NATIONAL ROAD SAFETY COUNCIL

Traffic Safety Secretariat
Road Safety Research

A study on the effects of imported second-hand tyres on road safety

October 2008

National Road Safety Council
c/o Harold Pupkewitz & Independence Avenue
P.O. Box 113, Windhoek
Tel: 264 61 231717
Fax: 264 61 239795

TABLE OF CONTENTS

PAGE

LIST OF TABLES, FIGURES AND PHOTOGRAPHS

TABLES

Graphs and photograghs

EXECUTIVE SUMMARY

Each year, more than 200 people are killed and 3,000 injured on Namibian roads. During 2005 alone, more than 4,000 incidences involving a burst tyre were recorded. Of these incidences, 3,443 involved a faulty tyre while 250 involved good tyres, and more than 800 casualties were recorded.

The National Road Safety Council (NRSC) has conducted a study on the distribution of second-hand tyre imports and their impact on road safety. It aims to show the negative effects of imported second-hand tyres and retreads, and highlight ways to prevent and lessen the impact of road accidents.

The report is the outcome of collaborative efforts by key officers from the ministries of Trade and Industry (MTI), Finance (MOF) and Works and Transport (MWT), the National Planning Commission (NPC), as well as tyre dealers and drivers. Coordinated by the Traffic Safety Secretariat (TSS) research team, over 50 sales managers of tyre dealers and drivers, including taxi and truck drivers, were interviewed from seven towns in the country. Drivers of the following transport companies were interviewed: Blaauw's, Jowels, Wesbank, Unitrans Namibia, TransNamib and Tsumeb Stone Crushers.

The importation of second-hand tyres and retreads in Namibia is restricted and controlled by the Import and Export Control Act, No. 30 of 1994. The Customs and Excise Act of 1998 provides for the quality control of tyres at the point of entry. However, custom officers have no capacity to check consignments to determine the quality of the tyres. The Road Traffic and Transport Regulations (RTTR) 321 and 231 of 2001 control the operation of tyres on public roads. However, the number of tyre treads seen lying along roads indicates poor tyres are being used and that the two regulations are not fully enforced.

Of the total dealers interviewed, 32 per cent (N=8) import used tyres from Austria, German, Netherlands and United Kingdom; 28 per cent (N=7) from Japan and Australia, 16 per cent (N=4) from South Africa and 24 per cent did not indicate the country of import. Some of the drivers interviewed were using winter tyres during summer: an indication that the utilisation of imported second-hand tyres is not differentiated by some users. The negative effects as explained by drivers ranged from repeated tyre bursting, blowing out top treads and development of air bubbles into the wall of the casings.

Respondents (drivers, tyre dealers and officials from key institutions) recommended the following interventions:

(1) An increase in import duty on retreads and second-hand tyres, which should be reciprocated by the reduction of import duty on new tyres. These measures are likely to deter people from importing used tyres.

(2) According to the drivers and tyre dealers, the tyre industry would perform better if the Namibian government abolished the importation of second-hand tyres for sedan cars and winter tyres (M+S), as well as the sale of tyres by non-registered tyre dealers.

(3) Educational campaigns to educate drivers on effects of used tyres. For instance, drivers should inspect tyres before buying by checking the tyre speed category, date of manufacture and tyre category.

(4) The regular inspection of vehicles for road-worthiness, inspections of quality of used tyres at warehouses and the assessment of tyres to determine quality by opening consignments at the point of entry.

(5) The development of a law on pollution and waste control including the cycling of tyre products.

(6) Redesign of the import permit that prohibit the importation of any type of tyre.

(7) Develop Namibia standards and specifications to control tyre retreads and used tyres.

ABBREVIATIONS

COW	City of Windhoek
MET	Ministry of Environment and Tourism
MOF	Ministry of Finance
MTI	Ministry of Trade and Industry
MWT	Ministry of Works and Transport
NPC	National Planning Commission
NRSC	National Road Safety Council
RTTR	Road Traffic and Transport Regulations, 2001
SABS	South African Bureau of Standards
TSS	Traffic Safety Secretariat

CHAPTER 1

BACKGROUND TO THE STUDY

1.1 Introduction

Mechanically, tyres are designed to improve grip on road surfaces so as to ensure safe following distances, braking and cornering. Worn tyres do not grip well on road surfaces. Under-inflation, over-inflation or vehicle overloading can also reduce the safe performance of tyres.

Because tyres are designed not to fall apart, disposing of them is problematic. Disposing of used tyres is a cost to society that has environmentally harmful implications. When used tyres lie on the ground or are buried, their constituent chemicals leech into the soil and groundwater. The number of dangerous chemicals in tyres, including latex and synthetic rubber, mean that they cannot be burnt safely, while dumping old tyres in landfill sites takes up space (Pat Thomas, 2007).

However, used tyres can be recycled in various ways. They can be used to form artificial reefs, thus providing breeding locations for marine life, although they can be toxic to fish and aquatic habitats. Cement factories and paper mills use waste tyres as fuel, as do road construction companies and farms. Some old tyres are converted into crumb rubber for carpet underlay or to make springy surfaces for children's playgrounds.

Thomas emphasises that retreading uses fewer resources than those required to make new tyres. Tyre manufacturing relies on fast-disappearing rubber trees and it is better for the environment to extend the life of old tyres by retreading[1] them. Thomas contends that a quality car tyre can be retreaded about three times, while that of larger vehicles can be retreaded up to12 times. However, retreading involves the use of non-renewable resources to make new tread, and strong adhesives and other toxic chemicals are needed to attach the new tread to the old casing. Thus, retreading is not particularly environmentally friendly.

Prior to this study by the National Road Safety Council (NRSC), there have been no other studies conducted in Namibia to assess the distribution of second-hand tyres and their impact on road safety. Due to a lack of data on the distribution of second-hand tyre imports, it has been very difficult for the transport sector to establish the real potential of imported used tyres. To address the situation, the NRSC conducted this study on the effects of imported second-hand tyres[2] in Namibia.

1 Retreading involves grinding down the surface or casing of a worn tyre until it is smooth and then gluing a new veneer of tread onto it (Thomas, 2007).

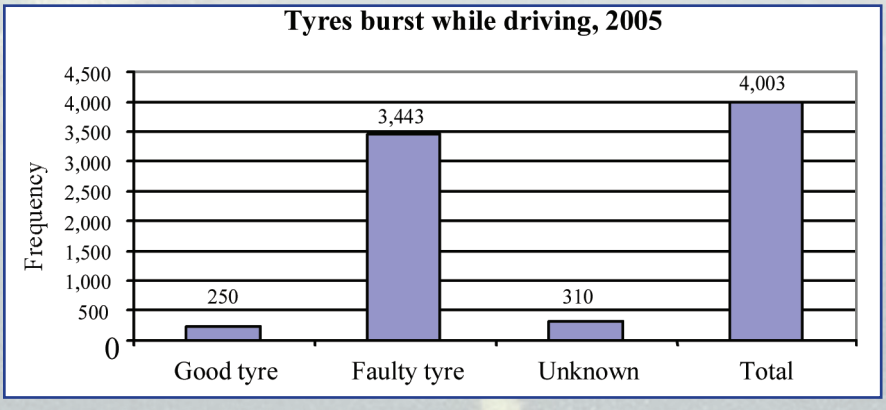
2 Second-hand tyres are those that have been used in the country of origin and are imported for re-use in other countries.

In Namibia, the importation of second-hand tyres is restricted[3]. The importation of tyres is controlled under the Import and Export Control Act, No. 30 of 1994 by the Ministry of Trade and Industry (MTI) from where the potential importer must obtain an import permit. The Customs and Excise officers inspect goods at the point of entry to prevent the illegal importation of unwanted tyres[4] under the Customs and Excise Act 1998. However, the Road Traffic and Transport Regulations (RTTR) of 2001 control the use of tyres on public roads. All tyres imported into Namibia must also comply with the specifications of the South African Bureau of Standards (SABS).

1.2 Problems

Faulty tyres have been identified as a threat to the mobility and lives of road users. Over the past five years, an average of 3,000 people have been injured and 200 killed each year on Namibian roads. Road collision data showed that there were more than 4,000 incidences involving a burst tyre in 2005 alone. Of these incidences, 3,443 involved a faulty tyre, while 250 involved good tyres. Incidences in which a faulty tyre was involved resulted in 80 deaths, 305 serious injuries and 401 slight injuries. Incidences involving a good tyre resulted in 23 deaths, 77 serious injuries and 146 slight injuries. Tyre-related incidences, in which the quality of the tyre was not indicated, resulted in 24 deaths, 61 serious and 84 slight injuries. Indicators of tyre problems on road safety include many accidents resulting from burst tyres and the use of retreads by vehicles on public roads. Pieces of burst tyres lying on open roads also threaten road safety.

Figure 1: Tyre-related incidences, 2005



3 Restricted goods are those that require an import permit or licence from the relevant authority.

4 For the purpose of this study, the term 'unwanted tyres' refers to tyres that do not meet the minimum requirements and standards for road safety.

Table 1: Casualties caused by tyre-related accidents, 2005

	Killed	Seriously injured	Slightly injured	Total
Good tyres	8	21	61	90
Faulty tyres	17	71	169	257
Unknown	8	19	31	**58**
Total	33	111	230	405
Passengers				
	Killed	**Seriously injured**	**Slightly injured**	**Total**
Good tyres	15	56	85	156
Faulty tyres	63	234	232	529
Unknown	16	42	53	111
Total	94	332	370	796
Overall total	**127**	**443**	**631**	**1201**

Below: The remains of burst tyres on public roads are a road-safety problem.

1.3 Objectives

The three main objectives of this study were:

- to determine whether imported second-hand tyres are suitable for Namibian roads and weather conditions;
- to determine whether imported second-hand tyres meet the minimum safety standards; and
- to provide information about the effects of imported second-hand tyres on road safety.

CHAPTER 2

LITERATURE REVIEW

2.1 Policies and legislation

It is vital that goods are controlled whenever they are imported into any country and that legislation is relevant to control the importation of goods. The Customs and Excise and the Import and Export Control Acts are examples of legislation that control the importation of goods into Namibia.

The Import and Export Control Act of 1994 provides for the issuing of permits by the MTI. The Act stipulates that the permit should prescribe the quantity or value of goods that may be imported or exported; the price at which the goods are exported or imported; the period within which the permit should last; the port through or from which the import shall be made; the country from where export or to where import is to be made; and the manner in which the goods may be imported. However, permits issued between 1996 and 2004 do not indicate the period of duration as the Act stipulates, but only the value of goods to be imported. It is not clear when the import permit expires or for how long the value lasts on the permit.

A review of import permits issued by the MTI for imported second-hand tyres revealed that 34 tyre dealers that import and sell second-hand tyres were registered with the ministry.

Table 2: Tyre dealers in records of the MTI

Towns	Number of dealers
Gobabis	1
Okahandja	1
Omaruru	2
Outjo	1
Tsumeb	1
Swakopmund	2
Usakos	1
Walvis Bay	2
Windhoek	23
Total in Namibia	**34**

Source: MTI (05/2005)

Table 3: Tyre dealers importing second-hand tyres

Town	Name of Dealer	Year import permits were issued
Windhoek	1. Sonnex Tyre Co. (Pty) Ltd	1996, 1997, 1998
	2. Nova Tyres Namibia (Pty) Ltd	1996, 1997, 1999, 2000, 2001, 2003, 2004, 2005
	3. Investment Holdings Namibia (Pty) Ltd	1996
	4. Global Commercial (Pty) Ltd	1996
	5. Nimex (Pty) Ltd	1996, 1999, 2000, 2003, 2004, 2005
	6. O' Business Centre	1997
	7. United Brothers CC	1997, 2001
	8. P.R. and Company CC	1997
	9. Tyrepro Namibia (Pty) Ltd	1999, 2000, 2001, 2002, 2005
	10. Swiss Dunes (Pty) Ltd	1999, 2000, 2001, 2002, 2003, 2004, 2005
	11. Midland Distributors	1999, 2000, 2001, 2002, 2003, 2004, 2005
	12. Trend Overseas (Pty) Ltd	1999, 2000
	13. Geva Sales	1999, 2000
	14. Truck Namibia (Pty) Ltd	1999, 2000, 2001, 2003, 2004
	15. Spare Centre	1999, 2000, 2001, 2003, 2004, 2005
	16. Goss Motor Sales	2000, 2001
	17. Northern Import and Export CC	2000
	18. Prime Tyres CC	2001
	19. Emanya Investment (Pty) Ltd	2002
	20. Maxiprest Tyres Namibia (Pty) Ltd	2002
	21. Quality Tyres	2004
	22. B. Staphanus T/A Tjikurire Cons	2004, 2005
	23. Techno Trade Namibia	2005
Walvis Bay	1. Performance Motors	1996, 1999
	2. C&M International	1996
Swakopmund	1. A. Van Der Walt Namibia (Pty) Ltd	2001
	2. Coastal Retreaders CC	1999
Outjo	1. Outjo General Dealer	1999, 2000, 2002
Okahandja	1. Pro Tyre Services	2001, 2002
Gobabis	1. Spandiens Motors	2004
Omaruru	1. R.L. Farm	2004, 2005
	2. R.B Guest Farm	2002
Tsumeb	1. Namibia Rail Contractors J.V	2004
Usakos	1. Mega Tyres	2000, 2001, 2002, 2003, 2004, 2005

Source: MTI (05/2005)

The review exercise found that data on the issuing of permits for second-hand tyres was available from 1996 to 2005. It was also discovered that these tyre dealers and individuals obtained permits to import second-hand tyres from countries including Germany, the Netherlands, Japan, Korea, Austria, Switzerland, Taiwan, South Africa and the United Kingdom. Individuals were also granted permits to import second-hand tyres for their own use.

The Customs and Excise Act of 1998 provides for the control of goods at the point of entry with regard to quality control and import duties. A person who brings imported goods into Namibia through any port of entry shall display to a customs official a bill

of entry in which he or she specifies the purpose/s for which such goods are entered and shall Sign a declaration to the correctness of the particulars on the bill of entry. All particulars on any invoice in respect of imported goods shall relate to the goods in the condition in which they were imported into Namibia. The Act (Section 116) provides for the customs officer, on entry of an imported item, to take samples of such goods for examination or to ascertain the duties payable on such goods or for other purpose as may directed by rule. Such samples shall be dealt with and accounted for in such manner as the Commissioner may direct. An officer consulted at the Department of Customs and Exercise informed the research team that goods are inspected by verification of invoices. However, consignments are not opened to determine the quality of goods by samples as the Act provides.

RTTR Regulation 321 prohibits any person from operating on a public road a vehicle that is fitted with pneumatic tyres unless the tread of each tyre is at least one millimetre in depth. RTTR Regulation 231, meanwhile, prohibits the operation of a motor vehicle which is equipped with a pneumatic tyre of which the rubber is so worn or damaged that the fabric or cord used in the construction thereof is exposed. A person may also not operate on a public road a motor vehicle that is equipped with a regrooved tyre having a bead diameter of 430 millimetres or less, or equipped with a pneumatic tyre which has a lump or bulge caused by the separation of, or a partial break in, its structure.

SABS VC 8059 specifications refer to normal road-type and special tyres (for example, snow tyres and tyres for mixed use) both on and off the road or at restricted speed. The structure of these tyres is bias-belted, bias-ply, diagonal-ply and radial-ply. The parts, requirements and markings of tyres are also described in the specifications.

SABS Regulation R108 provides for the retreading of tyres intended to be fitted to private (passenger) cars and their trailers used on roads. The tyres that can be retreaded are those with a speed capability of between 120 and 240 km/h. The regulation does not apply to a retreaded tyre with a speed capability below 120 or above 240 km/h.

SABS Regulation ECE R109 provides for the retreading of tyres for commercial vehicles and their trailers used on roads. It does not apply to retreaded tyres with a speed capability below 80 km/h. Both regulations provide for the approval of the tyre retreading production unit by the responsible authorities in accordance with the requirements of the regulation and for conformity with the tests required before approval is granted. The tyre parts are specified as those in new tyres. Tyre markings and requirements are described in the specification: for example, the word 'retread' or 'remould' shall be used in markings; tyres approved for retread shall bear an 'E' or 'e' mark; the age of the casing for retreading shall not exceed seven years; and tyres which have been previously retreaded shall not be accepted for further retreading.

Regulations R108 and 109, however, do not apply to tyres for bicycles and motorcycles; tyres originally produced without speed symbols and load indices; tyres originally produced without type approval and without either an 'E' or 'e' mark; tyres designed for

cars produced prior to 1939; tyres designed exclusively for competition or off-road use and marked accordingly; and tyres designed as 'T type', temporary use spares.

2.2 Statistics on tyre imports

The National Planning Commission (NPC) provided the following information on used tyres:

Table 4: Imported retreads and used pneumatic tyres

Type of used tyre	Exporting country	Year	Amount (N$)
Retreaded tyres of rubber; retreaded tyres for sedans (including station wagons and racing cars); retreaded tyres for buses and lorries; retreaded tyres for aircraft; other retreaded tyres not elsewhere specified; used pneumatic tyres of rubber; solid tyres, interchangeable rubber tyre treads and flaps	Angola, Austria, Australia, Belgium, Botswana, China, France, Germany, Greece, Japan, Italy, Korea, the Netherlands, Niger, Norway, South Africa, Switzerland, Turkey, the United Arab Emirates, the United Kingdom, the United States of America	2000	6,416,048.00
		2001	8,476,236.00
		2002	7,577,836.00
		2003	9,262,829.00
		2004	11,641,183.00
		2005	10,207,460.00

Source: NPC (05/2005)

2.3 Tyre waste

The *State of Environment on Waste in Namibia* report (2001:2) argues that used tyres are large, bulky and conspicuous, making it difficult to dispose of them properly. The report further stresses that if these tyres are buried in landfill sites they tend to float to the surface, but to overcome this hurdle they must be chipped or broken into pieces so that they do not trap air.

Windhoek's Kupferberg landfill site has a stockpile of about 65,000 tyres that have accumulated since 1999. Residents and businesses have also deposited used tyres at satellite dumping sites around the capital where they are kept aside from the other waste but are not treated in any way, the report explains.

At the time of the study, the City of Windhoek did not have any policy or regulation that specified how to deal with dumped tyres. The municipality's approach was to cut the used tyres into quarters and deposit these in the Kupferberg landfill site.

The *Desktop Survey on Waste Management in Namibia* report (1997:16) states that the production of indestructible vehicle tyres has made their disposal difficult for countries

with even the most sophisticated waste disposal systems. The report further explains that tyres consist of complex polymeric compounds with high chemical values. Stockpiles of tyres create both land use and environmental problems.

2.4 Ban on importing second-hand tyres

Malaysia has banned the importation of second-hand tyres. The Federation of Malaysian Automotive Tyre Manufacturers argues that imported second-hand tyres pose a serious threat to road safety. Some of these tyres are not roadworthy as their lifespan has expired. These tyres have been removed from vehicles in their country of origin and are meant to be scrapped. Furthermore, 'snow tyres' have been imported from Europe, America and Japan to clear stock. These tyres are unsuitable for Malaysian road users and are sold very cheaply (source: internet browsing).

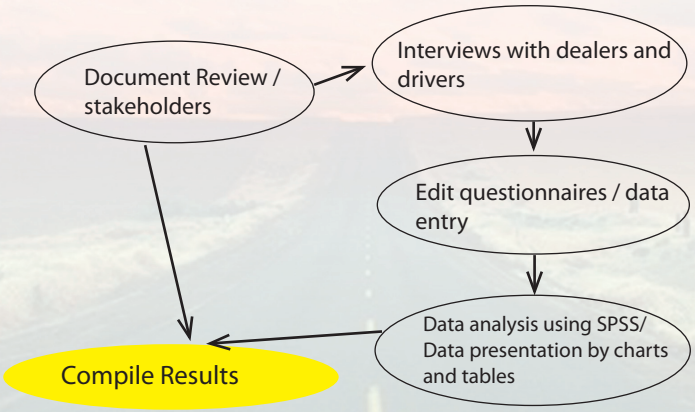
CHAPTER 3

METHODOLOGY

3.1 Data collection

The study employed the quantitative research method[5]. The sources of information were the Ministry of Trade and Industry (MTI), the Ministry of Works and Transport (MWT), the Ministry of Finance (MOF), the National Planning Commission (NPC), the City of Windhoek (COW), the Ministry of Environment and Tourism (MET), tyre dealers and drivers using imported second-hand tyres.

Data gathering and analysis process:



3.1.1 Literature review

The document review commenced in March and ended in May 2005. The data sets covered by the desk study looked at existing policies and legislation controlling the import, sales and utilisation of used tyres in Namibia. The study looked at legislation regarding the importation of second-hand tyres (at the MTI); the environmental policy on dumping of tyres or related waste (MET); Customs and Excise legislation for import duties and value charges (MOF); legislation and standards for utilisation of tyres (MWT);

5 Quantitative research looks at the quantity of information and relies on measurements to compare and analyse different variables. Qualitative research uses face-to-face interviews to qualify the information.

and trade statistics (NPC).

3.1.2 Sample design

Data collection was planned to take place in towns where there are a number of tyre dealers selling imported second-hand tyres. These are Windhoek, Okahandja, Usakos, Swakopmund, Walvis Bay, Tsumeb, Swakopmund, Gobabis, Outjo, Otjiwarongo and Omaruru. Target groups in the towns were tyre dealers and drivers using second-hand tyres. The sample constituted 25 tyre companies and 34 drivers. In each town, excluding Windhoek, three tyre dealers and six drivers were to be interviewed. In the capital, a greater number of dealers and drivers were to be interviewed. The enumerators made appointments with tyre dealers' sales managers as well as the truck drivers of transport companies, while other drivers were selected on the spot.

3.1.3 Survey

After the desk study was completed in May, the design of the questionnaire for the field data started and was completed in June. The survey commenced on August 31, 2005 and ended on December 7, 2005. It looked at the import, sales and utilisation of used tyres in Namibia. Questionnaire-based interviews were held face-to-face with tyre dealers and drivers on the same day. One sales manager was interviewed to represent the tyre dealer company. Therefore, four branches of Quality Tyres, five of Dunlop Tyres and six of Trentyre (Nova Tyre) were consulted in Windhoek, Tsumeb, Walvis Bay, Swakopmund, Otjiwarongo and Gobabis, except for Quality Tyres, which does not have a branch in Swakopmund and Gobabis.

Table 5: Dates and places of the survey

Sample size			
Town	**No. of companies**	**No. of drivers**	**Dates of survey**
Tsumeb	3	7	31.08.05 – 01.09.05
Walvis Bay	3	6	22-23.08.05
Windhoek	3	-	28.09.05
Swakopmund	2	5	29-30.09.05
Gobabis	2	1	07.10.05
Outjo	1	2	20.10.05
Otjiwarongo	3	4	21-22.10.05
Windhoek	2	-	14.11.05
Windhoek	2	-	15.11.05
Windhoek	2	-	16.11.05
Windhoek	-	9	29.11.05
Windhoek	1	-	01.12.05
Windhoek	1	-	07.12.05
Total	**25**	**34**	**16**

Source: NRSC interviews (2005)

The research team visited towns with registered tyre dealers. Karibib, Usakos, Okahandja and Omaruru had closed down. Tyres dealers and drivers interviewed were:

- Tsumeb and Walvis Bay: Quality Tyres, Dunlop Tyres and Trentyre, and truck drivers;
- Swakopmund: Dunlop Tyres and Nova Tyres, and truck drivers;
- Gobabis: Spandiens Motors and Trentyre, and a truck driver;
- Outjo: Outjo General Dealer (the dealer had stopped importing tyres in 2004, but the manager agreed to be interviewed), and truck drivers;
- Otjiwarongo: Quality Tyres, Trentyre and Dunlop Tyres, truck drivers and Bandag retread factory (to observe the retreading process) and
- Windhoek: Techno Trade, Jin Casings, Spare Centre, Mega Tyres, Truck Namibia, Midland Distributors, Swiss Dunes, Quality Tyres, Nimex (Pty) Ltd, Trentyre and Dunlop Tyres, and taxi drivers; retread factories (Trentyre and Quality Tyres).

3.2 Data analysis

Data analysis started with the editing of the questionnaires, completeness checks and information tallying. The entry of data was done by the use of Statistical Product and Service Solutions (SPSS) software. The analysed data, thereof, was exported to Microsoft Excel for the presentation of tables and charts. Inferences made from the analysis constitute the frequency distribution and the relationships between variables.

3.3 Limitations of the study

A number of setbacks have affected the study in numerous ways. Some tyre dealers earmarked for interviews were not listed in MTI records. These are Namib Rail Contractors in Tsumeb, Performance Motors in Walvis Bay, A. Van Der Walt Namibia and Coastal Retreads in Swakopmund. Thus, fewer dealers were consulted than originally planned. Two dealers in Windhoek, Nimex (Pty) Ltd and Mega Tyres, withheld information from the research team, regarding the warehouse where imported second-hand tyres are kept and the annual income from the sale of second-hand tyres, respectively. In Walvis Bay, managers at the tyre dealers declined to give some information and referred the research team to their head offices in Windhoek. Therefore, information such as when the companies started such imports could not be answered in Walvis Bay, but later in Windhoek. This prolonged the research to a certain extend. Some truck drivers were also uncomfortable with providing information, because they feared losing their jobs.

CHAPTER 4

SURVEY RESULTS

4.1 Tyre treads

Signs indicating that RTTR Regulation 231 was not fully enforced were obvious during the survey, in terms of the quality of tyres observed on the Namibian road network. Tyre treads were also seen lying across many open roads, thus indicating the use of unfit or worn tyres on public roads.

Photo 1: Tyre treads from burst retreads observed on open roads.

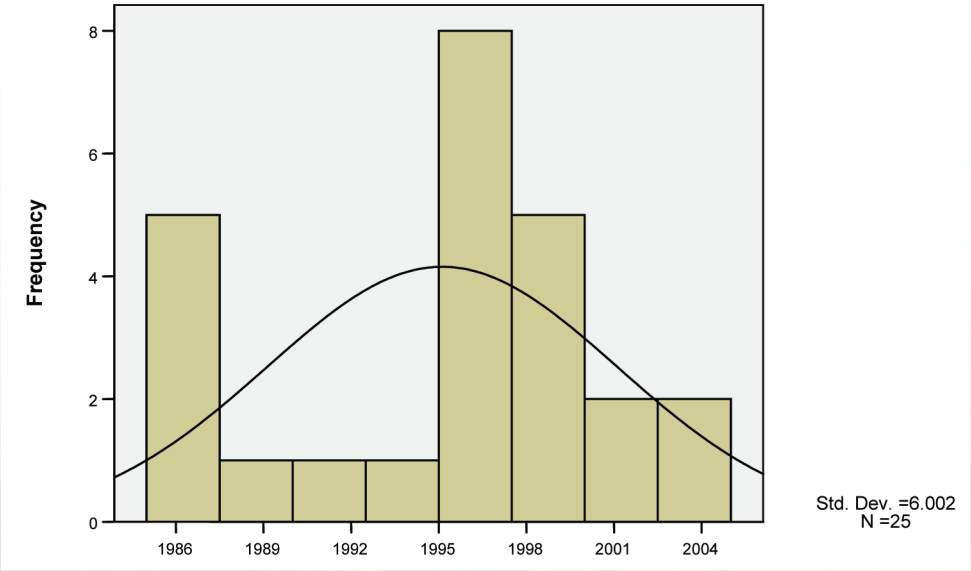
(a)

(b)

In photograph (a) the threads of the tread first open and the patch expands until the entire tread blows out from the casing. Photograph (b) shows a new whole tread glued onto a casing that became detached. This is caused by high temperatures on the road surface (note: a and b are the same tread).

4.2 Views of tyre dealers

Figure 2: Year dealer started selling used tyres



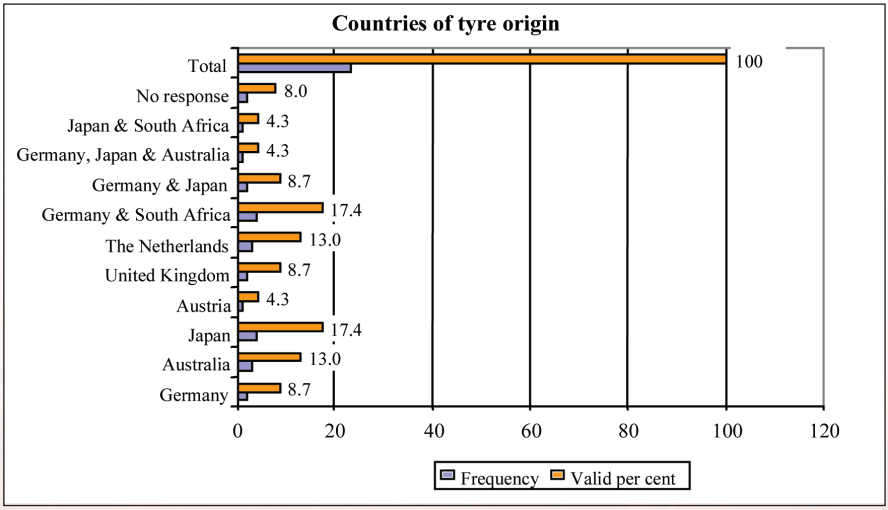
There is a normal distribution of imports of used tyres in Namibia since 1986, which peaks from 1995 to 1999.

Table 6: Interviewed tyre dealers importing used tyres

Name of the dealer	Respondents	Per cent
Quality Tyres	4	16
Dunlop	5	20
Trentyre	6	24
Spandien Motors	1	4
Auto General Dealers	1	4
Techno Trade	1	4
Jin Casings	1	4
Spare Centre	1	4
Mega Tyres	1	4
Truck Namibia	1	4
Midland Distributors	1	4
Nimex	1	4
Swiss Dunes	1	4
Total	**25**	**100**

Source: NRSC interviews (09/2005)

Figure 3: Countries from which dealers import used tyres or casings



Of the total respondents, 65 per cent (N=15) import used tyres from Japan, the Netherlands, Australia, Germany, the United Kingdom (UK) and Austria; 34.8 per cent (N=8) import these tyres from more than one country (German, Japan, Australia and South Africa), while eight per cent (N= 2) have not indicated the origin of the used tyres they import. Grouping the origin of tyres by continent, 34.8 per cent of respondents (N=8) import used tyres from Europe, mainly from the Netherlands, Germany, UK and Austria, whereas those importing from Japan and Australia are seven or 30 per cent (N=7).

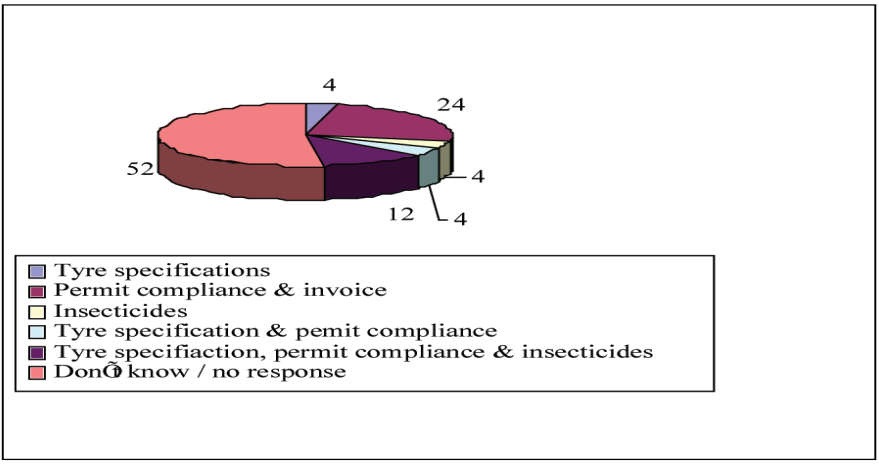
Many of the dealers sell tyres sized 12 R 22.5, which are mainly used on trucks.

Table 7: Size of tyres imported by dealers

Tyre sizes	Respondents	Per cent
12 R 22.5	17	68
R14 and R15	1	4
R13, R14 and R15	1	4
R12 to R17	1	4
R13 to R16	2	8
R12 to R15	1	4
R12 to R16	1	4
R13 to R17	1	4
Total	**25**	**100**

Source: NRSC interviews (09//2005)

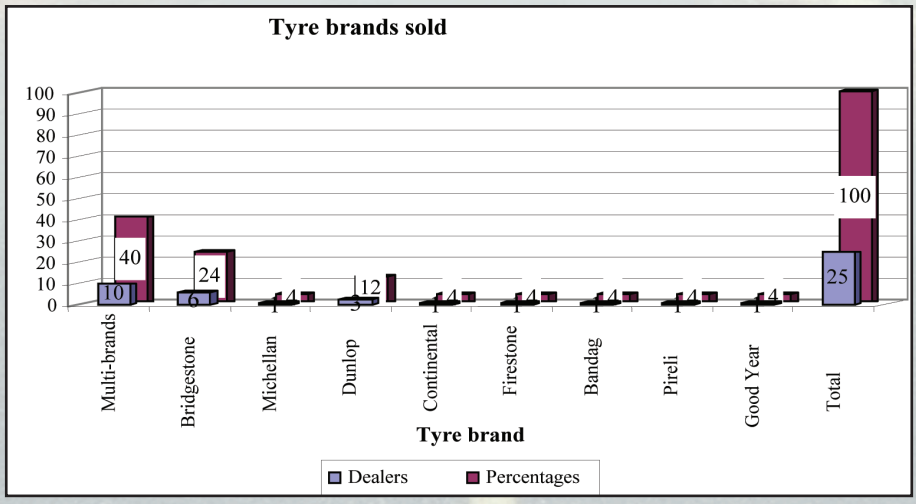
Figure 4: Items inspected by customs officers at the point of entry



Source: NRSC interviews (09/2005)

An investigation revealed there was an uneven check of items by the customs officers. The most regularly inspected items were permit compliance and the invoice of the importer (24 per cent). One dealer (four per cent) said the officers check for tyre specifications. The majority (52 per cent) were not sure. Most of those who said they were not sure have clearing agents who deal with customs officials.

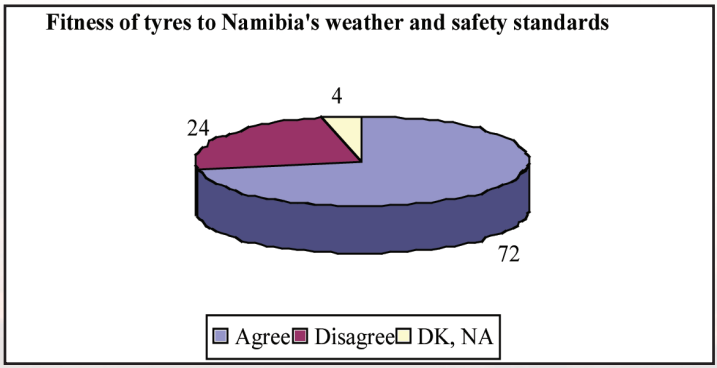
Figure 5: Tyre brands sold



Source: NRSC interviews with dealers, (09/ 2005)

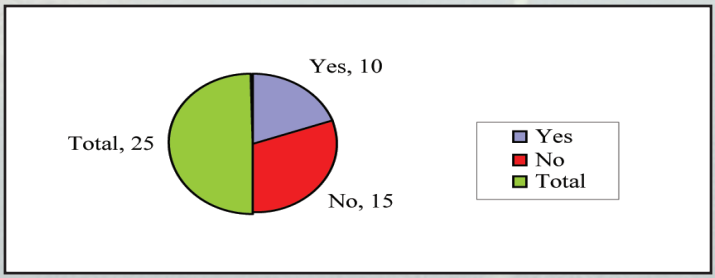
Ten tyre dealers (40 per cent) were found to sell multi-brands. Those who sold Bridgestone constitute six companies (24 per cent) and three dealers (12 per cent) sold Dunlop brands. The other six companies (24 per cent) sold brands including Michellan, Continental, Firestone, Bandag, Pirelli and Good Year. During the tyre dealers' interviews, the research team found that Midland Distributors sold tyres for different seasons[6].

Figure 6: Tyre fitness to weather and safety standards



Of all the tyre dealers' sales managers interviewed, 72 per cent (N=18) agreed that it was crucial to import second-hand tyres that were suitable for Namibian weather conditions and safety standards, while 24 per cent disagreed with the statement. This finding indicated that tyre dealers understood and were aware of safety and the potentially negative effects associated with the usage of unsuitable tyres.

Figure 7: Abolition of second-hand tyre imports



Source: NRSC interviews (09//2005)

6 Midland Distributors imported used tyres from Austria. Taxi drivers interviewed in Windhoek complained of poor tyres they had bought from this company and the short period of guarantee (three months) given on these tyres. The manager at this warehouse informed the research team that customers were satisfied with the tyres, because they had not returned with complaints. However, taxi drivers assert that three months period guarantee was very short to identify problems on the tyre.

Of the total respondents, 40 per cent (N=10) wanted the government to ban the importation of used tyres due the poor quality of these tyres, which do not meet safety standards. Those against the abolition constitute 65 per cent (N=15) and they felt that the government should institute controls to prevent unwanted, used tyres from entering Namibia. According to the opposing tyre dealers, the Namibian market had few casings while new tyres were expensive. Thus, there was a concern that abolishing the importation of second-hand tyres would destroy the tyre industry.

4.3 Views of drivers

4.3.1 Reasons for utilising second-hand tyres or retreads

Of the total respondents, 85 per cent (N=29) said that they used second-hand tyres due to cheaper prices compared to new tyres. The other 12 per cent (N=4) believed that used tyres were as good quality as new tyres, while three per cent (N=1) of the drivers interviewed did not give the reason for using second-hand tyres. Most of the drivers interviewed were truck drivers, although a few taxi drivers were interviewed in Windhoek.

4.3.2 Speed used with second-hand tyres or retreads

Of the total number of drivers interviewed, 68 per cent (N=23) said they drove at 80 km/hour, whereas 32 per cent (N=11) drove at speeds between 100 and 120 km/hour. Drivers asserted that the lifespan of a tyre depends on the particular driver, the distance the driver travels in a period of time, the load the vehicle is carrying and the maintenance of the vehicle. However, 53 per cent (N=18) of the drivers interviewed asserted that many used tyres could drive up to 30,000 km. They also contended that the incorrect tyre pressure, old tyres, heat and overloading were the main cause of tyres bursting.

Table 8: Maximum speed respondents drive with used tyres

Maximum speed	Frequency	Per cent
80 km/h	23	67.7
100 km/h	3	8.8
120 km/h	5	14.7
More than 120 km/h	3	8.8
Total	**34**	**100**

4.3.3 Causes of tyres bursting

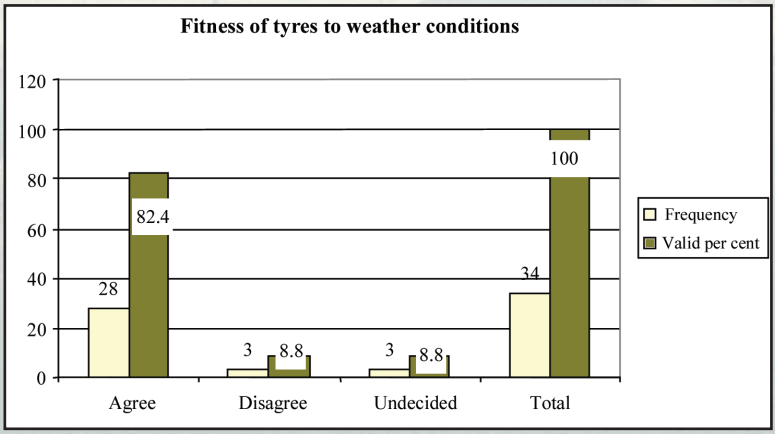
Table 9: Causes of tyre bursts

	Frequency	Per cent
Inappropriate tyre inflation	10	29.4
Worn tyre	8	23.5
Extreme temperatures	9	26.5
Overloading	5	14.7
Exceeding tyre speed limit	1	2.9
No response	1	2.9
Total	**34**	**100**

When asked what were the main reasons for tyre bursts, 94.1 per cent (N=32) of the respondents highlighted inappropriate tyre inflation, exposure to extreme temperature, the use of worn tyres and overloading. However, 2.9 per cent (N=1) of the respondents felt that excessive speed with used tyres is dangerous.

4.3.4 Fitness of imported second-hand tyres to Namibian climate

Figure 8: Tyre fitness to weather conditions



Imported second-hand tyres or retreaded tyres manufactured for cooler weather conditions may not be suitable for very hot weather conditions. Some 82.4 per cent of respondents agreed with this statement and 8.8 per cent disagreed. There were, however, 8.8 per cent of respondents who were undecided. This finding indicated that drivers, although they used second-hand imported tyres, were aware of the potential danger associated with such tyres.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The study investigated whether second-hand tyres and retreads are suitable for Namibia's hot climate, if they met the minimum safety standards and what possible negative effects there were of using such tyres on our roads.

The importation of second-hand tyres requires individuals to acquire import permits from the MTI. The individuals importing goods shall provide invoices in respect of goods imported. Ideally, Customs and Excise officers should take samples on entry of goods for examination, for various purposes as may be directed by law, to determine the quality of tyres and ascertain the duties payable. This section of the law has a long way to go before becoming a practical reality.

The majority of tyre dealers imported used tyres from Europe, Japan and Australia, while a few others imported from South Africa and elsewhere. A large number of tyre dealers imported old casings, retreading rubber and second-hand tyres for trucks. Reciprocally, many truck drivers used second-hand truck tyres.

5.2 Potentially negative effects

5.2.1 Poor monitoring of second-hand tyre imports

The available import permit data dated back to 1996, however, the survey results revealed that some companies began importing second-hand tyres in 1986.

It appears that the MTI does not monitor tyre dealers in terms of continuity of imports. Some of the tyre dealers recommended by the MTI for interviews were closed when the research team visited their premises. Companies, like Namibia Rail Contractors, imported second-hand tyres in 2004 for the construction of the northern railway. The MTI could improve this recording system by distinguishing short-term importers from potentially long-term importers.

It is clear from the findings that the MTI does not limit the number of second-hand tyre importers in the market. Even more disturbing is the fact that import permits do not specify the type of tyres (for example, ordinary or special tyres like winter tyres) allowed for import. Strict control is vital when it comes to the importation of used tyres. It would be more advisable if used tyres could be imported from countries with warm climates, such as Australia. Imports from Europe and America could include unsuitable snow tyres. Malaysia has banished the importation of second-hand tyres and Namibia would do well

to follow suit.

The inquiry into the inspection of tyre import consignments at Namibian border posts revealed that customs officers only checked for permit and invoice compliance. The specifications of the tyres themselves were not inspected. According to sales managers, customs officers did not open consignments to check for tyre quality. A customs officer interviewed indicated that they did not have the necessary equipment nor capacity to carry out inspections on tyre specifications. According to tyre dealers, exporters send all types of tyres, regardless of quality. Since Customs and Excise officers did not open consignments to check the quality of used tyres entering the country, the responsibility fell on consumers in Namibia to choose suitable tyres. As result, some tyre dealers sold poor tyres at low prices (see footnote on page 17).

Statistical findings indicated high value of used tyre imports and thus high demand of used tyres. Statistics also showed more fatalities and injuries resulting from faulty tyres compared to good tyres. This calls for increased monitoring of the entire tyre industry, regarding tyre quality, the issuing of permits and the number of dealers entering the market.

5.2.2 Fitness of tyres to Namibian weather and safety standards

While the usage of tyres on roads is controlled by the RTTR, the number of vehicles' tyres seen with worn-out treads indicated a mere enforcement of Regulation 231. Although managers at the tyre dealers informed the research team that they only sold tyres consisting of tread[7] of 3mm and above, some warehouses and taxi drivers interviewed were found with tyres having treads of less than 1mm.

The majority of truck drivers contended that most of these worn tyres came from retreads that were not properly retreaded. Almost all trucks in Namibia used retreads on their rear axles. Sales managers of the retreading factories that were visited concurred with drivers that tyre treads could blow out from the casings in cases where the retreading was not done properly.

Drivers asserted that retreads and winter tyres were sensitive to hot weather, which made them prone to bursting. Second-hand tyres marked M&S (snow tyres) developed air bubbles in the wall of the casing, which could lead to tyres bursting. The majority of taxi drivers interviewed were using winter tyres. According to these drivers, second-hand winter tyres lasted for a maximum of three months.

5.2.3 Economic pressure and attitudes of used-tyre consumers

The finding that the majority of drivers (85 per cent; N=29) used imported second-hand tyres because they are cheap is worrisome. This indicated that although many people were aware of the poor quality and associated dangers of used tyres, they would risk their lives by buying them because they could not afford new tyres. There were a few

7 The tread is the part of a pneumatic tyre that comes into contact with the ground, protects the body of the vehicle against mechanical damage and contributes to ground adhesion (SABS, ECE Regulation 54 of 1983).

drivers who bought used tyres because they believed they had the same quality as new tyres.

5.2.4 Excessive speed with used tyres

As table 8 explained, 32 per cent of drivers using imported second-hand tyres drove at high speed. This is a concern as it increases the potential for negative impact on the road user and such behaviour is likely to lead to a burst tyre.

5.2.5 Problems experienced by drivers

The drivers interviewed experienced burst tyres and, in the case of retreads, a blow out of the tyre treads, as a result of the wrong tyre pressure, worn tyres overheating and overloading of vehicles.

5.2.6 Dumping of used tyres and their waste

Tyre dealers interviewed in Windhoek informed the research team that they chipped and dumped the unwanted tyres at the Kupferberg landfill site on the outskirts of the city. The retreading factories visited in Windhoek and Otjiwarongo did not recycle the ground rubber from the casings, but instead dumped it in the landfill sites.

However, for tyre-related accidents that occurred on open or rural roads, many tyre treads that detached from casings were left behind. At the time of the study, Namibia had no national law for waste and pollution, and the MET had only a Bill on Pollution and Waste Control.

5.2.7 The use of retreads and second-hand tyres by sedan cars

Tyre dealers contended that it is inappropriate for small cars to use retreaded or second-hand tyres due to the fact that it is difficult to control the speed of such cars, unlike that of large vehicles.

5.2.8 Recycle the waste of used tyres

From the literature review it is evident that, when tyres are buried underground, their constituent chemicals leech into the soil and the water table. On the basis of this finding, the recycling of old tyres and their rubber is considered an environmentally friendly approach. There are various ways of recycling old tyres and these are described in Chapter 1. Another recycling option is to retread old tyres for reuse on roads instead of burning or burying them. Thomas noted that in Australia the rubber removed from used tyres before retreading was sold as rubber crumb and did not become a waste product.

5.2.9 Driver education on the usage and danger of used tyres

A campaign to raise awareness about the positive and negative impacts of used tyres

is critical. The campaign should also address the issue of correct tyre pressure. Some tyre dealer managers suggested that truck drivers should inflate their tyres with nitrogen rather than with normal air. Driver education will reduce the misuse of tyres by encouraging correct tyre inflation. It will also improve tyre maintenance and reduce the use of tyres with minimum tread depth.

5.2.10 Abolition of unregistered tyre dealers

Tyre dealers suggested that it is the government's responsibility to ensure that customers buy tyres from registered dealers who can provide professional advice on tyre usage. The government should prohibit shops, such as Game, from selling tyres if they cannot give professional advice to customers on tyre usage. Tyre dealers believed there were too many second-hand tyre dealers in Namibia and that government should minimise the number of dealers. Drivers concurred with dealers that a large number of tyre dealers existed.

5.2.11 Improve the standards of the tyre industry

Tyre dealers suggested that government should ensure that SABS standards are implemented. Dealers also suggested that government develop new standards to fill the gap not filled by the SABS. For example, the SABS allowed the use of winter tyres in Namibia although the country's climate was unsuitable for such tyres. The sales mangers of tyre retreading companies informed the research team that they developed their own regulations and safety standards.

There is a need for the full implementation of legislations, such as indicating the duration of permits and testing the quality of goods imported as the Import and Export Control and Customs and Excise Acts stipulate.

Although transport companies most commonly used retreads on the rear wheels of their trucks, truck drivers interviewed emphasised that they did not want use retreads at all due to problems associated with the hot Namibian climate.

5.3 Recommendations

Recommendations to address the status of used tyres in Namibia are as follows:

1. The Ministry of Finance (MOF) should increase the duty on second-hand tyre imports and retreads, while simultaneously reducing the duty on new tyre imports. This is believed to be an effective measure to discourage people from importing used tyres.
2. The assessment of the quality of tyre imports will be enhanced by customs officials opening and inspecting consignments.
3. Drivers call for the inspection of dealers' tyre warehouses by traffic officers to remove

tyres that are not suitable to weather conditions and minimum safety standards; the use of tread-measuring equipment during regular vehicle inspections for road-worthiness in an effort to remove worn tyres from public roads.

4. The importation of used tyres for sedans should be phased out by the MTI. Malaysian government had banished the importation of second-hand tyres in whole, an indication of the problem of used tyres.
5. Educational campaigns should be launched to inform drivers and tyre dealers about the possible effects of used tyres. It is crucial that drivers are taught to inspect tyres before purchasing them, while they should also inform themselves of the speed required for specific tyres and the utilisation of different tyres.
6. The import permit for second-hand tyres should prohibit tyres designed for use in winter.
7. MET should develop a law for waste control and management redressing dumping and recycling of tyre products, such the removed rubber.
8. Tyre dealers and drivers recommend that the government should ban the sale of tyres by non-registered tyre dealers, such as Game shop that cannot offer professional advice to customers on tyre usage.
9. Tyre dealers call for the MWTC to develop standards and specifications for used tyres and retreads in areas that SABS is not addressing properly.

REFERENCES

Commonwealth Department of Environment (2001). *A National Approach to Waste Tyres*. [Online: 16/08/2007]. http://www.environment.gov.au/settlements/publications/waste/tyres

ECoflex Australia. *Road Construction Utilising Used Tyres in Environmentally Sensitive Areas*. [Online: 16/8/2007]. http://www.azom.com/details

Federation of Malaysian Automotive Tyre Manufacturers (2002). Information sheet on internet searching (online). Available from http://www.fmm.org.my/pne_it.asp?NewsID=
456

Government Gazette (1998). *Customs and Excise Act*, Windhoek.

Government Gazette (1994). *Import and Export Control Act*, Windhoek.

Government Gazette (1999). *Road Traffic and Transport Act*, Windhoek.

Government Gazette (2001). *Compulsory specifications for pneumatic tyres for commercial vehicles and their trailers*, Pretoria, South African Bureau of Standards.

Government Gazette (2001). *Compulsory specifications for pneumatic tyres for passenger cars and their trailers*, Pretoria, South African Bureau of Standards.

Jacobsen, N.K. (2004). *Jacobsen's Harmonised Customs and Excise Tariff Book*, Pretoria, Jacobsen's Publishers.

Namibia Global Research (2001). *State of Environment on Waste in Namibia*, Windhoek.

Namibia Nature Foundation (1997). *Desktop Survey on Waste Management in Namibia,* Windhoek.

National Road Safety Council [NRSC] (2004). *Road Collision Report*, Windhoek.

South African Bureau of Standards (SABS) VC 8056, 8059 (published by the Government Notice R1125 of 16 November 2001). SABS 1565 and 1566 (Incorporating ECE Regulations 30 of 1975 and 54 of 1983).

Thomas, P. (2005). *The Ecologist* – archive detail. http://www.theecologist.org/archive

ANNEXES

Table 10: Tyre speed category for passenger cars

Speed category symbol	Maximum speed km/h
L	120
M	130
N	140
P	150
Q	160
R	170
S	180
T	190
U	200
H	210
V	240
W	270
Y	300

Table 11: Tyre speed for commercial

Speed category symbol	Maximum speed km/h
F	80
G	90
J	100
K	110
L	120
M	130
N	140
P	150
Q	160
R	170
S	180
T	190
U	200
H	210

Source: SABS 8056 & 8059: Government Notice 1125 (November 2001). The symbols and speeds are the same for both passenger and commercial vehicles.

Table 12: Maximum kilometres covered by used tyres

Kilometres covered	Frequency	Per cent
10,000 – 30, 000 km	18	52.9
30,000 – 50,000 km	3	8.8
50,000 km - 70,000 km	4	11.8
More than 70,000 km	8	23.5
No response	1	2.9
Total	**34**	**100**

Table 13: Country of origin of used tyres

Country of origin	Frequencies	Per cent
Germany	2	8
Australia	3	12
Japan	4	16
Austria	1	4
United Kingdom	2	8
The Netherlands	3	12
Germany and South Africa	4	16
Germany and Japan	2	8
Germany, Japan and Australia	1	4
Japan and South Africa	1	4
Total	23	92
Don't know / no response	2	8
Total	**25**	**100**

Table 14: Sizes of tyres bought by drivers

Tyres sizes	Frequency	Per cent
R13	11	32.35
R14	2	5.88
12 R 22.5	15	44.12
Other sizes	6	17.65
Total	**34**	**100**

Table 15: Towns in which dealers supply customers in bulk sales

Towns supplied by dealers	Frequencies	Per cent
Gobabis	1	1
Otjiwarongo	1	1
Outjo	1	1
Windhoek	1	1
Angola	1	1
Otjiwarongo and Outjo	1	1
Brakwater and Windhoek	1	1
Ondangwa and Oshakati	1	1
Katima and Okahandja	1	1
Lüdertiz and Keetmanshoop	1	1
Total	**10**	**40**
Don't know / no response	15	60
Total	**25**	**100**

Table 16: Drivers interviewed

Towns	Frequency	Per cent
Tsumeb	8	23.5
Otjiwarongo	3	8.8
Walvis Bay	5	14.7
Swakopmund	3	8.8
Gobabis	1	2.9
Outjo	2	4.2
Windhoek	12	35.3
Total	**34**	**100**

Table 17: Towns where drivers bought used tyres

Towns	Frequency	Per cent
Windhoek	13	38.2
Otjiwarongo	6	17.6
Tsumeb	2	5.9
Grootfontein	1	2.9
Walvis Bay	6	17.6
Swakopmund	4	11.8
Gobabis	1	2.9
No response	1	2.9
Total	**34**	**100**

GET THERE.
SAFE.