safety inspections for New York costs \$10 (according to: <http://www.nydmv.state.ny.us>). Based on an exchange rate of R7,7756 for one Dollar (US) as at 30 June 2009 (South African Reserve Bank, 2009) this could amount to R77,76.

In addition to the safety inspection, some states have also implemented compulsory emissions (“smog”) inspections for older vehicles and for which the vehicle owners must borne the costs (Just Landed, 2008). These emissions inspections are required periodically (annual or bi-annual). In Washington the cost of an annual emissions inspection can be as much as \$15 (according to: <http://www.ecy.wa.gov>) and for New York as much as \$25 (according to: <http://www.nydmv.state.ny.us>).

### 2.4.4 Usage taxes

The taxes on petrol and diesel in the United States is levied differently across the 50 member states, but, according to the American Petroleum Institute (API, 2009), can be divided into the following categories:

- **State excise tax.** These taxes are levied by all the member states, except Alaska, and the rates of these taxes vary.
- **Other state taxes.** These taxes consist of such taxes as the applicable sales taxes, gross receipts taxes, oil inspection fees, county and local taxes, underground storage tank fees and other miscellaneous environmental fees. These taxes are levied by all the member states, except Alaska, and the rates of these taxes vary.
- **Federal excise tax.** This is a fixed charge levied by the federal government to all member states. For Alaska this represents the only component of their fuel taxes.

In total 12 of the member states includes what is known as an underground storage tanks ('UST') fee as part of their other taxes (API, 2009). Legislation in the United States was amended in 1984 to address the problems of leaking underground storage tanks ('UST') policies. A trust fund was subsequently established for which the member states are separately responsible to administer the contributions for cleanups at UST sites (EPA, 2009).

The average petrol taxes and diesel taxes, as percentage of the retail prices set out in Table 5 below, is comparatively lower than the petroleum taxes levied in all of the 27 European Union countries considered in the study by Kunert and Hartmut (2007:308).

**Table 5: Taxes on fuel in the United States**

Petrol		Diesel	
Retail price	Taxes as percentage of retail price	Retail price	Taxes as percentage of retail price
\$ 2,05 per gallon	20%	\$ 2,22 per gallon	21%

Source: Energy information administration – What we pay for in a gallon. [Online] Available from: <http://tonto.eia.doe.gov/oog/info/gdu/gasdiesel.asp> [Accessed: 18-06-2009]. Retail prices and taxes shown for the period ended April 2009.

#### **2.4.5 Conclusion**

Based on the instruments implemented in United States, there are initiatives which have been included in the United States which could also be considered in South Africa. This includes the emissions ("smog") tests and the underground storage tanks ('UST') fee.

The study performed by Greene *et al.* considered "feebates", rebates or "gas-guzzler" policies as options for further improving fuel economy. In conclusion Greene *et al.* (2005:769) found that the implementation of any of the three policies could have the potential of improving fuel economy (and consequently reducing carbon dioxide emissions).

Greene et al. (2005:762) concluded that the different policies had the following impact on fuel economy:

**Table 6: Maximum increase in fuel economy in the United States**

Policy/rate	Maximum increase in fuel economy		
	Cars (MPG)	Light trucks (MPG)	Total (MPG)
No policy	100%	100%	100%
Feebate cases	142%	156%	148%
Rebate cases	110%	114%	108%
Gas-guzzler	112%	115%	114%

Source: Calculated based on maximum MPG increase per Table in D.L. Greene *et al.* / Energy Policy 33 (2005:762).

“Feebate” policies were considered to be the most effective in improving fuel economy as it had the highest possible increase in fuel economy for both vehicles and light trucks. The percentage difference between a rebate policy and a “gas-guzzler” policy was not significant and thereby suggesting that they both individually rendered more or less the same improvement in fuel economy. The result supports the fact that a “feebate” policy (which is a rebate and gas-guzzler policy combined) is more effective than only implementing a rebate or gas-guzzler policy.

In addition to showing the highest increase in fuel economy, Greene *et al.* (2005:770-771) also noted that in most “feebate” cases vehicle manufacturers’ revenues increased. Also, in more or less revenue-neutral “feebates” cases, vehicle sales quantities showed an insignificant decline of 0,5%. On the other hand, sales revenues showed an increase due to the added value in vehicles making greater use of “fuel economy technology” (Greene *et al.*, 2005:770-771).

In total it was noted that the revenue of the fuel sector was reduced, due to the reduced fuel consumption, while the revenue of vehicle manufacturers were not affected. Therefore the study supports that a “feebate” policy has the potential to at least maintain the vehicle manufacturers’ revenues with the added benefit of providing a continuous incentive to improve fuel technologies (Greene *et al.*, 2005:770-771).

Investing in fuel technology however has monetary implications for the vehicle manufacturers. The incentives provided by government might not fully cover those implications, resulting in increases in vehicles prices to recover the additional costs. From the consumers’ perspective Greene *et al.* (2005:770-771) noted the increased fuel savings could offset most of the price increase. With regards to the consumers being levied with taxes for vehicles which are not considered to be fuel-efficient, Greene *et al.* (2005:770-771) also commented that there might be a risk that those consumers perceive the taxes as an income generating exercise by government. This risk can be mitigated by making the “feebate” policy revenue neutral for government (which implies that all taxes recovered be paid out as incentives) (Greene *et al.*, 2005:758).

The way forward would therefore seem to be to invest in fuel technology. In the study performed by Davis *et al.* (in Greene *et al.*, 2005:759) he concluded that “the economics of fuel economy improvement strongly favour technological solutions over attempting to change the mix of vehicles sold”. The study had the consistent result that approximately 90% of the overall increase in fuel economy, brought about by “feebate” policies, could be attributed to the vehicle manufacturers’ adoption of “fuel economy technology”. Consumers’ choices between higher or lower fuel economy vehicles were not noted as a significant contributing factor in improving fuel economy.

Government’s focus should therefore not be on the consumer but rather aimed at the automobile industry in order to increase the fuel efficiency and carbon dioxide emissions of vehicles by providing incentives and support for the development of “fuel economy technology” to manufacturers.

## CHAPTER 3

### COMPARING SOUTH AFRICA TO DEVELOPED COUNTRIES

#### 3.1 BACKGROUND

Tempelhoff (2009:1) pointed out that South Africa is per capita one of the biggest polluters in the world and Africa is described as being one of the continents which is the most vulnerable to climate change. The court case of the Government of the Republic of South Africa v Grootboom (2001:1) confirmed the obligation on government to implement measures which ensure that the environment is preserved. In the context of green taxes, this principle may imply that national government must uphold a person's right to an environment which is not harmful, by proposing and implementing the necessary fiscal reform to ensure sustainable development and a healthy environment for all (Kirby and Pillay, 2007).

Imposing green taxes is one fiscal reform initiative which government has available in order to address environmental issues. In November 2008 a workshop in Biodiversity in Environmental Fiscal Reform was held and during the workshop, the South African National Treasury (2008:24) confirmed that the following environmentally-related taxes are currently in place in South Africa with regards to vehicles:

- transport fuel levies on both petrol and diesel driven vehicles (refer to Table 10); and
- vehicle taxations (*ad valorem* customs and excise duties and road licensing fees).

Amendments to the aforementioned vehicle taxations have been proposed as part of a fiscal reform initiative. Based on newspaper articles which were reviewed the proposed green taxes were met with a mixture of outrage and relief by consumers and the local motor industry in South Africa (Philander, 2007). Some people recognise the need to reform in order to address environmental concerns while others probably perceived the proposed green taxes to be another attempt by government to generate income.

On the one hand government has the obligation to preserve the environment and on the other hand to reduce poverty levels to a minimum. Fiscal reform is one of the means which government could use to achieve the balance between these two priorities.

The fiscal reform with regards to the proposed vehicle green taxes will now be considered, in light of the international studies, to conclude on the prospects of the proposed vehicle green taxes achieving its intended purpose.

## **3.2 COMPARISON WITH DEVELOPED COUNTRIES**

### **3.2.1 Purchase taxes**

Purchase taxes in South Africa include once-off VAT, registration fees and *ad valorem* taxes.

#### **3.2.1.1 VAT**

VAT is currently levied in South Africa at 14% on the value of taxable supplies. The value of a vehicle, for VAT purposes, would normally refer to the selling price (excluding VAT) of that vehicle. Therefore the VAT levied in South Africa does not incorporate any environmental criteria in assessing the tax.

The VAT levied in South Africa is also lower than VAT levied in 26 of the 27 European Union countries (refer to Table 3). Sales taxes levied in the United States, which is also an indirect tax, is levied differently across the different states and is the highest in Tennessee at 9.36% (refer to 2.4.2).

The VAT currently levied in South Africa is therefore comparatively lower than the VAT levied in the majority of European Union countries and higher than the sales taxes levied in the United States.



### 3.2.1.2 Registration fees

In addition to VAT there are also once-off registration fees levied in all 9 of the South African provinces – refer to Table 7. In all the provinces the current registration and licensing fees are levied based on the tare weight (which represents the unloaded weight of the vehicle) without taking into account any environmental considerations such as carbon dioxide emissions.

The registration fees in South Africa are levied progressively based on the weight of the vehicle which means that the heavier the vehicle the higher the fees if categorised into a heavier category. The fees reflected in Table 7 below are for standard passenger vehicles and not for trailers, caravans or specialised vehicles.

**Table 7: Motor vehicle registration and licensing fees levied in South Africa**

Province	Registration fees	Annual licensing fees		
		Minimum fixed fee <sup>1</sup>	Maximum fixed fee <sup>2</sup>	Variable fee <sup>3</sup>
Gauteng	82.00	105.00	11 883.00	972.00
Western Cape	66.00	219.00	14 979.00	1 575.00
Northern Cape	62.75	156.00	13 068.00	1 302.00
Eastern Cape	57.00	165.00	14 532.00	1 293.00
Free State	54.00	102.00	11 439.00	1 596.00
Kwazulu-Natal	76.00	126.00	14 526.00	1 302.00
Limpopo	79.00	102.00	10 371.00	936.00
North-West	81.00	135.00	12 660.00	1 239.00
Mpumalanga	64.00	108.00	10 332.00	888.00

<sup>1</sup> Vehicles with tare weight of 250 kg and less.

<sup>2</sup> Vehicles with tare weight of between 11 501kg and 12 000kg

<sup>3</sup> Increment for every 500kg exceeding 12 000kg

Source: Provincial gazettes for each of the respective provinces (Gauteng, 2009:7; Western Cape, 2003; Northern Cape, 2009:6-7; Eastern Cape, 2009:7-8; Mpumalanga, 2009:1-3; North-West, 2008:4-5; Kwazulu-Natal, 2007:10-11; Limpopo, 2007:6-7; Free State, 2008:7-9).

Registration fees are also levied in 18 of the European Union countries considered in this study (refer to Table 3). These fees represent a non-recurrent administrative fee of up to 170 Euros for a standard-size vehicle (Kunert & Hartmut, 2007:307). Based on an exchange rate of R10.9608 for one Euro as at 30 June 2009 (South African Reserve Bank, 2009) this could amount to R1,863 payable at registration on a standard-size vehicle (Kunert & Hartmut, 2007:307).

Registration fees levied in the United States varies from state to state. These registration fees may be a flat fee or be based on a car's weight, age or value (or combination of the two) and are recurrent in nature. The average annual registration fees in the United States could amount to R1,441 (refer 2.4.2).

The registration fees levied in Gauteng is the highest across all 9 South African provinces, being R82, which is comparatively lower than the fees levied in both the European Union countries and the average fees in the United States.

### **3.2.1.3 Ad valorem customs and excise duties**

In the 2009 Budget Tax Proposal (SARS, 2009:10-12) it was proposed that the existing *ad valorem* taxes on motor vehicles be adjusted to incorporate carbon (CO<sub>2</sub>) emissions as an environmental criterion from 1 March 2010.

Incorporating an environmental criterion is in line with the registration taxes levied in 8 European Union countries which also include ecological aspects in assessing these taxes (Kunert & Hartmut, 2007:307). Kunert and Hartmut (2007:315) however warns that giving a tax scale to large a spread on a carbon dioxide emissions base will be problematic as only new vehicle buyers can react adequately with their vehicle choice in the new vehicle market. In the case of South Africa only the proposed *ad valorem* "emission" tax will be based on carbon dioxide emissions and therefore the South African tax policies do not currently have a large spread of taxes based on carbon dioxide emissions (National Treasury, 2008:24).

The proposal will result in the current *ad valorem* taxes being divided into two components. The current *ad valorem* excise duty tax rate will be reduced and referred to as the ‘luxury’ component (Table 8) and the ‘emissions’ component (Table 9) will be introduced.

**Table 8: *Ad valorem* ‘luxury’ excise duty tax rates on motor vehicles**

Retail price (R)	Current rate (%)	Proposed rate (%)	Deviation (%)
50 000	0.5	0.0	-0.5
100 000	1.7	0.6	-1.1
150 000	2.9	1.4	-1.5
200 000	4.1	2.2	-1.9
300 000	6.5	3.8	-2.7
400 000	8.9	5.4	-3.5
500 000	11.3	7.0	-4.3
600 000	13.7	8.6	-5.1
800 000	18.5	11.8	-6.7
864 500	20.0	12.8	-7.2
1 000 000	20.0	15.0	-5.0
1 312 500	20.0	20.0	0.0

Source: SARS Budget Tax Proposals (2009:11).

**Table 9: *Ad valorem* ‘emission’ tax rates on motor vehicles**

Carbon emissions (g/km)	Carbon emissions tax rate (%)
100	-
110	-
120	-
140	1.3
160	2.7
180	4.0
200	5.3
220	6.7
240	8.0
260	9.3
280	10.7
300	12.0

Source: SARS Budget Tax Proposals (2009:11).

Increasing the purchase taxes (*ad valorem*) in South Africa could result in vehicles being driven for longer periods of time (Hayashi *et al.*, 2001:135-138). Therefore consideration of investment in technology to ensure that new vehicles sold have the lowest possible carbon dioxide emissions for the longest possible time could be beneficial in further reducing carbon dioxide emissions. Hayashi *et al.* (2001:135-138) suggested that purchase taxes are not as effective in reducing CO<sub>2</sub> by affecting consumers' decisions with regards to purchasing and/or driving patterns.

The registration tax levied in 19 of European Union countries (refer Table 3) is similar to the *ad valorem* taxes levied in South Africa. The registration tax levied in these European countries is however recurring and could be the equivalent of R32,882 per year and R164,412 once off (refer 2.3.2) for a standard-size vehicle. A standard-size automobile with a retail price of R500,000 and carbon dioxide emissions of 280 g/km will result in VAT of R61,400 (R500,000 x (14/114)) and *ad valorem* of R88,500 (R500,000 x (7% + 10,7%)) being levied in terms of the proposed two fold *ad valorem* rates. The total registration taxes to be levied in South Africa of R149,900 is more or less in line with the equivalent registration taxes levied in the European Union countries, being R164,412.

In principle the proposed *ad valorem* "emission" tax in South Africa is also similar to the "gas-guzzler taxes" in the United States. Both are aimed at increasing the cost of vehicles with lower fuel consumption (or higher carbon dioxide emissions) which is aimed at curbing demand for such vehicles.

The study by Greene *et al.* (2005:762) showed that "gas-guzzler" taxes in the United States were effective in increasing fuel consumption, resulting in lower carbon dioxide emission, which suggests that the proposed *ad valorem* taxes might achieve its purpose of reducing carbon in South Africa. In the United States the "gas-guzzler taxes" could range between \$1,000 and \$7,700 (Internal Revenue Services, 2005). Based on an exchange rate of R7,7756 for one Dollar (US) as at 30 June 2009 (South African Reserve Bank, 2009) this could amount to the equivalent of up to R59,872. In South Africa the minimum theoretical proposed *ad valorem* payable would be R1,900 for a vehicle with a retail price of R100,000 and carbon dioxide emissions of 140 g/km ( based on Table 8 and Table 9).

The maximum theoretical proposed *ad valorem* payable would be R420,000 for a vehicle with a retail price exceeding R1,312,500 and carbon dioxide emissions exceeding 300 g/km (based on Table 8 and Table 9). Therefore if compared to the maximum “gas-guzzler” taxes in the United States (being R59,872) the maximum theoretical proposed *ad valorem* payable in South Africa (being R420,000) would be higher. Both these taxes however results in adherence to the principle of the “polluter pays” as vehicles with the higher carbon dioxide emissions will be taxed at a higher rates than vehicles with lower carbon dioxide emissions.

Furthermore the ‘luxury’ component of the proposed *ad valorem* payable in South Africa results in a progressive tax (meaning that higher income earning taxpayers contributes more than the lower income earning taxpayers) and therefore justifies the taxes being higher compared to the “gas-guzzler” taxes in the United States.

The fact that similar taxes have been implemented in Europe Union countries and the United States supports that the proposed restructuring of *ad valorem* taxes might achieve its intended purpose in South Africa. The risks associated with unilateral implementation, as also considered by Ashiabor (2005:300), would also be mitigated.

According to Green *et al.* (2005:770-771), another policy, a “feebate” policy might however further improve the prospects increasing fuel consumption, and consequently reducing carbon dioxide emissions, and this alternative will be considered as part of this study (refer 3.4.2).

### **3.2.2 Ownership taxes**

The proposed increase in vehicle licensing fees for fuel-inefficient vehicles is classified as ownership tax as envisaged by Kunert and Hartmut (2007:307).

In South Africa licensing fees are levied in all 9 provinces – refer to Table 7. In all the provinces these licensing fees are levied based on the tare weight (which represents the unloaded weight of the vehicle) without taking into account any environmental considerations such as carbon dioxide emissions.

Results of the study performed by Hayashi *et al.* (2001:135-138) suggests that increases in ownership taxes showed a minimal effect on the reduction of carbon dioxide emissions unless the ownership taxes rate is set in proportion to fuel efficiency or carbon dioxide emissions. According to Hayashi *et al.* (2001:135-138), increasing ownership taxes for specific classes of vehicles could also result in a shift to another class of vehicles. This approach can be effective in reducing carbon dioxide emissions if the ownership taxes on fuel-efficient vehicles, and vehicles with lower carbon dioxide emissions, are reduced in order to act as incentive to purchase these vehicles.

In the European Union countries vehicle taxes (refer Table 3) are levied which are recurrent similar to the annual licensing fees levied in South Africa. For a standard-size vehicle, the annual vehicle tax amounts to up to 600 Euros (Kunert & Hartmut, 2007:308). Based on an exchange rate of R10.9608 for one Euro as at 30 June 2009 (South African Reserve Bank, 2009) this could amount to R6,576 per annum. For a Toyota Corolla 2009 1.3, a standard size-vehicle, which weights 1,735kg (East Rand Toyota, 2009) the highest licensing fees will be payable in Gauteng and amounts to R567 (Gauteng, 2009:7).

Registration fees levied in the United States varies from state to state. These registration fees may be a flat fee or be based on a car's weight, age or value (or combination of the two) and are recurrent in nature (refer 2.4.2.3 for detail). In certain states in the United States annual safety inspections are also compulsory and for New York these inspections can cost up to \$10 (according to: <http://www.nydmv.state.ny.us>).

The fact that similar taxes have been implemented in European Union countries and in the United States mitigates any risks associated with unilateral implementation (Ashiabor; 2005:300). The proposed increase in vehicle licensing fees might however not be the most effective instrument in reducing carbon dioxide emissions as it is an ownership tax (Hayashi *et al.*, 2001:135-138). The fees levied in South Africa is also comparatively lower than the fees levied in the European Union countries and the increase will most likely not be significant enough in monetary terms to influence consumers.

Therefore the prospects of the proposed increase in vehicle licensing fees taxes achieving its purpose in reducing carbon dioxide emissions is not considered positive.

### 3.2.3 Usage taxes

Transport levies represent one of the usage taxes which have been used in South Africa for the past few years (Jooste, 2007). These transport levies consists of different components as indicated in Table 10 below.

**Table 10: Transport fuel levies in South Africa**

Tax year	2007/2008		2008/2009		2009/2010 <sup>3</sup>	
Description	Petrol <sup>1</sup>	Diesel	Petrol <sup>1</sup>	Diesel	Petrol <sup>1</sup>	Diesel
General fuel levy	121.00	105.00	127.00	111.00	150.00	135.00
Road Accident Fund levy	41.50	41.50	46.50	46.50	64.00	64.00
Customs and excise levy	4.00	4.00	4.00	4.00	4.00	4.00
Illuminating paraffin marker	-	0.01	-	0.01	-	0.01
<b>Total</b>	<b>166.50</b>	<b>150.51</b>	<b>177.50</b>	<b>161.51</b>	<b>218.00</b>	<b>203.01</b>
Pump price: Gauteng	561.00	542.10	750.00	732.30	643.00	649.35
Taxes as % of pump price <sup>2</sup>	29.7%	27.8%	23.7%	22.1%	33.9%	31.3%

<sup>1</sup> 93 Octane petrol.

<sup>2</sup> Diesel (0.05% sulphur) wholesale price (retail prices not regulated).

<sup>3</sup> Petrol and diesel pump prices as per the SARS Budget Tax Proposal (dated 7/2/2009) used.

Source: SARS Budget Tax Proposals (2009:16).

It is clear that based on the budget that there are increases budgeted for all components of transport levies, except for the customs and excise levy, up to the end on the 2009/2010 tax year. SARS (2009:15) also indicated that they are aware of the increasing use of diesel in passenger vehicles in South Africa and intends to equalise the general fuel levy on diesel and petrol over time.

According to Hayashi *et al.* (2001:138), usage taxes (which include fuel levies) are the most effective fiscal instrument which can be used in reducing carbon dioxide emissions.

Compared to the percentage fuel taxes levied in the European Union countries in 2007 (refer to Table 4) transport levies on petrol and diesel in South Africa for 2007/2008 is comparatively lower than all 27 European Union countries.

In comparing the fuel taxes levied in European Union countries to the fuel taxes levied in South Africa there seems to be room for further increases in the South African fuel taxes as possible vehicle green tax initiative. It should however be kept in mind that South Africa is a developing country, as oppose to European Union countries which are in a developed country, and factors such as poverty, inequality and international competitiveness are critical in any fiscal reform initiative.

Fuel taxes have also been implemented in the United States. Compared to the percentage fuel taxes levied in the United States in 2008 (refer Table 5) transport levies in South Africa for 2007/2008 is higher for both petrol (9,7% higher) and diesel (6,8% higher). These higher fuel levies is however not the only factor to consider in contending that no further increases can be implemented in South Africa. The fact that a mixture of vehicle green taxes, including the “gas-guzzler” taxes, has been introduced in the United States might justify lower fuel taxes as less diverse vehicle green taxes have been introduced in South Africa.

Further increases in fuel taxes in South Africa would seem to be an alternative means of addressing the environmental concern of increasing carbon dioxide emissions. It is however critical that other factors (such as the socio-economic impact) also be given the due consideration – refer to 3.4.1.



**Table 11: Comparative table – Purchase taxes**

Type of taxes	Japan	European Union countries	United states	South Africa
<b>Purchase taxes</b>	<p>Hayashi <i>et al.</i> (2001:135-138) found that increases in purchase taxes resulted in a decrease in CO<sub>2</sub> emissions due to decrease in car production activity as result of the lengthening of the lifetime of vehicles (how long vehicles are kept by the consumers). Therefore it is suggested that purchase taxes are not as effective in reducing CO<sub>2</sub> emissions by affecting the decisions of consumers with regards to purchasing and/or driving patterns.</p> <p>Hayashi <i>et al.</i> (2001:138) also concluded that improvements in fuel technology with regards to CO<sub>2</sub> emissions and fuel consumption can play a big role when vehicles are replaced more often. This can be done by reducing purchase taxes and providing incentives to consumers to replace their vehicles more often.</p>	<p>VAT levied at rates between 7,6% and 25% in 27 countries, with Sweden being the only country where VAT is the only tax levied on initial purchase (Table 3).</p> <p>Registration taxes levied in 19 countries (of which only 8 countries include ecological aspects in assessing their taxes). In 11 of these countries the registration tax is an <i>ad valorem</i> tax.</p> <p>Registration fees levied in 18 countries which is a non-recurrent administrative fee of up to 170 Euros.</p> <p>Peters <i>et al.</i> (2008:1364) suggests that the public acceptance for a “feebate” policy is comparatively high and that if the changes are considered within a disaggregated car fleet a reduction in CO<sub>2</sub> emissions prevailed.</p>	<p>No VAT levied but in some states non-refundable sales tax are levied at rates ranging between 9.36% and 4,38% (Tax Foundation, 2008).</p> <p>“Gas-guzzler” taxes levied which range between \$1,000 and \$7,700 depending on the fuel economy of the vehicle (Internal Revenue Services, 2005).</p> <p>Greene <i>et al.</i> (2005:758-759) contended the merit of a “feebate” policy and the importance of manufacturers’ adoption of fuel economy technologies which accounted for about 90% of the overall increase in fuel economy.</p>	<p>VAT levied at 14% and has not been increased since 1991.</p> <p>Proposal to amend current <i>ad valorem</i> structure to include ‘emissions’ component from 1 March 2010. In total the <i>ad valorem</i> payable can be as little as R1,900 and as high as R420,000 - depending on the retail price and emissions of the vehicle (SARS, 2009:12).</p>

Source: Compiled based on the literature review performed as part of this study.

**Table 12: Comparative table – Ownership taxes**

Type of taxes	Japan	European Union countries	United states	South Africa
<b>Ownership taxes</b>	<p>Hayashi <i>et al.</i> (2001:135-138) suggests that increases in ownership taxes showed a minimal effect on the reduction of CO<sub>2</sub> emissions unless the ownership taxes rate is set in proportion to fuel efficiency or to the CO<sub>2</sub> emissions.</p> <p>Hayashi <i>et al.</i> (2001:135-138) concluded that technology aimed at reducing CO<sub>2</sub> emissions in new vehicles sold is important and attempting to influence consumers to buy other vehicles by using only ownership taxes would not be as effective in reducing CO<sub>2</sub> emissions.</p> <p>Hayashi <i>et al.</i> (2001:138) also found that ownership taxes had a significant incentive effects to shift to smaller cars.</p>	<p>Recurrent annual vehicle tax levied in 24 countries. The rate at which these taxes are levied (on owners of private vehicles) varies significantly between the different countries. For a standard-size vehicle, the annual vehicle tax could amount to 600 Euros (Kunert &amp; Hartmut, 2007:308).</p> <p>Insurance taxes are also levied in 18 countries. In addition to the insurance tax 12 countries also levy para fiscal charges on insurance premiums paid by owners (Table 3).</p> <p>Lower fuel consumption and modern exhaust systems were honoured by the vehicle tax schemes of 11 countries (Kunert &amp; Hartmut, 2007:308).</p>	<p>Registration fees are levied by all states and according to a study performed by the Idaho Transportation Department (2008:2) the average annual registration fees is \$185.38. States with the highest and lowest annual registration fees are Rhode Island (\$941.78) and South Carolina (\$12.00).</p> <p>Annual safety inspection fees and emissions (“smog”) fees also levied in some states. For New York these fees are \$10 and \$15 respectively.</p> <p>Residents of certain states also encouraged to report “smoking” vehicles.</p>	<p>Registration fees levied in all 9 provinces (Table 7) which is the highest in Gauteng (R82).</p> <p>Annual licensing fees also levied in all 9 provinces based on the tare weight of the vehicle (Table 7). These fees can be as high as R14,979 in the Western Cape for heavy vehicle which weighs between 11,501kg and 12,000kg.</p> <p>Proposal to increase vehicle licensing fees on fuel-inefficient vehicles as fiscal reform initiative (South African National Treasury, 2006:70).</p>

Source: Compiled based on the literature review performed as part of this study.

**Table 13: Comparative table – Usage taxes**

Type of taxes	Japan	European Union countries	United states	South Africa
<b>Usages taxes</b>	<p>Hayashi <i>et al.</i> (2001:135) found usage taxes to be the fiscal instrument which can be implemented to reduce CO<sub>2</sub> emissions the most. This is because usage taxes are directly linked to the usage of vehicle and will therefore affect the day-to-day decisions of consumers. It was noted that most of the reduction in CO<sub>2</sub> emissions comes from the decrease in driving distance.</p> <p>Only a little shift in the vehicles sales mix was observed for an incremental increase in usage taxes. This finding suggests that usage taxes are not significant to the purchase behaviour of vehicle drivers (Hayashi <i>et al.</i>, 2001:138).</p>	<p>Petroleum taxes levied in all of the 27 countries (Kunert <i>et al.</i>, 2007:308). As percentage of the consumer prices these taxes on petrol range between 31% and 52% and on diesel between 26% and 45% (Table 4).</p> <p>In addition to the petroleum taxes VAT is also levied on both petrol and diesel in all of the 27 countries which ranges from 7% to 25% (Table 4).</p>	<p>Fuel taxes levied in all of the 50 states. The average fuel taxes, as percentage of the retail price, on gasoline are 20% and on diesel is 21% (Table 5).</p> <p>In addition sales taxes are also levied in 11 states on both gasoline and diesel (Williams, 2002:4-7).</p> <p>Underground Storage Tanks ('UST') fee also included as part of fuel taxes in some states (API, 2009). These fees are then used to, <i>inter alia</i>, repair leakages in 'UST' and fund the removal of 'UST' when it is considered obsolete and for the restoration of the environment.</p>	<p>Fuel taxes for the 2008/2009 tax year, as percentage of the retail price, on petrol is 23.7% and on diesel is 22.1% (SARS Budget Tax Proposals, 2009:16).</p> <p>In South Africa petrol and diesel are zero-rated supplies for VAT purposes in terms of section 11(h) of the Value-Added Tax Act No. 89 of 1991.</p>

Source: Compiled based on the literature review performed as part of this study.

### 3.3 CONSIDERATION OF POSSIBLE WEAKNESSES

Although the proposed vehicle green taxes incorporates environmental criteria, which is a step in the right direction, there are however a few weaknesses which were identified in this study. These weaknesses might affect the prospects of the proposed vehicle green taxes achieving its purpose in reducing carbon dioxide emissions.

The weaknesses relate, in principle, to the overall design of the proposed *ad valorem* “emissions” tax and the proposed increase in vehicle licensing fees. It is contended that the focus should be shifted from targeting consumers to providing incentives for vehicle manufacturers to invest in “fuel economy technology”.

#### 3.3.1 Focus on consumers

Both the *ad valorem* “emission” tax and the proposed increase in licensing fees are aimed at the consumers in the transport sector. It will result in extra costs for the consumer which is likely to negatively affect the consumers’ attitude towards these taxes. Consumers might perceive these taxes only to be an income generating exercise by government and may not fully value the benefit of reducing carbon dioxide emissions.

Even if consumers do value the benefit of reducing carbon dioxide emissions it should be considered how effective attempting to influence consumers’ choices and behaviours are in reducing carbon dioxide emissions. Studies performed in other countries concluded that consumers’ choices between higher or lower fuel economy vehicles were not noted as a significant contributing factor in improving fuel economy (Greene *et al.*, 2005:759; Kunert and Hartmut, 2007:315). These findings support the fact that focussing only on consumers might not be the most effective in reducing carbon dioxide emissions.

Implementing a “feebate” policy, and making the policy transparent and revenue neutral for government, might increase the confidence of the consumers with regards to the proposed vehicle green taxes and address this weakness to a certain extent. The taxes recovered in terms of a “feebate” policy could be allocated as incentives to vehicle manufacturers and therefore shift the focus from consumers and towards fuel economy technologies.

### **3.3.2 Focus on new vehicles**

The focus of the *ad valorem* “emission” tax is only on new vehicles and no policies have been proposed with regards to the existing used vehicles. There is an argument in favour of the fact that older vehicle, in most cases, emit more gasses than more modern vehicles as result of fuel technologies (Atson & Smith, 2007).

The *ad valorem* “emission” tax could result in consumers buying second hand vehicles, rather than new vehicles, as result of cost implications which will only expand the second hand market for vehicles. In order to prevent the aforementioned government should consider introducing a scrapping incentive for older vehicles in addition to the proposed vehicle green taxes. The scrapping incentives, if significant enough to consumers, could result in older vehicles being replaced by more modern vehicles (with improved fuel technology and consequently better fuel consumption and lower carbon dioxide emissions).

The South African National Treasury (2006:70) also included, as part of the proposed increase in vehicle licensing fees, comments on providing increased scrapping rates for older vehicles and that licensing fees should be differentiated according to the age of vehicles. Implementing such incentives could possible assist in attempting to reduce the number of older vehicles on the roads.

In the long run however the older vehicles would probably phase out and the more modern vehicles will be introduced. If the “fuel economy technology” (which includes the carbon dioxide emissions as result of fuel consumption) is improved in more modern vehicles it could contribute to the reduction of carbon dioxide emissions in the long term. This once again emphasises the importance of investing in fuel technology.

### **3.3.3 No distinction between petrol and diesel driven vehicles**

Currently in South Africa, as in the European Union countries, the total fuel taxes on diesel are lower than the fuel taxes on petrol. On the face of things diesel is already taxed at a lower rate but due to the improved fuel consumption of diesel driven vehicles an inherent benefit also exists when levying fuel taxes.

Kunert and Hartmut (2007:314) commented in their European study that as diesel driven vehicles have inherent lower fuel consumption it could imply that in levying fuel tax the carbon dioxide emissions as result of diesel consumption might implicitly already be taxed at a lower rate than petrol. There is an argument however in favour of diesel being taxed at a lower rate in the public sector, in order to promote use of public transport by reducing costs. However this preferential treatment in the private sector might not be justified.

In their study Kunert and Hartmut (2007:311) made the following observations with regards to differences between diesel and petrol vehicles in the Europe Union countries:

- diesel vehicles were on average driven more than petrol vehicles;
- as result of its great significance in the transport sector diesel is taxed at a lower rate than petrol in all the European Union countries, except Switzerland and Great Britain;
- with reference to a lower medium/size vehicles with diesel engines the ownership taxes on these vehicles was higher than the comparable ownership taxes on vehicles with petrol engines in 15 of the 27 European Union countries. It therefore seems as if the tax advantage which the owners of vehicles with diesel engines receive (as result of lower fuel tax rates) are counteracted, to some extent, by a higher ownership taxes in some European Union countries; and
- the calculated sum of all types of charges is higher for vehicles with petrol engines in 20 of the 27 European Union countries. Only in seven countries are the charges for passenger vehicles with diesel engines higher than for those with petrol engines.

Therefore it is clear that overall the European Union countries aim not to unjustly favour diesel drive engines compared to petrol engines. The tax advantage in fixed vehicle taxes enjoyed by those purchasing vehicles with a petrol engine is counteracted by higher

petroleum tax rates and the higher fuel consumption. In addition the petroleum tax and VAT levied on petrol vehicles were higher than diesel vehicles, this again counteracted the possible advantage of lower fixed vehicle taxes if compared to diesel driven engines.

In the South African context it is also of paramount importance that diesel and petrol vehicles be taxed, in total, at the more or less the same rates. This is to ensure that there is no unreasonable preferential treatment of any consumers from both categories (diesel and petrol).

The *ad valorem* “emission” tax proposed in South Africa makes no distinction between petrol and diesel vehicles which creates the possible risk of the preferential treatment of diesel driven vehicles. The question is whether the *ad valorem* “emission” tax should not rather have different rates for petrol and diesel vehicle in order to address the possible preferential treatment of diesel vehicles.

In the 2009 Budget Tax proposal SARS however commented that they are aware of the increasing use passenger vehicles with diesel engines in South Africa and that government intends to equalise the general fuel levy on diesel and petrol over time (SARS Budget Tax Proposal, 2009:15). It would therefore seem as if the possible weakness could be resolved in the future as SARS are aware of the possible preferential treatment of vehicles with diesel engines.

#### **3.3.4 Capped carbon dioxide emission limit**

The *ad valorem* “emission” tax proposed in South Africa is capped at 12% on vehicles that emit 300 or more gram of carbon dioxide emissions per kilometre. Vehicles that emit more than the capped 300 g/km are therefore no being penalised in proportion to their emissions as they are responsible for the most carbon dioxide emissions. Again there is an argument in favour of the public transport sector, that in order to encourage use of public transport costs should be kept as low as possible and the capped limit ensures that costs are not increased incrementally with carbon dioxide emissions. This approach does however not honour the “polluter pays”-principle which states that people should be taxed according to their contribution to the pollution, in this case carbon dioxide emissions.

The capped amount should possibly be reconsidered in order to ensure that the strata of the vehicle population which causes the most carbon dioxide emissions are taxed in proportion to their emissions.

### **3.3.5 Current status of motor industry**

A reporter for the Mail and Guardian made the following comment in an article on the proposed *ad valorem* “emission” tax: “The South African consumer, already battered by high interest rates and poor market conditions, could soon receive a few more bruises. And the shade of this new set will be a violent green.” (Donnelly, 2009.)

Implementing the *ad valorem* ‘emission’ tax rates on vehicles will, at the end of the day, be an additional cost to the consumer. In reaction to the increase in prices consumers could respond in the following ways:

- pay the premium and still buy the vehicle;
- opt for another vehicle with lower *ad valorem* “emission” taxes;
- buy a second hand vehicle on which no *ad valorem* “emission” tax are payable; or
- opt not to buy any vehicle at all.

The risk is that the proposed *ad valorem* “emission” taxes could result in decreased revenue for the motor industry and in a shift of sales between the different classes of vehicles (being, new and second-hand vehicles). If the motor industry loses revenue it would add to the existing pressure of attempting to maintain sales in the current economic environment. This, in turn, could affect international competitiveness and also result in job losses if sales volumes decrease significantly. The concern is therefore that the implementation in the near future will increase the pressure on the motor industry and should maybe be postponed until the motor industry is a bit healthier (Donnelly, 2009).

An alternative could be to consider a “feebate” policy as it has the potential to maintain, or even increase, the vehicle manufacturers’ revenues with the added benefit of providing a continuous incentive to improve fuel technologies (Greene *et al.*, 2005:770-771).



### 3.4 CONSIDERATION OF ALTERNATIVES

Environmentally related taxes ('green taxes') can either take the form of an incentive ('carrot') for acting in an environmentally friendly manner or as deterrents ('stick') for not acting in the best interest of the environment (Gaffney, 2008:1).

Both the proposed green taxes considered in this study are 'sticks' aimed at the consumer for not acting in an environmentally friendly manner. A critical success factor which must however be considered is the consumers' attitudes towards the proposed green taxes. Some consumers might not fully value their "carbon footprint" and/or their fuel consumption which is considered to be a market failure (Greene *et al.*, 2005:758; Kunert & Hartmut, 2007:315). This entails that, up to a certain point, the only consideration for these consumers will be the financial implications of decisions and not necessarily the environmental implications – in which case using 'sticks' in fiscal reform might not be as effective in reducing carbon dioxide emissions.

According to Greene *et al.* (2005:758), if consumers do not fully value the benefit of fuel consumption (and the resulting carbon dioxide emissions) the following needs to be considered:

- increasing the price of petrol would have a smaller impact on fuel consumption. Investments in "fuel economy technology" would be a more effective approach because it would not be directly affected by the behaviour of consumers; and
- aiming taxes on consumers and the acquisition of the vehicles, as oppose to the use of the vehicle, should also be more effective. Greene *et al.* (2005:758) concluded that consumers appear to accurately reckon vehicle prices in their purchase decisions.

Investing in "fuel economy technology" seems ideal as it would be independent of the consumers and would be aimed on providing incentives to the vehicle manufacturers. Consumers would then also contribute by means of the existing transport fuel levies and the proposed vehicle green taxes. Furthermore the proposed *ad valorem* "emission" tax, and existing *ad valorem*, in South Africa is aimed at the acquisition of vehicle rather than the use of vehicles which is, according to Green *et al.* (2005:758), a good approach.

The proposed vehicle green taxes in South Africa are therefore considered to be a step in the right direction. The following are however alternatives to expand on the proposed vehicle green taxes and improve the prospects of it achieving its purpose:

- increasing transport levies (specifically fuel levies);
- implementing a “feebate” policy as considering in the study performed in the United States by Greene *et al.* (2005:758-771); and/or
- introducing entirely new charges.

Each of these alternatives will now be considered in order to comment on their possible implementation in South Africa.

### **3.4.1 Increasing fuel levies**

Fuel levies would be classified as usage dependant taxes and based on the conclusion of other studies performed (Hayashi *et al.*, 2001:135) usage taxes could be the most useful in reducing fuel consumption and carbon dioxide emissions.

Fuel levies are linked to fuel consumption which is also a step in the right direction as it could enable the use of fiscal incentives for reducing the fuel consumption (Kunert & Hartmut, 2007:315). The transport fuel taxes levied in South Africa (refer Table 10) are comparatively lower than the taxes levied across European Union countries (refer Table 4) which indicates possible room for increases.

In the Budget Tax Proposal SARS confirmed the importance of maintaining a strong price signal to limit fuel consumption, road congestion and environmental impact, and therefore proposed to increase the general fuel levy on petrol and diesel by 23 and 24 cents per litre respectively from 1 April 2009 (SARS Budget Tax Proposal, 2009:15). Therefore the impact of further increases, as alternative should be considered.

The study performed Greene *et al.* in the United States warned that increases solely as fiscal reform instrument could be met with strong public opposition, which has so far made this option politically unacceptable in the United States (Greene *et al.*, 2005:757).

In South Africa, as developing country, the socio-economic impact of increases in transport fuel taxes is also of utmost importance.

From a socio-economic perspective the fiscal reform in South Africa should ensure that the environmental instruments are pro-poor where possible, or at least do not place an unreasonable burden on groups with lower income. In the current economic environment consumers are already struggling with high interest rate and petrol and diesel prices which have significantly increased during the past few years.

A further increase in the fuel levies in South Africa might place an additional burden on the consumers especially the low-income groups. Therefore considering the socio-economic impact of increasing fuel levies it might not be the best alternative instrument to reduce fuel consumption and carbon dioxide emissions. The current fuel levies however could prove valuable together with the vehicle green taxes proposed in South Africa in adding to the spread of vehicle green taxes in South Africa in order to maximise the reduction of carbon dioxide emissions (Hayashi *et al.*, 2001:124).

### **3.4.2 A “feebate” policy and investing in fuel technologies**

From the results of the study performed by Greene *et al.* (2005:758) it is clear that a “feebate” policy could possibly be the most effective policy which can be implemented in order to reduce fuel consumption and carbon dioxide emissions. A “feebate” policy involves both additional taxes (to discourage higher fuel consumption and carbon dioxide emissions - ‘sticks’) and incentives (to encourage lower fuel consumptions and carbon dioxide emissions - ‘carrots’).

The “feebate” policy should preferably also be revenue neutral towards government. This means that all the additional taxes collected by government should be allocated as incentives – on assumption that the additional taxes collected are sufficient enough to be used as incentives.

If the “feebate” policy is made transparent and revenue neutral it could result in increased taxpayers confidence towards to policy as it would not be perceived only to be an income generating exercise from government (Greene *et al.*, 2005:757).

The incentives could be provided to either the consumers or vehicle manufacturers. Providing incentives to consumers could potentially not be as effective as consumers might not fully value the benefit of fuel economy and the impact of carbon dioxide emissions (Greene *et al.*, 2005:758; Kunert and Hartmut, 2007:315).

Government could therefore consider implementing incentives (‘carrots’) for manufacturers to encourage the development of fuel economy technologies to improve fuel consumption and reduce carbon dioxide emissions. The incentives should be funded by the proposed vehicle green taxes which were collected – resulting in a revenue neutral “feebate” policy.

The possible benefits of implementing a “feebate” policy and investing in fuel economy technologies is supported by the following findings of studies performed in other countries:

- if the “feebate” policy is made revenue neutral it could improve taxpayers’ attitude towards the taxes - it would not be perceived as being only and income generating tool (Greene *et al.*, 2005:771);
- the “feebate” policy would provide a continuous incentive for manufacturers to improve on fuel economy technologies. Greene *et al.* (2005:758) concluded that a “feebate” policy could provide an ever-present extra incentive to increase fuel economy whenever new, more cost effective technologies are identified; and
- the study performed by Davis *et al.* (in Greene *et al.*, 2005:759) in the United States had the consistent result that manufacturers’ adoption of “fuel economy technology” accounted for about 90 percent of the overall increase in fuel economy brought about by “feebate” policies. Consumers’ choices between higher or lower fuel economy vehicles were not noted as a significant contributing factor in improving fuel economy. The findings of Davis *et al.* (in Greene *et al.*, 2005:759) were supported by the study performed by Kunert and Hartmut (2007:315) in Europe. This entails that the market failure (of consumers who do not fully value the benefits of improved fuel economy and reduce carbon dioxide emissions) can be circumvented to ensure that carbon dioxide emissions and fuel economy are improved as far as possible; and

In addition Hayashi *et al.* (2001:135) showed the consistent result that improvements in technology, with regards to carbon dioxide emissions and fuel consumption, can play a bigger role when vehicles are replaced more often. This can be done by decreasing purchasing costs and increasing ownership costs. The effectiveness of a “feebate” policy can therefore be improved further by increasing ownership costs (annual licensing fees) and reducing initial purchasing costs in order to encourage consumers to replace vehicles more often. The carbon dioxide emissions from production of the vehicles would then also increase, as result of increased demand and production, but as concluded by Hayashi *et al.* (2001:138) the change in carbon dioxide emissions due to production and disposal was less significant as the change in carbon dioxide emissions due to driving.

In conclusion based on the findings of this study and supported by studies performed in other countries a “feebate” policy should be considered in South Africa. This entails that the taxes collected, in terms of the proposed vehicle green taxes, should be allocated to vehicle manufacturers as incentive to continuously develop fuel economy technologies. This will have an cumulative effect in reducing fuel consumption and carbon dioxide emissions as consumers will be made aware of their “carbon footprint” and manufacturers would be encouraged to invest in fuel economy technologies. As the policy will also be revenue neutral for government it could increase the confidence of consumers in paying the taxes as it would not perceived to be only an income generating exercise.

In a study performed in Australia by Hope Ashiabor, a senior lecturer at the Macquarie University, regarding the interaction between green taxes and renewable energy the following comments were which also supports the investment in fuel technology over just implementing green taxes:

“As to air quality issues and road maintenance costs, improvements in technology other than the use of green taxes have been more effective in dealing with the external costs” (Ashiabor, 2005:299.)

### 3.4.3 Introducing new charges

Before any new charges are introduced it is of paramount importance that thorough feasibility studies be performed. This will enable due consideration of possible administrative burdens and the possible socio-economic impact of such new charges. It was noted during this study that there are various charges implemented in the United States and in European Union countries which are not implemented in South Africa. These charges include the following charges: an underground storage tanks fee as levied in the United States (API, 2009) and taxes levied on liability insurance premiums as levied in some European Union countries (Kunert & Hartmut, 2007:307).

It was noted in the study performed by Kunert and Hartmut (2007:307-308) in Europe that in 18 of the European Union countries taxes are levied on liability insurance premiums. These taxes are levied at varying rates and can be as high as 42,9% in Germany. These taxes are in addition to VAT which is also levied in those European Union countries.

Currently in South African 14% VAT is levied on liability insurance premiums – which is lower than the VAT levied in 26 of the European Union countries. Therefore the introduction of new charges on vehicle insurance premiums in South Africa is considered to be an alternative for expanding on the proposed vehicle green taxes regime, because:

- based on figures on carbon dioxide emissions released by the OECD (Table 2) the 27 European Union countries are one of only three countries who showed a decrease in carbon dioxide emissions from 1995 to 2005. This might be indicative of the success of the vehicle green taxes regime implemented in these countries which included the other charges and taxes on insurance premiums;
- the income generate by government could increase the incentives which could be provided in terms of a “feebate” policy to promote fuel economy technologies; and
- introducing these new charge is also not likely to affect the lower-income group of the population - as this group represents people who either cannot afford insurance or might consider it as unnecessary. This will also result in taxpayers contributing in proportion to their earnings and can therefore be classified as being “equitable”.

## CHAPTER 4

### CONSIDERATIONS IN TERMS OF SOUTH AFRICAN INCOME TAX ACT

#### 4.1 BACKGROUND

According to Nieuwoudt (2000:45), legislation will influence fiscal policy and planning, as well as the effectiveness of the tax base or instruments used in environmental management. Legislation can be used as a fiscal instrument in enforcement and for providing possible incentives.

The main objective of this chapter is to consider the deductibility of the proposed vehicle green taxes in light of certain provisions of the Act. If tax deductions are allowed it could influence the prospects of the proposed vehicle green taxes achieving its purpose.

As early as 1776 in his *Wealth of Nations* publication Adam Smith also recognised that in order to be classified as a good tax policy the levy of taxation should comply with certain basic norms and criteria (Venter *et al.*, 2008:3). One of the principles is equity which implies that the subjects of every state ought to contribute, almost in proportion to their abilities towards the support of the Government (Venter *et al.*, 2008:3). The principle of equity in light of the proposed vehicle green taxes implies that green taxes levied must place the same burden on different categories of taxpayers. If only certain taxpayers benefits from the green taxes paid (for example by being allowed a tax deduction) it could imply that the tax system is not equitable as envisaged by Adam Smith.

It will therefore be considered, as part of the main objective, whether certain taxpayers might obtain a greater tax benefit than other taxpayers if the vehicle green taxes are incurred. If it is the case, amendments to the Act might also be justified to ensure that the South African tax system can also be seen as a good tax system as envisaged by Adam Smith (Venter *et al.*, 2008:3).

## 4.2 VEHICLE CUSTOMS AND EXCISE DUTIES (*AD VALOREM*)

Depending on the nature of the taxpayer and the classification of the vehicle (as income or capital in nature) different provisions of the Act will be considered. Taxpayers will be classified into the following categories for the purpose of this section:

- **Taxpayers who qualify for a section 11(a) deduction.** These taxpayers include those that keep vehicles as trading stock (motor vehicle dealers).
- **Taxpayers who qualify for a section 11(e) deduction.** These taxpayers use the vehicles in the production of income, but not as trading stock. For example a normal manufacturing concern using an acquired vehicle as a delivery vehicle.
- **Taxpayers who do not qualify for either a section 11(a) or section 11(e) deduction.** Taxpayers using their vehicles for private or domestic purposes will be included in this category. For example natural persons who do not carry on a trade.

The provisions of the Act applicable to each of the abovementioned categories of taxpayers will subsequently be considered.

### 4.2.1 Taxpayers who qualify for a section 11(a) deduction

If a taxpayer (for example a motor vehicle dealer) uses the acquired vehicle as trading stock the acquired vehicle will be classified as income in nature. This entails that the proceeds on disposal of the asset will be included in taxable income and not subject to capital gains tax. Therefore the acquisition costs incurred (including vehicle customs and excise duties) will be allowed as a deduction in terms of the general deduction formula contained in section 11(a) of the Act. Currently section 23 of the Act does not contain a provision which will prohibit this deduction.

Therefore if the vehicle is used in the production of income, as trading stock, the taxpayer will be entitled to claim a deduction from taxable income during the year of assessment in which it is incurred. Trading stock on hand at the end of the year of assessment will be added back and deducted in the following year of assessment (this will ensure that the actual deduction of the costs is in the year the inventory is sold).



#### **4.2.2 Taxpayers who qualify for a section 11(e) deduction**

Taxpayers carrying on a trade and using the acquired vehicle in the production of income (but not as trading stock) will be entitled to a section 11(e) wear-and-tear deduction. The wear-and-tear deduction, in terms of Practice Note 19, is allowed on the cost incurred with regards to passenger vehicles (over a period of 5 years) and delivery vehicles (over a period of 4 years). Currently section 23 of the Act does not contain a provision which will prohibit this deduction.

The proposed amendments to the vehicle customs and excise duties will, most likely, increase the costs incurred by the taxpayer. Taxpayers in this category will then be entitled to claim a deduction from taxable income on the inflated costs of the acquired vehicle over a 5-year or 4-year period.

#### **4.2.3 Taxpayer who do not qualify for a section 11(a) or 11(e) deduction**

Most natural persons using the vehicles for private or domestic purposes (not for carrying on a trade or in the production of income) will be included in this category.

The cost incurred, by a taxpayer in this category, on the acquisition of a vehicle will be considered private or domestic in nature and therefore prohibited in terms of section 23(b) of the Act.

These costs will be classified as capital in nature. The inflated capital costs of the acquired vehicle could have the following consequences which will be considered:

- **Possible capital gains tax consequences.** Based on the classification of the vehicle, as “personal use asset” or not, different capital gains tax consequences will follow.
- **Possible travel allowance deduction consequences.** If the taxpayer receives a travel allowance deemed/actual costs are calculated and deducted from the travel allowance before inclusion in taxable income. The cost of the vehicle (including vehicle customs and excise duties) could affect the deemed/actual cost calculation.

#### **4.2.4 Possible capital gains tax consequences**

The taxpayer will be entitled to include vehicle customs and excise duties incurred in the base cost of the vehicle, for capital gains tax purposes, in terms of paragraph 20(1)(a) of the Eighth Schedule to the Act. These costs will be included as part of the base cost as no deduction would have been allowed previously in terms of section 11(a) or section 11(e). The increased base costs will provide a tax benefit to the taxpayer by reducing the taxable capital gain (or increasing the capital loss) on the date of actual or deemed disposal of the vehicle.

If the vehicle is however classified as a “personal-use asset” any capital gain or capital loss will be disregarded in terms of paragraph 53 of the Eighth Schedule. Therefore there will be no tax benefit, as discussed above, on disposal of a vehicle which is a “personal-use asset”.

#### **4.2.5 Possible travel allowance deduction consequences**

Currently section 8(1)(b) of the Act, *inter alia*, allows for the deduction of deemed costs (per tables contained in the Act) in cases where the taxpayer receives a travel allowances. The deemed costs per kilometre (fixed costs, maintenance and fuel) is based on a cost table according to the “value” of the vehicle. The “value” would include the cost price, including any sales taxes and VAT, in a *bona fide* purchase transaction. Therefore the “value” would include any vehicle customs and excise duties paid by the taxpayer and could therefore result in the taxpayer being allowed higher deemed costs according to the cost table.

According to Lester (2009:25), certain taxpayers might have abused the deemed costs deductions. SARS (2009:5) also identified the risk of possible abuse of the deemed costs system and to that extent proposed that deemed business kilometre procedures be scrapped from 2010/2011 and therefore taxpayers will be required to maintain a logbook in order to claim business travelling expenses. If the deemed costs table is abolished any benefit as result of the vehicle customs and excise duties paid will also be lost.

### 4.3 VEHICLE LICENSING FEES

Depending on the nature of the taxpayer and the purpose for which the vehicle is used (private or in the production of income) different provisions of the Act will apply. Taxpayers will be classified into the following categories for the purpose of this section:

- **Taxpayers who qualify for a section 11(a) deduction.** Taxpayers included in this category use their vehicles in the production of income and therefore the associated licensing fees of the vehicle will qualify for a section 11(a) deduction.
- **Taxpayers who do not qualify for a section 11(a) deduction.** Taxpayers using their vehicles for private or domestic purposes (not in the production of income) will be included in this category.

The provisions of the Act applicable to each of the abovementioned categories of taxpayers will subsequently be considered.

#### 4.3.1 Taxpayers who qualify for a section 11(a) deduction

If the taxpayer uses the acquired vehicle in the production of income the vehicle licensing fees of the vehicle will be deductible in terms of the general deduction formula (contained in section 11(e) of the Act). These costs are considered to be income in nature (not capital) as it is recurrent and would not provide the taxpayer with any enduring benefit. Therefore these costs incurred would have no capital gains tax consequences.

Currently section 23 of the Act also does not contain a provision which will prohibit this deduction.

Therefore the proposed increase in vehicle licensing fees will result in a tax benefit in the form of an increased deduction from taxable income.

#### **4.3.2 Taxpayers who do not qualify for a section 11(a) deduction**

Taxpayers who will not use their vehicles in the production of income will not qualify for a section 11(a) deduction. Most natural persons that do not carry on a trade will be included in this category. Taxpayers in this category will be sub-divided into the following categories:

- Natural persons who receive travel allowances.
- Natural persons that do not receive travel allowances and corporate individuals not carrying on a trade.

#### **4.3.3 Natural persons who receive travel allowances**

If a natural person receives a travel allowance section 8(1)(b) of the Act will apply. According to the provisions of section 8(1)(b), *inter alia*, a natural person could claim a deduction in the calculation of the travel allowance to be included in the taxable income of that taxpayer. The deduction is calculated either according to the cost table contained in the Act (fixed costs, maintenance and fuel) or actual costs incurred.

If the taxpayer therefore opts for the actual costs incurred, as the most advantageous option, the increased vehicle licensing fees will be included as an actual cost. This could result in a higher deduction in calculating the travel allowance to be included in his/her taxable income.

Therefore a tax benefit might exist for the increased licensing fees paid – it could result in a reduction of the travel allowance to be included in the taxable income of taxpayers.

#### **4.3.4 Natural persons who do not receive travel allowances and corporate individuals not carrying on a trade**

For natural persons (who do not receive travel allowances) the vehicle will be used for private or domestic purposes. Therefore the deduction of vehicle licensing fees, relating to these vehicles, will be prohibited in terms of section 23(b) of the Act.

Corporate individuals not carrying on a trade will also not be entitled to any deduction as the vehicle is not used in the production of income.

The vehicle licensing fees incurred are considered to be income in nature (not capital) as it is recurrent and would not provide the taxpayer with any enduring benefit. Therefore these costs incurred would also have no capital gains tax consequences.

Therefore no tax deduction exists for this category of taxpayers. It would therefore appear as if taxpayers who receive travel allowances (refer 4.3.3) could be in a more advantageous position as the increased vehicle licensing fees could result in a tax benefit for them.

## CHAPTER 5

### CONCLUSION

The proposed vehicle green taxes regime in South Africa is certainly a step in the right direction from the South African government in addressing the environmental concern of increased carbon dioxide emissions.

From an international perspective similar instruments have been introduced in European Union countries and the United States. The possible risks (for example potential negative impact on international competition) associated with unilateral implementation is therefore mitigated (Ashiabor, 2005:300). Based on the comparative study, there are charges levied in European countries and the United States which are not levied in South Africa and overall the rates at which fees and taxes are levied are lower in South Africa.

The structures in European Union countries and the United States are more diverse in respect of purchase and ownership taxes. The purchase taxes levied in South Africa (Table 11) are comparatively lower than the fees levied in European countries and the United States. The ownership taxes levied in South Africa is not as diverse as the fees levied in European Union countries and the United States (Table 12). There are charges and taxes levied in these countries which are not levied in South Africa.

The fuel taxes, as percentage of the respective retail prices, levied in South Africa is much lower than the percentages levied in European Union countries (Table 13). Not only do the European Union countries have higher fuel taxes, but VAT is also levied on both petrol and diesel vehicles. Certain states in the United States also levy sales taxes on both gasoline and diesel. In South Africa VAT on petrol and diesel are zero-rated. This raises the possibility of VAT as an alternative means of vehicle green taxes - however, the socio-economic impact of increasing fuel charges is of utmost importance (refer 3.4.1).

Based on the comparative study there are possible alternative levies and charges which could be introduced in South Africa (refer 3.4). These alternatives could assist the proposed vehicle green taxes in achieving its intended purpose (that is to reduce carbon dioxide emissions) in South Africa.

If alternatives are ignored, and based on the results of this study, the prospects of the proposed vehicle green taxes achieving its intended purpose in South Africa could be negatively affected by the following factors:

- possible weaknesses in the design of the proposed vehicle green taxes (based on the comparative study with developed countries); and
- possible tax benefits in terms of the current provisions of the Act which could mitigate the enforcement power of the Act.

Based on the possible weaknesses identified in this study, the focus on consumers (refer 3.3.1) would probably negatively affect the prospects the most. Both of the proposed vehicle green taxes are focused on consumers. According to Kunert and Hartmut (2007:315), all consumers do not fully value their fuel consumption and the resulting impact of carbon dioxide emissions on the environment. Therefore the focus should rather be shifted to the vehicle manufacturers and investments in “fuel economy technology” to improve the prospects of reducing carbon dioxide emissions. This can be done by the introduction of a “feebate” policy (refer 3.4.2).

A final conclusion of the results of the comparative study performed and the deductibility in terms of the Act is to follow. The conclusion will conclude with final remarks and areas for further focus.

## 5.1 CONCLUDING ON COMPARATIVE STUDY WITH DEVELOPED COUNTRIES

### 5.1.1 Proposed increase in vehicle customs and excise duties (*ad valorem*)

Hayashi *et al.* (2001:135-138) suggested that purchase taxes, which would include the proposed *ad valorem* “emissions” tax, were not as effective in reducing carbon dioxide emissions by affecting consumers’ decisions with regard to purchasing and/or driving patterns. An increase in purchase taxes is likely to result in the lengthening of the lifetime over which vehicles are used. If vehicles are used for longer periods the carbon dioxide emissions resulting from vehicles could be reduced by improving the “fuel economy technology” of more modern vehicles. Consumers should then be encouraged to buy more modern vehicles and to scrap older ones.

The South African National Treasury (2006:70) also included comments on providing increased scrapping rates for older vehicles, as part of the proposed increase in vehicle licensing fees. Therefore based on the study performed by Hayashi *et al.* the design of the proposed increase in vehicle customs and excise duties (*ad valorem*) could result in the reduction of carbon dioxide emissions.

While similar green taxes have been introduced in some European Union countries and in the United States (refer table 10), no critical weaknesses were identified, based on this comparative study. The proposed *ad valorem* “emissions” tax would, however, be based on carbon dioxide emissions. The inclusion of this environmental criterion for levying taxes is also favoured by some European Union countries (Kunert & Hartmut, 2007:307).

The prospects of the proposed *ad valorem* “emissions” tax achieving its purpose could be negatively affected by the focus on consumers. This concern could however be addressed through the implementation of a “feebate” policy which might be even more effective in reducing carbon dioxide emissions. This system also focuses on more than just the consumers (refer to 3.4.2). A “feebate” policy also has the added benefit of providing continuous incentives to vehicle manufacturers to invest in “fuel economy technology” (refer to 3.4.2).



### **5.1.2 Proposed increase in the licensing fees of fuel-inefficient vehicles**

The proposed increase in vehicle licensing fees might not be the most effective in reducing carbon dioxide emissions, as it is an ownership tax (Hayashi *et al.*, 2001:135-138).

Similar charges have however been introduced in some European Union countries and in the United States (refer Table 11) and, based on a monetary comparison, the fees charged in South Africa is comparatively lower than the average fees charged in the European Union countries and in the United States. It is also questioned whether the increase is likely to be significant enough in order to affect consumers' decisions (with regard to the purchase of vehicle types or driving patterns). Merely increasing licensing fees will therefore probably not contribute significantly to the reduction of carbon dioxide emissions.

The prospects of the proposed increase in vehicle licensing fees independently achieving its purpose is therefore not considered positive. If the proposed increase in licensing fees (ownership tax) is assessed to take into account another environmental criteria, for example carbon dioxide emissions, and used in conjunction with the proposed *ad valorem* "emissions" tax (purchase tax) and fuel levies (usage taxes), it would however represent a mixture of vehicle green taxes which could result in a synergy that could be effective in reducing carbon dioxide emissions (Hayashi *et al.*, 2001:135).

## **5.2 CONCLUDING ON DEDUCTIBILITY IN TERMS OF THE SOUTH AFRICAN INCOME TAX ACT**

The following is apparent, based on the results of the study performed:

- the current provisions of the Act does allow for a deduction for the proposed vehicle green taxes – depending on the category of taxpayers; and
- only certain taxpayers will be allowed tax deductions, therefore these taxpayers may be in a more advantageous position than others (although the benefits might only be marginal if considered quantitative).

In a South African study conducted by Nieuwoudt (2001:58), it was concluded that if green taxes were to be incurred (excluding marketable permits and products that might be regarded as fixed capital) it should be deductible for income tax purposes, as they would normally be incurred in the production of income and are not of a capital nature (as is the case with the proposed increase in vehicle licensing fees). Nieuwoudt (2001:58) also stated that section 23(d) will not prohibit the deduction of green taxes and if the intention is not to allow green charges or taxes as deductions then section 23(d) should be amended to clarify this fact.

This study confirms that the current provisions of the Act allows for tax deductions (to certain categories of taxpayers) if the proposed *ad valorem* “emissions” tax and increased licensing fees are incurred. The purpose of the proposed vehicle green taxes is to affect consumers purchase decisions to make decisions which are likely to result in reduced carbon dioxide emissions. The effectiveness of the proposed green taxes could be neutralised if the taxpayers are entitled to deduct the additional costs incurred for tax purposes. Therefore due consideration should be given to possible amendments to section 23 of the Act to prohibit the deduction of the proposed vehicle green taxes.

### **5.3 FINAL REMARKS**

It is not only a government’s responsibility to address environmental concerns, but each and every citizen in a country. But because citizens (the consumers) do not always fully value their “carbon footprint”, it would seem that government has no alternative other than taking the necessary steps in fiscal reform.

If the government initiative to propose the vehicle green taxes only succeeds in making consumers more aware of their “carbon footprint” it might have already done enough. Creating awareness could result in consumers taking responsibility for their actions. They could then change their behaviour and choices in order to be more environmental friendly.

Government initiatives are however not the only initiatives creating awareness. The report released by SAICA on 22 March 2009, called: *The Reporting and Assurance of Greenhouse Gas Emissions in South Africa*, will also undoubtedly also create awareness. As stated by Tempelhoff (2009:1) there will be increasing pressure on businesses that wish to participate in international business not only to reduce their “carbon footprint” but also to disclose it. The report issued by SAICA requires the disclosure of information regarding the impact on the environment and sustainability objectives. Disclosure of this information could also result in corporate consumers taking responsibility for their energy usage and possibly encourage initiatives for more efficient use of energy sources.

At the end of the day the most effective fiscal reform initiative for reducing carbon dioxide emissions and conserving the environment may not be one where people are forced to contribute. People should rather be encouraged to contribute and rewarded when they contribute. With the proposed vehicle green taxes initiative, as with any new fiscal reform initiative, some “teething problems” could be expected which will only be resolved through public participation and discussions held between the different stakeholders (government, taxpayers and the motor industry).

## 5.4 AREAS FOR FURTHER FOCUS

Based on figures on carbon dioxide emissions released by the OECD in 2006 (Table 2) it is clear that, if considered by sector, the following sectors contribute to carbon dioxide emissions in South Africa:

**Table 14: Contribution to total carbon dioxide emissions in South Africa**

Sector	Million tonnes of CO <sub>2</sub>	Contribution to total carbon dioxide emissions (%) <sup>1</sup>
Electricity and heat	206	62.8
Industry	51	15.5
Transport	42	12.8
Residential	14	4.3
Other	15	4.6
<b>Total</b>	<b>328</b>	<b>100</b>

<sup>1</sup> Calculated per sector as the million tonnes of CO<sub>2</sub> for the sector as percentage of the total million tonnes of CO<sub>2</sub> for all the sectors.

Source: OECD (2007:22).

Electricity and heat is therefore the most significant contributor to carbon dioxide emissions in South Africa. In the 2008 Budget speech a further R17 million was allocated for new coal mines and only R2 million to research renewable energy sources – therefore it would appear as if the fiscal policy favours non-renewable energy generation methods. The question therefore exists whether government should shift their focus to reforming tax instruments in the electricity and heat sector, rather than focusing on transport.

## LIST OF REFERENCES

- Anjum, N. 2008. Prospect of green-taxes in developing countries. *Business & Finance Review*, 28 April. [Online] Available from: <http://jang.com.pk/thenews/apr2008-weekly/busrev-28-04-2008/p7.htm> [Accessed: 2009-06-15].
- API. 2009. *Notes to state motor fuel excise and other taxes*. [Online] Available from: [http://www.api.org/statistics/fueltaxes/upload/State\\_MotorFuel\\_ExciseTax\\_Notes\\_4-2009.pdf](http://www.api.org/statistics/fueltaxes/upload/State_MotorFuel_ExciseTax_Notes_4-2009.pdf) [Accessed: 2009-06-19].
- Ashiabor, H. 2005. Fostering the Development of Renewable Energy through Green Taxes and Other Instruments. *IBFD Bulletin*, July:295.
- Atson, L. & Smith, C. 2007. We'll toyi-toyi with our 4x4s. *Fin24*, 24 May. [Online] Available from: [http://www.fin24.com/articles/default/display\\_article.aspx?ArticleId=1518-1796\\_2232538](http://www.fin24.com/articles/default/display_article.aspx?ArticleId=1518-1796_2232538) [Accessed: 2008-05-03].
- Donnelly, L. 2009. For the good of green. *Mail & Guardian*, 2 March. [Online] Available from: <http://www.mg.co.za/printformat/single/2009-03-02-for-the-good-of-green> [Accessed: 2009-03-02].
- East Rand Toyota. 2009. *Specifications* [Online] Available from: <http://www.eastrandtoyota.co.za/Specifications/toyota-tazz-130-2003-05.aspx> [Accessed: 2009-07-09].
- Eastern Cape (South Africa) 2009. Notice 16 of 2009. *Provincial gazette extraordinary* 2092:7-8, 19 March.
- EPA. 2009. *United States Environmental Protection Agency Basic Information*. [Online] Available from: <http://www.epa.gov/Compliance/cleanup/additional/tanks/index.html> [Accessed: 2009-06-19].

European Commission. 2004. *Structures of the taxation systems in the European Union Data 1995-2002*. Luxembourg: European Commission.

Free State (South Africa) 2008. Notice. *Provincial gazette* 17:7-9, 14 March.

Gaffney, D. 2008. More green taxes may not be the best route to environmental protection. *KPMG News Release Listing*. [Online] Available from: <http://www.kpmg.co.uk/news/detail.cfm?pr=3052-73k> [Accessed: 2008-03-14].

Gauteng (South Africa) 2009. Notice 692 of 2009. *Provincial gazette extraordinary* 52:7, 6 March.

*Government of the Republic of South Africa and Others v Grootboom and Others* 2001; ((1) SA 46 (CC)).

Greene, D. L., Patterson, P.D., Singh, M. & Li, J. 2005. Feebates, rebates and gas-guzzler taxes: a study of incentives for increased fuel economy. *Energy Policy*, 33:757–775.

Hayashi, Y., Kato, H. & Val, R. T. 2001. A model system for the assessment of the effects of vehicle and fuel green taxes on carbon dioxide emissions. *Transportation Research Part D6*, 2001:123-139.

Hofstee, E. 2006. *Constructing a good dissertation*. Johannesburg: EPE Publishers.

Idaho Transportation Department. 2008. *State-by-State Comparison of Annual Motor Vehicle Registration Fees and Fuel Taxes*. [Online] Available from: <http://itd.idaho.gov/econ/MiscReports/ComparisonofAnnualMotorVehicleOperatingCosts2008.pdf> [Accessed: 2009-06-19].

Internal Revenue Services. 2005. *Excise Tax Forms and Publications – Form 6197*. [Online] Available from: <http://www.irs.gov/pub/irs-pdf/f6197.pdf> [Accessed: 2009-06-22].

Jooste, R. 2007. Green taxes great on paper. *Fin24.com*, 3 December. [Online] Available from: [http://www.fin24.com/articles/default/display\\_article.aspx?ArticleId=1518-1796\\_2232538](http://www.fin24.com/articles/default/display_article.aspx?ArticleId=1518-1796_2232538) [Accessed: 2008-03-13].

Just landed. 2008. *Vehicle regulations - registration, road tax and safety in the US*. [Online] Available from: <http://www.justlanded.com/english/USA/USA-Guide/Travel-Leisure/Vehicle-regulations> [Accessed: 2009-06-19].

Kirby, N. & Pillay, C. 2007. Enviro Werks. *Werksman Legal Brief*, November. [Online] Available from: [http://www.werksmans.co.za/upload/01%20Werksmans\\_Enviro\\_Werks\\_Brief\\_Environmental\\_Taxes\\_29Nov\\_2007.pdf](http://www.werksmans.co.za/upload/01%20Werksmans_Enviro_Werks_Brief_Environmental_Taxes_29Nov_2007.pdf) [Accessed: 2008-03-15].

Kunert, U. & Hartmut, K. 2007. The diverse structures of passenger car taxation in Europe and the EU Commissions proposal for reform. *Transport Policy*, 14:306-316.

Kwazulu-Natal (South Africa) 2007. Notice 383 of 2007. *The Provincial Gazette of Kwazulu-Natal* 48:10-11, 15 November.

Lester, M. 2009. Fewer thirsty 4X4s in a scooter-sized economy, chaps. *Business Times*, 8 March:25.

Limpopo (South Africa) 2007. Notice 330 of 2007. *Provincial gazette extraordinary* 1380:6-7, 18 July.

Mouton, J. 2001. *How to succeed in your Master's and Doctoral studies: a South African guide and resource book*. Pretoria: Van Schaik Publishers.

Mpumalanga (South Africa) 2009. Notice 29 of 2009. *Mpumalanga provincial gazette* 1616:1-3, 5 February.

Northern Cape (South Africa) 2009. Notice 1 of 2009. *Provincial gazette extraordinary* 1265:6-7, 23 January.

North-West (South Africa) 2008. Notice 67 of 2008. *North-West provincial gazette* 6460:4-5, 11 February.

Nieuwoudt, M. 2001. Green charges or taxes and related income tax and value-added tax issues. *SA Journal of Accounting Research*, 15(1):45-63.

OECD. 2007. *CO<sub>2</sub> Emissions from Fuel Combustion*. Paris: OECD.

Peters, A., Mueller, M.G., de Haan, R. & Scholz, W. 2008. Feebates promoting energy-efficient cars: Design options to address more consumers and possible counteracting effects. *Energy Policy*, 36:1355-1365.

Philander, H. 2007. Green car tax: SA sees red. *Fin24.com*, 24 May. [Online] Available from: [http://www.wheels24.co.za/Wheels24/News/General\\_News/0,,1369-1372\\_2094\\_2118541,00.html](http://www.wheels24.co.za/Wheels24/News/General_News/0,,1369-1372_2094_2118541,00.html) [Accessed: 2008-05-03].

SARS. 2009. *Budget Tax Proposal 2009/10*. [Online] Available from: <http://www.sars.gov.za> [Downloaded 2009-03-02].

South Africa. 2008. Income Tax Act, No. 58 of 1962. *SAICA Legislation book 2007/2008*. Durban: Lexis Nexis Butterworths.

South Africa. Department of Environmental Affairs and Tourism. 2005. *National Roundtable on a National Strategy for Sustainable Development for South Africa*. Pretoria: Government Printer.

South African National Treasury. 2006. *A framework for considering market-based instrument to support environmental fiscal reform in South Africa*. Pretoria: National Treasury.



South African National Treasury. 2008. *Biodiversity in Environmental Fiscal Reform Workshop*. [Online] Available from: <http://www.ewt.org.za/bssa/nhpinfo/Fiscal%20incentives%20protected%20areas%20and%20stewardship%20workshop%20presentatio/Presentation%20%20Biodiversity%20Conservation%2018%2011%202008.pdf> [Accessed: 2009-03-25].

South African Reserve Bank. 2009. *Current market rates*. [Online] Available from: <http://www.resbank.co.za/sarldata/rates/rates.asp?type=cmr> [Accessed: 2009-07-08].

Speck, S. 2008. Possibilities of Environmental Fiscal Reform in Developing Countries. *Bank Indonesia Publications*. [Online] Available from: <http://www.bi.go.id/NR/ronlyres/57BF6537-1BEA-4D42-B476-209DC56F11DA/14255/StefanSpeckdoc.pdf> [Downloaded: 2009-06-15].

Tax Foundation. 2008. *Sales Tax Map*. [Online] Available from: <http://www.taxfoundation.org/UserFiles/Image/Blog/salestaxmap.jpg> [Accessed: 2009-06-15].

Tempelhoff, E. 2009. SA sal 'groen'-sokkies moet optrek, wys nuwe opname. *Beeld*, 24 Maart:1.

The Green Guide. 2009. *Glossary*. [Online] Available from: <http://www.thegreenguide.com/glossary/c> [Accessed: 2009-06-26].

Unitconversion.org. 2009. *Converters*. [Online] Available from: <http://www.unitconversion.org/index.html> [Accessed: 2009-07-08].

Venter, J. M. P., Hamel, E. H. & Stiglingh, M. 2008. *A Student's Approach to Income Tax*. 2008 edition. Durban: Lexis Nexis.

Western Cape (South Africa) 2003. Notice 40 of 2003. *Western Cape provincial gazette 5980*, 7 February.

Williams, J. 2002. Survey of State and Local Gasoline Taxes. *Minnesota House of Representatives Research Department: Information Brief*. Available from: <http://www.house.leg.state.mn.us/hrd/pubs/gastax.pdf> [Accessed: 2009-07-13].

World Resources Institute. 2000. *World Greenhouse Gas Emissions Flow Chart*. [Online] Available from: <http://www.wri.org/chart/world-greenhouse-gas-emissions-flow-chart> [Accessed: 2009-04-25].