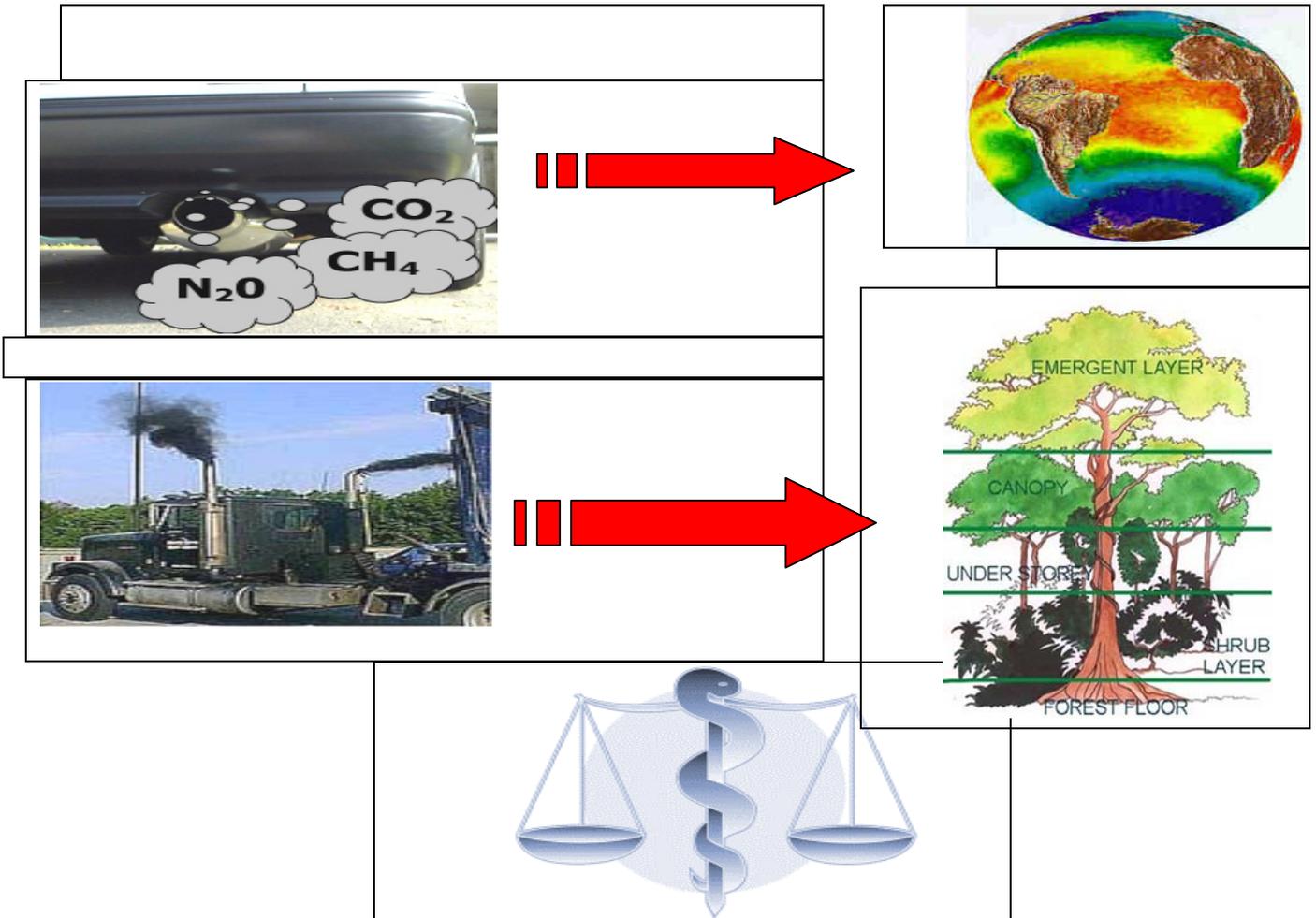




transport

Department:  
Transport  
REPUBLIC OF SOUTH AFRICA

# TRANSPORT, ENVIRONMENT AND HEALTH IN SOUTH AFRICA





“The most alarming of all man's assaults upon the environment is the contamination of air, earth, rivers, and sea with dangerous and even lethal materials. This pollution is, for the most part, irrecoverable; the chain of evil it initiates not only in the world that must support life but also in living tissues is for the most part irreversible. In this now universal contamination of the environment, chemicals are the sinister and little-recognized partners of radiation in changing the very nature of the world--the very nature of its life.”

*Rachel Carson*

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## ABBREVIATIONS

AA-	Automobile Association
BAC-	Blood Alcohol Concentration
CARS-	Committee For Active Road Safety
CCTV-	Close Circuit Television
CDM -	Clean Development Mechanism
CEO -	Chief Executive Officer
CER	Clean emission reduction
CHD-	Coronary Heart Diseases
CI -	Confidence Interval
CO <sub>2</sub> -	Carbon Dioxide
COTO-	Committee of Transport Officials
CSIR-	Centre for Scientific and Industrial Research
CSIR -	Centre for Scientific and Industrial research
DBA-	Decibel
DEAFSA -	Deaf Association of South Africa
DEAT -	Department of Environmental Affairs and Tourism
DLA -	Department of Land Affairs
DME -	Department of Minerals and Energy Affairs
DOA--	Department of Agriculture
DOH (1) -	Department of Health
DOH (2)-	Department of Housing
dti-	Department of Trade and Industry
DWAF-	Department of Water Affairs and Forestry
EC-	Eastern Cape
ECA-	Environmental Conservation Act
ECG-	Electrocardiogram
EEA -	European Environmental Agency
EIA-	Environmental Impact Assessment
FS-	Free State
GA-	Gauteng
GTL-	Gas To Liquid
HSRC-	Human Sciences Research Council
Hz -	Herz
IATA-	International Air Transport Association
ICAO-	International Civil Aviation Organisation
ITS-	Intelligent Transport Systems
ITS-	Intelligent Transport System
KPMG-	Kleinveld, Peat, Mawick and Goerdeler (founding members)
KZN-	KwaZulu-Natal
Leq -	Equivalent Continuous Noise Level
LI-	Limpopo
MEC-	Member of the Executive Council
(MMT)-	methylcyclopentdienyl manganesetricarbonyl
MNCs-	Multinational Corporations
MP-	Mpumalanga
MRA -	Medical Research Association
MRC-	Medical Research Council
NCCC-	National Committee in Climate Change
NDOT-	National Department of Transport
NEDLAC-	National Economic Development and Labour Council
NEMA-	National Environmental and Management Act
NGO-	Non-Government Organisation
NHTS –	National Household Travel Survey
NO <sub>2</sub> -	Nitrogen Oxide
NRCLPI-	National Referral Centre for Lead Poisoning in India

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NW-	North West
O <sub>3</sub> --	Oxide
OBN-	On Board Navigation
PE-	Physical Education
PTSD -	Post Traumatic Stress Disorder
QASA-	Quadriplegic Association of South Africa
RAF-	Road Accident Fund
RSA-	Republic of South Africa
RTOS -	Road Traffic Offence Survey
SAA-	South African Airways
SABC-	South African Broadcasting Corporation
SABS -	South African Bureau of Standards
SACAN –	South African Climate Action Network
SAG-	South African Government
SANS-	South African National Standards
SAPIA	SA Petroleum Industry Association
SAPS-	South African Police Services
SARS -	South African Revenue Service
SARS-	severe acute respiratory syndrome
SATAWU –	South African Transport and Allied Workers' Union
SCA-	Supreme Court of Appeal
STI-	Sexually Transmitted Infections
TB-	Tuberculosis
TEH (C) –	Transport, Environment and Health (Charter)
UKDOT –	United Kingdom Department of Transport
UN-	United Nations
UNFCCC –	United Nations Framework for Convention on Climate Change
WC-	Western Cape
WEC-	World Energy Council
WHO –	World Health Organization
WHR -	waist/hip ratio
WSSD -	World Summit on Sustainable Development
WTO-	World Trade Organization
YRBS-	Youth Risk Behaviour Survey
YUPPY –	Young and Upcoming Professional People

## CHAPTER ONE: LAYING THE GROUNDWORK.....

### 1.1 Introduction

This Chapter lays out the *raison d'être* for the Transport, Environment and Health (TEH) Charter by calling for a synergized approach to governance on transport, environmental, and health issues. It sets out **the institutional framework** for co-operation between the three departments deliberately identified by putting transport at the centre of this co-operation, but without disregard for the connectivity between the three (and many more others) than can be identified within this rubric. It only accepts that transport has much to do to accept its own role in the cause of the health and environmental effects as the other two have the responsibilities to deal with them.

This Chapter also places South Africa as an important role-player in global environmental governance, hence the need for South Africa to interrogate these international transport, environmental and health issues with more seriousness. The writers argue that Government has as much a responsibility for the health, environmental and health well-being of its people as it has for other hard-core responsibilities such as security and safety.



The writers do not detract from the security aspects of the environment, as it relates to neglect and inefficiencies by state organs, and **insecurity that arises from the neglect of the security threat that comes from the unhealthy, the “untransportable”, and the environmentally most affected.**

People whose security interests are not catered for, and whose welfare is neglected, are not always happy with a status quo that is responsible for their conditions in society. It is an old revolutionary logic, that the disgruntled are a fertile ground for recruitment against the existing socio-political order. The picture on the left shows Greenpeace activists trying to block a Japanese whaling ship. Such protests could easily turn into a confrontation with authorities, particularly in protests against security installations such as nuclear facilities.<sup>1</sup>

The document is **a collaborative effort** of a progressive effort that brings the three departments and their stakeholders together. This convergence seeks equal partnerships in a clear understanding that in transport, health and the environment continuum, all partners have an equal role to play. At the National Climate Change Conference, this partnership was evident when scientists, government and businessmen pledged their support for the climate change regime.<sup>2</sup>

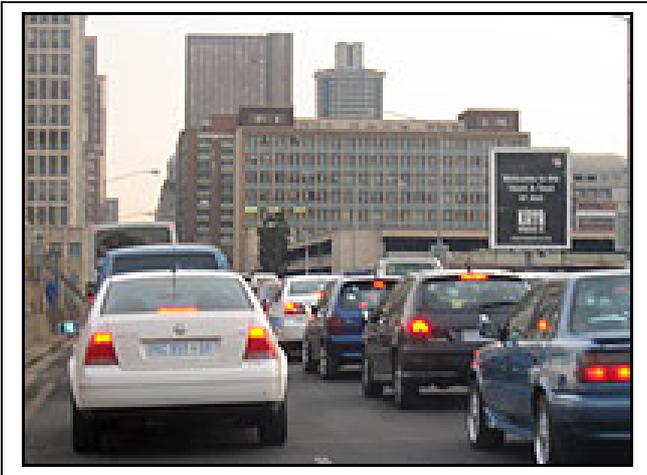
The political milieu in which these three interactions take place are also discussed, with the emphasis on South Africa's past which affects the reaction of citizens to current transport, environmental, and health dilemmas. We also indicate that in the short time, **South Africa has complied with environmental globality and global governance** by enacting environmentally, transport and health-friendly legislation.

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<sup>1</sup><http://en.wikinews.org/wiki/Image:Inflatable-boats-from-the-gree.jpg>

<sup>2</sup> Bojanala, Thursday 20 October 2005, National Climate Change Conference, 17-21 October 2005.

Importantly, the transport, environmental and health sector stakeholders have also been identified. In the context of the paper, **the politics of the state and the engagement of the public within the public space** will also be interrogated.



The document has deliberately avoided the economic quantification of the transport congestion, delays, and lost productivity. It emphasizes only that congestion delays have an effect on the environment and also on the health of road users and those living near roads. This does not underplay the importance of losses to the economy, as the injections into the economy through savings could be ploughed back into transport improvements, health provision and environmental protection. The document only accepts that the economic interrogation of these effects could be best served by another study. The picture on the left, shows traffic congestion was in a Johannesburg highway.<sup>3</sup>

Each of the chosen **variables is a colossal academic and government responsibility in its own rights**. The subsections that give effect to them in this document have been subject of contestation and debate among practitioners, governments, businesses and interest organisations. For these particular reasons, mention of each of them will not pretend to be an exhaustive elaboration, but only to locate the debate of causality within a proper context.

For the purpose of this document, the **definition of transport** will be extended to include its effects on the environment and health. Derived from Latin word *trans* ("across") and *portare* ("to carry"), transport or transportation is the movement of people, goods, signals and information from one place to another. "Place" in the definition brings transport to the environment and alludes to the issue of land and spatial planning which shall be discussed in the document. The transportation of goods and people can take place though different modes of transport. Goods which are transported vary, and the transportation media, the location of the road or rail or air corridor, may have an effect on the health of the people who are in the vicinity or on people using the mode of transport.

This immediately shifts the argument towards a different, but **interlinked, terrain of environmental health**, a co-ordination responsibility which resides with the Department of Health, but which all departments should take into cognisance in the formulation of their policies. This discipline will not be entertained for the purposes of this document but its definition, borrowed from the World Health Organization (WHO) if only to indicate the connectedness, will be given.

The environment is our immediate surrounding whether it is land, air space and the ocean, and how human beings interact with the three for their survival. For the purposes of this document, there is a broader understanding of the other sub definition of the environment, such as **sustainability**, preservation etc.

Environmental health comprises

*"those aspects of human health, including quality of life, that are determined by physical, biological, social and psychological factors in the environment. It also refers to the theory and practice of assessing, correcting, and preventing those factors in the*

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<sup>3</sup> Source: news.bbc.co.uk

*environment that can potentially affect adversely the health of present and future generations". (World Health Organization)*

This document departs from the premise that all departments will rely on the Department of Health to give policy direction, strategy and implementation; co-ordination of service delivery, dissemination of information, monitoring, auditing and review; capacity building and evaluation in the field of environmental health.<sup>4</sup>

Before we interrogate the common ground of the three variables and other government systems, it is correct to mention the inevitabilities of our current world in so far as the three variables are concerned:

- Firstly, it is the **issue of necessity and acceptance of risk**. Transport is a necessary ingredient for economic development and for convenience of human contact. It is a dangerous field, but humanity, rational as it is, has got to make trade-offs in life – take the risk inherent in transport in order to gain the other conveniences that it brings to modern life. For those who rely on transport for their economic activity, **the risks of delays, goods in transit, safety of their goods, hijacking of vehicles**, all congregate in this nature of this type of risk.
- Secondly, it is the issue of the equalization of the dominant force of **man versus the silent force of the environment** leading to a checkmate. Man's quest to tame the environment to better his own life may be derived from the Darwinist mastery of the survival of the fittest and man's manifest destiny.

As the current problems in our environment indicate (Hurricanes Katrina and Rita, the Tsunami in the Eastern zones etc.etc.- What Sir John Lawton of the Royal Commission on Environmental Pollution calls these backlashes the "smoking guns" of global warming.<sup>5</sup>), the environment has an ability to strike back at the existentialist nature of Man<sup>6</sup>, and in the continuing struggle by Man to reverse the environmental effects, and his need to continue with life as if the future does not beckon, the world may have reached a checkmate. The bishops and the queens of this chessboard of human nature are man, his health, and the environment. Frankly, man is a "*bittereinder*" who will not accept defeat from the environmental backlash.

*Let us not, however, flatter ourselves over much of our human victories over nature. For each such victory, nature takes its revenge on us.*

Frederick Engels; Collected Works.

As the environmental effects of global warming become starker, the denialist attitude of the some world leaders, and their belief that the devastations can be reversed by extra technological interventions, the culpability of Man becomes clearer.

- Thirdly, it is the **price that has to be paid for the trade-off** mentioned in the first point and the stalemate that has been reached in the second.

Both transport and environment are convenient for survival, but the health price that man has to pay takes an enormous toll on man himself and to the environment. But as long as the environment cannot stage a meaningful *coup d'etat* against man, and as long as man has the perception that his superiority over the environment and nature will always prevail, and as long as **the responsibilities to reverse the health effects fall on others (read government and**

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<sup>4</sup> Draft National Environmental Health Policy, October 2004

<sup>5</sup> Hindustan Times.com, 24 September 2005.

Jean Paul-Satre's is the best authority of this philosophy.

states) and not individuals, the situation will take long to be reversed. This limited vengeance that nature has on men, such as earthquakes, heat waves, tsunamis etc. etc. are susceptible to man's interpretation, and because the environment has no persona, and cannot speak for itself, man is quick to relegate it to "acts of God." In this way, Man absolves himself from his direct contribution to the changing environment and shifts the blame to the God and not himself.

The above arguments posit the **environment at a crisis point, but do not extend it to the apocalyptic approach of the ultra-environmentalist**. That the environment is facing a crisis cannot be denied, but each environmental debate should avoid the Thatcherian approach which dismissed it (the environment) as inconsequential when the former British Prime Minister, on the eve of the Falklands War declared:

*"When you've spent half your political life dealing with humdrum issues like the environment... it's exciting to have a real crisis on your hands."*<sup>7</sup>

### 1.2 Finding Common Ground

The mixture of transport, environment and health presents policy makers with a challenge of integration. This document seeks to extrapolate from these hallowed boundaries into a single approach towards policy formulation. Of course, there will be nuances determined by the specificity of the respective departments. This document seeks to **raise awareness** about the three concepts, **identify resonance and similarities**, and **consolidate those similarities** which have been identified by policy practitioners and by the strength of the three disciplines themselves.

The temptation in such an "eclectic" document is that writers tend to be absorbed in one or another aspect while underplaying other elements in a manner that exposes the writers' affinities. To the extent that the document will be emphasizing one over the others, it will be an unintentional exercise of emphasis. Policy-makers who naturally share certain affinities among these three variables may find paucities in areas of their interests. These perceptions would be the unintended consequences of a study that seeks to find commonalities among these three variables.

.....In the final analysis, the document will be a precursor to the development of a Draft Transport, Environment and Health Charter. The identification of the three variables does not preclude the variety of other issues and departments related to them. **The document is thus a stimulus for a wider government co-ordination and synergies**. Indeed,

- transport and health cannot be discussed without reference to the role that is played by the Department of Minerals and Energy in the provision and determination of fuel prices;
- fuel prices and any modifications around it cannot be discussed without reference to National Treasury;
- the petrochemical industry and its contribution to the current environmental and health regimes cannot be discussed in isolation to the Department of Trade and Industry (dti) etc. etc;
- Innovation in transport technology cannot be discussed without reference to the Department of Science and Technology etc.etc.

*"All of us have a stake in the increasingly heated debate on global warming in our nation and around the world. In uncertain times, it's even more important to listen to those who have a vested interest in our future and to find the common ground that allows us to move ahead in a sensible manner."*

*Cinergy, Annual Report 2004*

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<sup>7</sup> Barnes, S. Want To Save The Planet? Then Make Me Your Not So Benevolent Dictator. The Times United Kingdom. 9 April 2005.

Often portrayed in apocalyptic terms, **discourses on the environment have divided opinions from the polemic of the left**, characterized by what have become to be known as eco-terrorists (as the free-marketers see them), and on the right by the super exploiters, profiteers and neo-liberals (as seen by the left). The redeeming characteristic of this document is that it finds common ground between the two poles. It finds a lot of comfort from the observation by the Secretary-General's Note for the Multi-Stake Holder Dialogue on Sustainable Energy and Transport which observes that:

*“Transport users and transport providers are well aware of their fundamental economic role and their social responsibilities regarding safety, labour conditions, the environment, energy efficiency and, consequently, sustainable development. They are prepared to take the lead in finding sustainable solutions for future transport challenges. With respect to the environment, commercial transport users and transport providers recognize that there is a common goal, not a conflict, between the development of transport and environmental protection, both now and for future generations. The road, air, maritime and rail transport industries have a common interest in achieving **the objectives of sustainable development, taking into account the characteristics and context in which different transport modes operate.**”<sup>8</sup>*

This sets the parameters for a non-adversarial premise, and presents the discourse with a partner rather than an enemy. Three international dimensions happening currently encourage this discourse. These three are:

- Firstly, The **Kyoto Protocol**, which accepted the **Clean Development Mechanism (CDM)**, and the Carbon Trading regime, known as clean emissions reduction (CER) as part of the **United National Framework Convention on Climate Change (UNFCCC)** and the **National Committee on Climate Change (NCCC)**. As a victory for the polemic of the left, the final approval of the Kyoto Protocol changed the view of the polluters.

As for the polemic of the right, the Carbon Trading Regime<sup>9</sup> and the Clean Development Mechanism (CDM) seek to bring business into the party and to minimize the chasms that exist between the two polemics. These commonalities bring environmentalism and capitalism, or Rachel Carson and Adam Smith together.

According to the Economist,

*“Rachel Carson, the crusading journalist who inspired green in the 1950s and 1960s, is joining hands with Adam Smith, the hero of the free-marketers.”<sup>10</sup>*

- Secondly, the **Hong Kong Round** of the World Trade Organization (WTO) (in December) requires that common positions be maintained at a trading bloc level.

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<sup>8</sup> Secretary-General's Note For The Multi-Stakeholder Dialogue on Sustainable Energy and Transport. Addendum No.1: Dialogue Paper by Business/Industry. World Energy Council.

<sup>9</sup> For the involvement of scientists in reducing carbon and the new methods of storing and capturing carbon dioxide, see Part 1 to 3 of the Financial Times from August 23 to 25 2005.

<sup>10</sup> The Economist, April 23, 2005.

### **What is Carbon Capture?**

- *Capturing carbon dioxide and storing it underground prevents emissions from burning fossil fuels contributing to global warming*
  - *The economic impact of carbon is minor when compared with a wholesale switch to renewable fuels. But some scientists argue it will not work in isolation*
  - *Oil companies have warned that they will need government subsidies to roll out the technology on a large scale*
  - *The technological challenge of extracting carbon dioxide from power plant emissions is yet to be adequately overcome.*
- Financial Times, 23 August 2005

However the common approach would be difficult to strike if the national governments have not adopted a common position. As it pertains to the three variables for this document, all of them are considered to be part of the services regime of the WTO.

The transport sector is in the distributive sector of the sector of the services – the so-called intermediate services and the environment and health are in the social services, i.e. the so-called final demand services. A common understanding of how one department will engage with the WTO in relation to others departments is both just and fair.

- Thirdly, the **World Cup 2010** that was awarded to South Africa requires that policy formulation should be integrated particularly so because most of the visitors for the event have their governments already integrating (particularly in Europe) their transport, environment and health policies. The Charter will not be fully implemented, but it will have set the road map for the integrated approach to TEH policies. The following picture shows South Africans at a football game.<sup>11</sup>



The South African Government (SAG) has gone a long way to subscribe to, and comply with, these international policy shifts. These are encapsulated in some of the discussion documents such as the *Technology Transfer for Reducing The Effects of Climate Change: An Overview for South Africa*<sup>12</sup>, and the *Development of An Investment Strategy To Implement The Clean Development Mechanism in South Africa*<sup>13</sup>. These documents will not be interrogated for the purposes of this Base document and also not for those of the Charter itself.

### 1.3 A Government In Service To The People

Over the years, transport been seen as a catalyst for access to amenities such as schools, markets, places of employment and to a limited extent, leisure. As an input sector into the economy, transport, and its related infrastructure, is one of the main, but yet underestimated, pillars of the national, regional, continental and global economy. On the obverse side of these benefits, there is a realization that if transport growth is unchecked, it will have deleterious impacts on the health of the population and also on the environment on which all humanity and animal kingdom depend.

By environmental impact on the environment in this study, it is meant an **overarching framework that includes noise, atmospheric pollution of different kinds, vibration, visual intrusion, severance, fear and intimidation, and the loss of intrinsically valuable objects such as flora and fauna, ancient monuments, and historic buildings through the consumption of land.**<sup>14</sup>

In simpler analysis, transport is a “sealandair” responsibility, and as the environment and health are concerned, the “sealandair side effects exude the narrow interpretations of individual government departments. That means that as there are health conditions that derive from the

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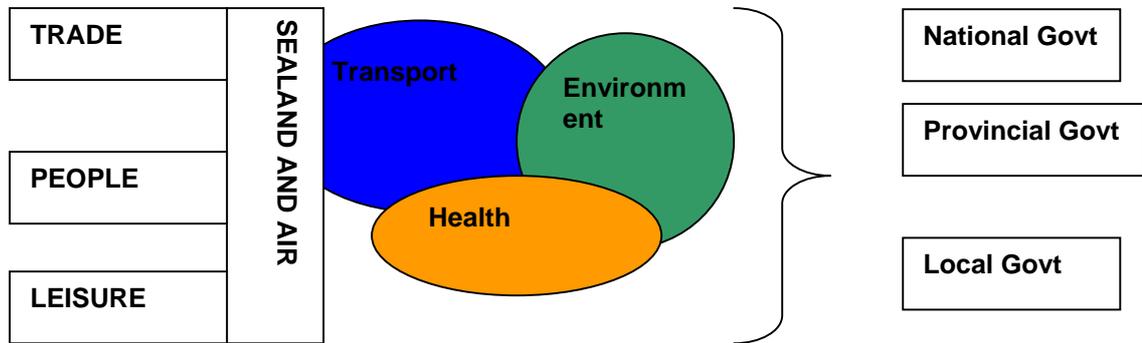
<sup>11</sup> Source: [www.bbcnews.co.uk/olmedia/81000001/images/-811372-rsa-fan150](http://www.bbcnews.co.uk/olmedia/81000001/images/-811372-rsa-fan150)

<sup>12</sup> The Discussion document, dated 24 February 2005

<sup>13</sup> NEDLAC Trade and Industry Chamber, Final Report 2004.

<sup>14</sup> Flaherty, C.A. (Ed) 1997) Transport Planning and Traffic Engineering. John Willey and Sons, Page 7

sea, land and air; there are also environmental concerns that originate from the three areas. These coalesce in the **intermodality of transport that is conducted from land, air and sea and space**. Although space has not been included in the following diagram, the diagram represents how the different levels of government and people interact with the three variables.



The need for synergies and common approaches towards solutions to these problems cannot be overemphasized. The prospect for these synergies and **common approaches do not need the re-invention of the wheel through the creation of another structure, as the cluster approach of Cabinet already exists** and is gradually being replicated through the other spheres of government. What it may need, as a start, is the acknowledgement that these problems, challenges and opportunities in all the three areas, exist, and that all three departments need to respond with speed, but in unison.

The very essence of the cluster approach by government is to effect cross-sectoral planning and implementation, and to facilitate coherent decision-making. The cluster approach takes into cognisance that **the impact of government's policies on the citizenry cannot be compartmentalized**. It is a series of double whammies and quadruple whammies for some, and in the instance where government's policies positively affect the citizens, the double and triple boons and benefits can also be evinced.

The integrative policy approach also finds resonance in the Organisation for European Cooperation and Development (OECD): In its approach to policy integration. This approach derives mainly from the genesis in the early 1990s, (the first wave of policy integration) where there was commitment to sustainable development; the second wave of the mid-1990s where there was the strengthening of this integration, and the third wave, the so-called Cardiff Process late mid 1990s onwards). In summary, and as it relates to policy integration, the OECD acknowledges that:

- Political commitment is a necessary precondition for policy coherence and a tool to enhance it. In instances where political goodwill does not exist, the polity, together with the social, environmental and health issues that attach themselves to it (the polity) are weak.
- Establishing a strategic policy framework helps to ensure that the individual policies are consistent with national goals and priorities and national strategies. In most cases these national goals are informed by the global political dictates within which the national goals operate.
- Decision-makers need advice based on a clear definition and good analysis of the issues with explicit indications of possible inconsistencies;
- The existence of a central overview and co-ordination capacity is essential to ensure horizontal consistency among policies;
- Mechanisms to anticipate, detect and resolve policy conflicts early in the process help identify inconsistencies and help reduce incoherence;
- The decision-making process must be organised to achieve an effective reconciliation between policy priorities and budgetary imperatives;
- Implementation procedures and monitoring mechanisms must be designed to ensure

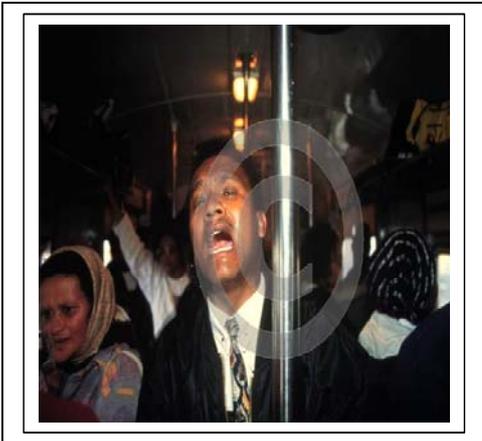
that policies can be adjusted in the light of progress, new information and changing circumstances;

- An administrative culture that promises cross-sectoral cooperation and a systematic dialogue between different policy communities contribute to the strengthening of policy coherence.<sup>15</sup>

It is the contention of this document, that the South African policy environment is fashioned along the above-mentioned lines, and the integrative approach of this Charter is thus not misplaced.

### 1.4 The Centrality of People

At the outset, the document and its contents evolve around “people.” In its broader sense, “people” refers to attendant issues such as people’s well being (inclusive of health, safety and security) their social needs, their psychological stability, their physical well-being etc. etc. The following picture shows a preacher in a train coach. This means that transport, efficiently run, can also have add-on benefit such as the spirituality of the passengers. Trains in particular, provide an avenue for commuters to worship on their way to and from work, and particular coaches are known as church coaches.



The departments of transport, the environment, and health are a few of the government’s institutions to robustly assume these responsibilities. So, at a transport level, **the Department of Transport (DOT) has to ensure the safety passage of goods and people through the territorial, maritime and airspace; the Department of Environmental Affairs and Tourism (DEAT) has to ensure that the environment on which these goods and people travel are safe and sustainable.**

**The Department of Health (DOH) has to take care of the “victims” that may suffer as a result of the transportation of goods and people that fall into the cracks despite the good efforts of the other two departments.** Using the example of the Road Accidents Fund for instance, a Public Service Commission Report, states that 80% of all the (accident victims are treated in state hospitals.<sup>16</sup>

**The cost impacts on the environment and the budget that has to be spent by the Department of Health in alleviating the illnesses, the cost that has to be paid by the Department of Labour in occupational health-related incidences, the road accidents that the Department of Transport disburses from its budget, all point to the need for continued government vigilance against these issues.** The importance of savings in these areas cannot be overemphasized, as in the competing interests of the South African population’s needs, money saved elsewhere can be used on other social spending programmes such as housing, social grants and education.

With its mandate to investigate bus crashes in which more than five people are killed, the Department of Transport spends anything between R50 000 and R100 000 per accident, and in 2002, there were 120 such accidents involving vehicles of all types.<sup>17</sup>

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<sup>15</sup> Geerlings,H. and Stead, D. The Integration of land use planning, transport and environment in European policy and Research., in Transport Policy (10) 2003) 187-196)

<sup>16</sup> Draft Report On The Evaluation of the Department of Transport and Its Agencies. Public Service Commission.2002

<sup>17</sup> Truck and Bus, July 2003, Page 46.

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Throughout the document, reference will be made to an integrated approach and stakeholder analysis. It has been indicated in the previous section that the cluster approach by Cabinet and Government in general makes the integrated approach to the transport, environment and health solutions easier.

A more serious approach requires to be undertaken if it is recognized that the stakeholders in the three variables, transport, environment and health, are complicated. As the following list shows, the maze of the interested parties and stakeholders, service providers, and agencies require constant consultation and consensus-making, so that each of these bodies is clear about what is expected of it:

**Even if the Draft Charter were to be addressed within individual departments, some resonance within the three variables could also be found.**

In the Transport Department, it would find resonance with many of the debates that relate to the environment. For instance:

- the concern about the **growing use of road transport as opposed to rail**, in the event that the rail mode prevails, comfort for environmental friendliness could be found as this mode is energy-efficient;
- the **project on non-motorized transport** indicates the importance of saving the environment;
- **safety and security** and the outstanding issues on ballast water management respond to the environmental concerns;
- **the congestion on our roads** has environmental impacts.

If addressed through the Department of Health, the investigations will reveal that

- **costs of injuries and post-accident care** and trauma management is a great costs to the budget of the Department;
- **the use of non-motorized transport** as health benefiting;
- **obesity** can be greatly reduced by a higher number of people cycling and walking.

If addressed by the Department of Environmental Affairs and Tourism, the investigations will show that, *inter alia*,

- The **use of lead free petrol** will assist in the reduction of green house gases;
- **Proper management of land** will reduce environmental damages to land;
- **Noise pollution control measures** will reduce aggression.

The departments cannot achieve these on their own, and would need to rely on the assistance of individuals and organisations outside them. The next section looks at these stakeholders.

### 1.5 A Stakeholder Analysis

STRUCTURE	MEMBERSHIP AND RESPONSIBILITY
CABINET	Overall Government Responsibility
MINISTERIAL SUBCOMMITTEE ON RESTRUCTURING	Comprising of a number of Ministers responsible for the Restructuring of State Assets
MINCOM	Comprising of the National Ministers of Transport and the Nine Provincial Transport MECs
PORTFOLIO COMMITTEE ON TRANSPORT	Oversees the Department's Legislation, budgetary and strategic visions, and monitoring of performance at the National Assembly
STANDING COMMITTEE ON TRANSPORT	Does the same as above but in the National Council of Provinces

## DRAFT DOCUMENT

COMMITTEE OF TRANSPORT OFFICIALS (COTO)	Comprising of national and provincial heads of Departments and deals with the co-ordination of national and provincial safety funding approaches and implementation.
ROAD TRAFFIC SAFETY BOARD	Sets policy, authorizes action plans and approves strategic documents
NATIONAL TREASURY, DEPARTMENT OF STATE EXPENDITURE PROVINCIAL TREASURIES FUEL LEVY	Funds the Road Accident Fund
THE ROAD ACCIDENT FUND	Compensates Victims of Road Accidents
ARRIVE ALIVE	Comprise National Departments of Health, Defence and Provincial traffic Management Officials and SAPS, CSIR, SABS, AA and is responsible for the all year co-ordination and implementation of national and provincial enforcement and communication programmes around the Arrive Alive Campaign
SA NATIONAL ROADS AGENCY	Build Own Operate and Transfer, Maintenance of National Roads
CROSS BORDER ROAD TRANSPORT AGENCY	Management of Cross Border Traffic
ROAD TRANSPORT MANAGEMENT CORPORATION	
CSIR TRANSPORTEK	Roads and Crash Fatality Statistics, runs research projects and provides consultancy to NDOT through joint venture contracts
SABS	Sets legal standards for vehicles
LOCAL GOVERNMENT TRAFFIC AUTHORITIES	Coordinates and deals with traffic issues at local levels
METROPOLITAN AND MUNICIPAL TRAFFIC POLICE	Maintenance of Traffic Law at local sphere of government
EMERGENCY SERVICES	

Adapted from; The Road To Safety: Managing and Co-ordinating Strategy

The methods of interaction of the above structures stretch from **funding to reporting, to advising, to co-ordination, to research, setting legal standards** etc, all of which will be central in an integrated and co-ordinated approach towards a safe transport, environmental and health regime in South Africa.

The above-mentioned stakeholders, particularly the pre-1994 ones, come from a particular past, and their integration into a new approach is informed by this past. Even the new stakeholders have to contend with the residue of this past. It is to this issue that the next section now turns.

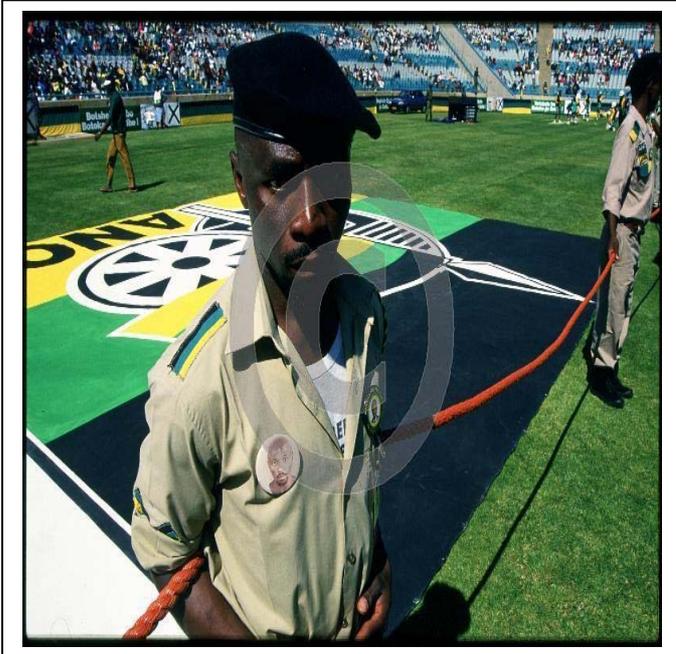
### 1.6 A Nuanced Analysis of Threats To The State.

While the role of the state to protect itself in the past was presaged on its ability to “eye-ball” other states through its military might, the **threats that face the states today are not those which come from hardcore military prowess**. The threats that were considered soft have now catapulted themselves to the centre-stage of threat analyses. Going *in tandem* with the new dimension of threats, have been the methods which the proponents of “soft issues” mobilize, and the State, because of its preparedness to deal with threats at a military level, has been found wanting.

In the document reference has been made to the term eco-terrorists. This explains the leftist



The size of the network increases the South African government's need for huge infrastructure rehabilitation costs, while at the same time extending the system to the areas it had never reached, and **reopening the parts of the network that were closed because they were not economically viable to the state-owned company, Transnet, even when these closed rail links played a social service to surrounding communities.** In spite of the political changes after 1994 (depicted by the picture below), and as a consequence of South Africa's past,



- the introduction of **race and ethnicity in land use policies** created longer travel distances for Black people;
- **reliance on coal-based synthetic fuels** became the only alternative to wade off the sanctions which were placed on the country in the 1970s and 1980s;
- **generous car subsidy schemes** encouraged the use of the private motor car and the use of public transport as a transport of choice took a dive. Those who use public transport have no other alternative;
- because of the long distances travelled by buses, a **market for the mini-taxi industry was opened**, providing cheaper and quicker options;
  - as a result, most commuters in South Africa use mini-taxis<sup>18</sup> which are themselves not as friendly to the environment and health as they should be. The picture above shows a marshal at a political rally.<sup>19</sup> After 1994 and well into the 12<sup>th</sup> year of democracy, the political changes have not addressed the environmental effects of pre-1994.

The fact that **developing countries have always traded their environments for economic development**, and that the environment has been used as a leverage or a negotiating tool to access foreign direct investment, does not necessarily indicate that developing countries should relegate their environment to the periphery of their national policies and strategies.

There is indeed growing evidence that **many of the Multinational Companies in the developing world are investing in poor and underdeveloped countries precisely because of the absence of the integration of the environment and health into the receiving countries' economic development policies.** In their own countries, Multi-National Corporations (MNCs) face sanction and punishment, but in the developing countries which need foreign direct investment (FDI), the issue of environmental degradation and the health side effects of such investments are ignored.

Adding to the complication of transport on health and the environment are land planning and **land use regimes which, instead of minimizing the distance between the people and their places of work or education or leisure, tend to compound them.** Road and housing planning also play a role in access to transport, and how transport itself increases or limits access, or delays and leads to congestions in major road arteries.

**Distances between the places of residence and major roads, and the number of road accidents on roads that are nearer to the suburbs, inclusive of the level of income of a**

<sup>18</sup> Transportation in Developing Countries: Greenhouse Gas Scenarios for South Africa. Pew Centre on Global Climate Change, Arlington Virginia.

<sup>19</sup> Source: Afrikaphotos.com

**particular residential suburb, have an effect and also add to the complication of poverty and power distance between the rich and the poor.**

The rich and the famous, who have millions of Rands and influence, watch at the debate about the environment as “*bagatelle*” which should not be discussed. But this is a wrong approach because the effects of noise pollution lead to short sleeping nights, annoyance, speech interference, and irritation, among other things. The rich and the famous do not have the pressure to wake up in the morning to rush to their places of employment, hence their lackadaisical approach to the issues of peaceful sleeps. **For the poor, the worry of oversleeping, the pressure to wake up and make the time to look for work, is so overwhelming on them that it leads to another health hazard not yet examined: anxiety.** This point will be further discussed in Chapter Three.

**The longer the roads are congested, the higher the levels of noise (and the annoyance such as road rages that are connected with it), and the greater the dangers of accidents on them (roads).** The longer the congestions, the higher the dangers of air pollution that lead to complications of cardiovascular diseases. Air pollution increases the rate of climate change dynamics, and both the environmental and health effects of climate change are gradually being reported.

The **overuse of transport also leads to sedentary lifestyles and higher mortality rates.** Avoiding sedentary lifestyles relies very much to the extent to which communities involve themselves in sports, walking, and using non-motorized transport facilities. The picture on the left indicates the fact that cars share roads with horse drawn transport used mainly in Johannesburg townships and by the “*Karretjie Mense*”<sup>20</sup> of the Northern Province. In tandem with the protection of the health of these animals, there is a need for government to make the animals on our road more visible. The example set by the Births based animal welfare organization, Namibia Donkey Welfare, where they tag donkeys with reflectors for visibility. This is to address the donkey accident rate of 25% on Namibian roads.<sup>21</sup>

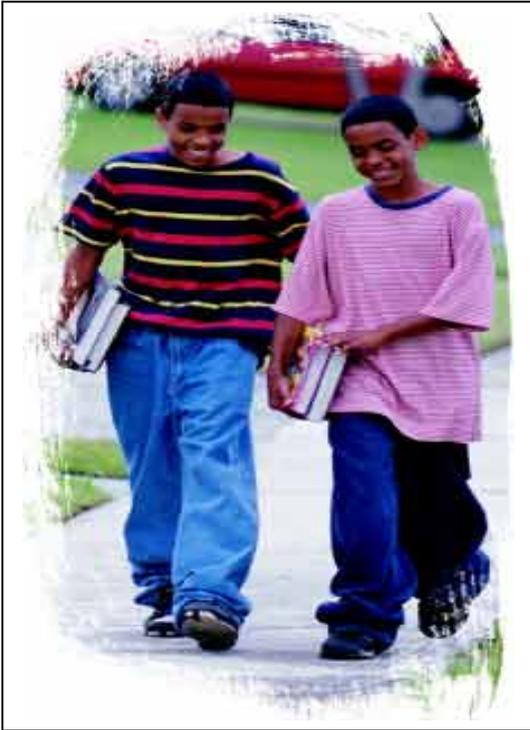


But this itself is not enough. If we consider that a higher portion of the adult population in South Africa does neither walk nor exercise, and given the fact that a portion of **South Africa’s youthful population does attend gym but then drive themselves on roads in order to get to and from there, the problems of congestions and pollution and therefore, road accidents is hardly minimized.** This does not mean that the South African youthful population face less risks to their health, as the gym population of the youth is insignificant compared to those who do not go to gym or exercise at all. The exclusionary nature of gyms will be discussed under Chapter Six.

**In rural areas the higher levels of walking emanate from the absence of transport.** This walking itself poses more dangers as it is often done along roads where the exposure to road accidents is higher. **Footpaths are circuitous, time-consuming and inadequate** such that roads become convenient paths from village to village but also in the hope that on roads people can get lifts along the road. In other words, **walking in rural areas is not a choice, it is necessity, and if rural people have access to motorized transport, they would opt for it, in spite of the health effects of walking.** The picture on the next page shows schoolboys walking to school on a dirt road in a rural area.<sup>22</sup>

<sup>20</sup> Trans Indaba. Volume 1. 2003. Page 9.

<sup>21</sup> The Independent on Saturday, October 15, 2005.



**Cycling is one of the methods through which we can reduce the rate of air pollution while encouraging healthy lifestyles.** (See Chapter 6) In spite of its health benefits, the promotion of cycling also needs careful consideration if it is considered that both the cyclists and the motor user compete for the same road space. South Africa Bicycling has noted this problem when it states:

*“Cycling is one of the fastest growing lifestyle sports in South Africa and cyclists are taking to the tar throughout the country, either to train or to compete on the weekends in the more than 1000 races on the calendar. There are more than forty thousand competitive cyclists, and at least one hundred thousand recreational cyclists that regularly use public roads and trails.....*

**Cyclists are extremely vulnerable road users and are often the victims of road rage and carelessness.** Although cyclists can substantially reduce the risk of accidents by adopting some basic safety measures regarding the equipment they use, and their own behaviour, the most important factor in improving road safety is to create and nurture an attitude of mutual respect and awareness of both cyclists and motorists.<sup>23</sup>

While it is acknowledged that the country and the continent are faced with the rise of diseases to which cures were found sometime ago, e.g. (Tuberculosis) TB and malaria, **concentration on the HIV/AIDS epidemic has so overwhelmed health authorities and the population such that less attention is paid to some causes of diseases which can be avoided or reduced.** Some of these health effects are caused by environmental conditions and can be dealt with expeditiously were the devastation of HIV/AIDS less than its present status.

The burden of dealing with people who are **permanently injured as a result of road accidents is also taking a heavy toll on the Department of Health** (Hospitalisation), Social Welfare (Disability Grants) and the Department of Transport (Road Accident Fund). These spending items compete with other government programmes which need funding, and which by their very nature can reduce the causes which lead to road accidents. One example would be the funding for more traffic police, better road construction, more education on road safety etc. etc. This point is mentioned elsewhere in this document.

Much has been done by the Environment, Health and Transport departments to create awareness around these issues. The sheer weight of road accidents per year in South Africa, and the growing number of private cars on our roads, point to the imminent threats that are being articulated in this document. Launching the R6,29 million Arrive Alive project at Kyalami, where eighty (80) new vehicles were donated to monitor the hazardous locations, The Minister of Transport, Mr Jeff Radebe said traffic authorities had listed 86 dangerous stretches of road totalling 10 730km, where 5 849 people died last year.<sup>24</sup> There is now acknowledgement that **public policies, such as transport and housing/land usage policies, should be evolved with an eye for public health and the environment.**

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<sup>22</sup> Source: [www.reinwtwork.org](http://www.reinwtwork.org).

<sup>23</sup> Arrivealive.co.za

<sup>24</sup> Cape Times; 18 March, 2005.

The growth of traffic on our roads and the problems related to transport are captured in the case of the City of Tshwane as follows:

What is the state of transport and associated infrastructure in the metropolitan area? (State)

The metropolitan area has a well-developed road and rail network and a busy airport for small aircraft. Many commuters to and from the metropolitan area live outside the region. About 244 700 passengers use public transport such as buses (excluding municipal buses), trains and 6-12 seater taxis. Car ownership in the metropolitan area has more than doubled since 1970, and almost 40% of the commuters travel by private car.

What are the major transport-related problems in the metropolitan area? (Pressure)

More than 580 000 private passenger vehicles are registered in the metropolitan area (one vehicle for every three people). As a result peak-hour traffic congestion is becoming more pronounced on some roads, and accident rates are high. Low-density urban sprawl and the wide distribution of settlements make the provision of effective public transport difficult. A large proportion of the streets in townships such as Marmalade are unpaved or in a poor condition. Public transport problems include crowding on trains, buses and taxis, reckless driving and crime.

Source:www.deat.gov.za

At different levels of intervention, government has adopted policies that mitigate these threats. Some of these **suggested interventions need full interrogation before implementation**, as one suggested solution may create a problem in another transport or environmental or health-related area - what has anecdotally been referred to as the "unintended consequences." For example, it is suggested that **reduction of speed (which killed 4 183 people costing the country R1,632 billion in 2004<sup>25</sup>) will decrease the number of road accidents, but these increase pollution as vehicles take long on the road.** Zero tolerance on motorways and freeways increase congestions on smaller roads as road users try to avoid traffic fines. Higher car prices will affect the profitability of the automobile sector, which will lead to unemployment. Unemployment on its own limits the people's power to fight against environmental and health effects of transport. There are many other examples to show these unintended consequences. etc.etc.

**South Africa does not have many big city centres, but those that are, (the six metropolitan municipalities) are growing at a fast rate such that the levels of air pollutants over them should be a cause for concern. Population movements in South Africa are town-ward bound, and the problems of the overpopulation of the cities are likely to compound the traffic congestions problem as well.** The rate of urbanisation in South Africa has been very rapid since the 1950s. Today 57% (or 21 million) of all South Africans live in towns and cities, an average level of urbanisation for a Third World country. By the year 2010, 73% of our population will be urban - 43,7 million people. **Rapid urbanisation brings with it many problems as it places huge demands on land, water, housing, transport and employment.**<sup>26</sup>

Demographic experts and census observers have highlighted the fact that **urban populations are not a correct reflection** as many South Africans, particularly Black South Africans, have two homes, the urban and the rural, that is, the "township" and the "farm." (This point is also made elsewhere in the document where we discuss the issue of the elderly as vulnerable). In the use of **demographic data for policy formulations, these demographic "hiddens" have not been interrogated.**

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<sup>25</sup> Ibid

<sup>26</sup> [www.botany.uwc.ac.za/Envfacts/facts/urbanisation.htm](http://www.botany.uwc.ac.za/Envfacts/facts/urbanisation.htm).

### **URBANISATION IN SOUTH AFRICA**

*The rate of urbanisation in South Africa has been very rapid since the 1950s. Today 57% (or 21 million) of all South Africans live in towns and cities, an average level of urbanisation for a Third World country. By the year 2010, 73% of our population will be urban - 43,7 million people! Rapid urbanisation brings with it many problems as it places huge demands on land, water, housing, transport and employment.*

*Not all people living in cities enjoy the same standard of living. Some live in grand houses with many rooms and plenty of ground, others live in modest houses on very small pieces of ground. Many urban people live in closely built shacks made of packing cases, sheets of plastic and corrugated iron.*

*Some urban people have a good supply of water and electricity and the waste from bathrooms and toilets goes directly into the city's sewers. Squatters, however, lack these benefits and are forced to use open drains and pit toilets. These can create health hazards.*  
Source: [www.botany.uwc.ac.za/Envirofacts](http://www.botany.uwc.ac.za/Envirofacts)

For example, in the case of housing, the shortage of housing in urban areas does not mean that "shelterless" people have no shelter at all, but that in the urban area, they are either migrant or work seekers, and they have ample shelter in the rural areas. **The pressure to provide shelter in the urban areas therefore becomes the struggle for a second home, rather than homelessness.**

There is a need to cater for the people who are in the towns and government to must evolve policies that protect the environment and promote good health. In the event of this ( and other pressing) responsibilities, many states do not strike the environmental balance of urban and rural, and in the process of saving the city and towns from their own unlimited development, the rural areas are often neglected.

The foregoing evidence suggests that South Africa still has to live with its past. But it is a past that has to be tuned around in line with the mandate of the post-1994 democratic government. The citizens should begin to benefit from this democracy dividend and specifically in the transport, environment and health sectors. These improvements are no less important than in the other areas of democratic governance. As stated elsewhere in this document, **Government's responses to these problems should be seen within a broader context of addressing the inequalities of the past.** It is now to the efforts of the new Government to address these issues that the argument now turns.

## **1.8 The Government and the Enabling Acts**

Forming a thread throughout this introductory chapter is the need for an integrated approach to development. The South African Government's *modus operandus* in governance is based on a cluster system. The flexibility of the system is such that it would be easier to form a Ministerial subcommittee on transport, environment and health as a concrete step towards formulating a Charter among these three departments. This does not preclude the role of other departments who may be seriously affected parties, such as the Departments of Mineral and Energy Affairs and Trade and Industry, or the peripherally affected such as the Department of Labour.<sup>27</sup>

The issue of **integration is important because of the powers of sanction that are spread over the departments. The National Environmental Management Act (NEMA) has overarching powers to impose penalties** over statutory powers that reside in other departments, when the powers of that department are limited. As an example, air pollution is administered by the DEAT, but transport, which is the competency of the DOT, is amongst the largest polluters, and the powers of sanction rest with the DEAT rather than with DOT.

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<sup>27</sup>The drive towards co-ordination of transport, environmental and health laws require that over and above the three spheres of government, the national departments of DEAT, DWAF, DME, DOT, DOH, DOA and DLA work together. But with strength of the issues of TEH raised here, it is obvious that almost the whole government departments "intruding" on each others' "territories"

Managers of companies are liable in terms of the NEMA, administered by the DEAT, although the bulk of their functions and responsibilities are determined in terms of the Department of Labour. Environmental obligations appear in Corporate Governance, administered by all government departments that have agencies reporting to them, even though the issue of corporate governance itself rests in the National Treasury. The integration of the three elements, Transport, Environment and Health seeks to break these barriers, and position these “elements” of government as overarching both severally and individually.

At an executive governance level, such an **integrated and co-ordinated approach has made the shifting of political executing authorities from one portfolio to another, easier**. As one Minister is assigned new responsibilities, the uptake and excellence on the new assignment is made all the easier by the fact that the “new” responsibilities might have been discussed in one, or other, Ministerial forum. **This should be extended to the lower administrative level, so that when officials are redeployed to other departments the integrated issues are maintained, and therefore their resolution become reflected in the daily responsibilities.**

The integration is also intentional. **Neither of the government departments can solve problems specific to their portfolios without the assistance from others.** This document therefore derives from the observation by the South East England Regional Assembly in its draft Regional Transport Strategy, that:

*“The output from the multi-modal studies (transport studies) has confirmed that it is not possible to develop the non-car elements of the transport system to the extent that it can provide an alternative to the current patterns of car movements. This reinforces the need to look beyond transport projects to solve our transport problems.”<sup>28</sup>*

The DOT therefore departs from the fact that **environmental awareness, and health considerations, among others, will assist it in solving its own transport problems in the same manner that health and environmental officials will appreciate the role that can be played by a transport strategy with a conscience**, in other words, a strategy that does not limit them in achieving their department-specific objectives.

The arguments and evidence which will be provided in this base document are not exhaustive and the document is therefore a tip of an iceberg of what the dynamics are in the field of transport, economy, environments, development, health and technology. The document will **provide some analytical tools, and suggest methods to be developed to account for social and environmental impacts of transport policies, and to continue to commit future transport policies towards environmentally and health friendly paradigms.**

This document forms the basis of a Transport, Environmental and Health Charter, a draft of which will be suggested after discussions on the content of this document, and the direction by the responsible ministers of a way forward. What can be intimated at this stage is that such a Charter, in the sea of so many other economic charters, is required precisely because there has been more concentration on the development of Charters as if Charters are entirely economic in the sense of economic redistribution. The Charter propagated in this document is also relevant for the reason that it also talks about **sharing the responsibility for the environment and health of the population among all Government departments and state entities.**

It is prudent to mention this early in this paper that charters are by their very nature **reliant on the goodwill of those that become signatories**. In other words the charter is a non-legally binding document. Their strength lies on the willingness of their signatories to abide by them

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<sup>28</sup> Lucas C. Isn't There Another Route We Could Take?.. Towards A Sustainable Transport Strategy For the South East, Page 4.

in the absence of any sanctionary measures. In a way Charters are more reliable than enforceable documents, if only by this fact of voluntary compliance.

The success of this endeavour requires a **changed mindset about the population's view on the three variables. In other words, there is a need for the population to view these causal effects as interconnected rather than separate, and to evaluate them at the same level.** As it stands, firstly, transport is uppermost in the minds of many people as it is the mode of movement in people's daily lives. At a second level, health issues are uppermost in the minds of people as they have to live with health problems around them. They see, they hear and they know about health. A smaller portion of the population has an interest in the interest aggregation about the environment. **For most people, the environment is not an important issue, and this unimportance derives from the history of the country,** which is discussed in the subsection.

The task of connecting the three variables therefore will have to consider the history of the country and the disconnection of the majority from the environmental leadership and should consider the following exclusions from the environment as a result of the country's past.

### 1.9 How The Environment Debate Has Marginalized Blacks

While the previous section (1.6) was general in its critique of the apartheid legacies, this section concentrates on the paucity of the environmental movement because of its exclusivity. It is indeed true, that from the cairns of the apartheid state, shone a divided people, whose reactions to the transport, health and environment issues could not escape the divides of socio-political life. Apartheid evanescence still gains prominence in the supposedly liberal press, whose own freedom was brought about by the struggle against how the press was shackled by the apartheid state.

Bringing the dangers of transport to health and the environment requires a particular orientation. The environmental debate has to climb hurdles formed by the vestiges of the country's past. A few of them are listed below:

- The environmentalists' calamitous prognoses have not been separate from the **apocalyptic predictions** of the world beyond by the religious right. Both futuristic, they tend to pontificate about a glorious future while ignoring the ignominious present. The poor cannot wait for the future they do not know, but would like to have responses to the poverty they currently experience. While this indeed may be seen to derive from a socialist perspective of "religion being the opium," the reality is that ordinary people do not have the luxury to indulge in ideological pursuits, but live their daily lives trying to get out of the vicious cycle they find themselves embroiled in;
- The environmental movement has been **led by White environmentalists who did not link it to the balance between life and survival of the human species, but concentrated on saving animals - a rather pedantic occupation.** Indeed, **for the ordinary people and the poor, the precedence that is given to animals over their plight, alienates them from environmental debates.** In its true nature, in the thickness of the pun, the environmental is more than an arboreal pre-occupation; the environment is a matter a life and death. Life and death are the issues that the Department of Health deals with.  
*Environmental racism can be defined as: "Racial discrimination in environmental policy making and the enforcement of regulations and laws; the deliberate targeting of people of Colour communities for toxic and hazardous waste facilities; the official sanctioning of the life-threatening presence of poisons and pollutants in our communities; and the history of excluding people of colour from the leadership of the environmental movement."*  
Benjamin Chavis
- **The environmental debates have departed from the premise that Blacks do not understand it. Many environmental leaders have been messianic, seeking to decide and speak for the poor rather than with them.** Because of their poverty, poor

people have also lost their voice, and the prognoses suggested by the self appointed representatives of the poor are often at variance with the people's wishes;



- The environmental **debates have been largely driven by Euro-American platitudes rather than the country and /or continent specific ones**. As such these arguments lose focus and place environmental activists within a particular foreign frame far divorced from the objective conditions facing the country and the continent. For Blacks to be fully immersed in environment issues is to invite the opprobrium of being called a lackey of the West or in the township cliché, a "coconut." (This point is made in Chapter Two); On the left is a picture of anti-Iraqi war protestors<sup>29</sup> In these marches environmentalists played a dominant role and the distance between anti-war protesters and environmentalists are gradually become blurred.
- The **past state concentrated on conservation as the key element of environmentalism instead of sustainability**. Total conservation of the resources on which many Blacks depended did not seem divorced from the general withdrawal of key resources to the majority. This conservation approach undermined the role that has been played by Blacks to live in perfect harmony with their environment, and the balance that they keep between their needs and the animal population in their mist;
- The **enforcement of this conservation took a militaristic style**, one that was not removed from the general repression of the state. Indeed, conservation officials played a large part in the removal of people in the areas identified as reserves, and they had full police powers to evict people;
- The apocalyptic pronouncements as caused by those things which Blacks did not have in the first place, nuclear energy, petrochemical factories, did not bring any meaning **to many Blacks but the need to save the environment was seen as another barrier to equal access**. The limitation of car ownership to people who still need one for movement and access seems to be a contradiction, and the pontificating could be best displayed by Whites limiting their own car ownership first;
- The **notion of the environment as a "free good" or a "common" still pervades**. The commonality of such good did not mean that people who survived on it abused it, and certain communities have been living with their environment for decades. It is only in the conditions of mass exploitation of the environment for profit rather than subsistence that red screens flick;
- **Alternative resources that sustain the environment, such as alternative energies, solar power panels, homologated cars are expensive** to entice people who are still struggling to achieve those technologies that are now considered dangerous;
- **Linking the environment to tourism does not strike a cord with a large majority of people who have not accessed tourism** or for whom tourism is still seen as an elite engagement, or when many people cannot afford it;
- **Radical environmentalism as shown by certain groupings in the Environmental NGO sector can easily be translated to an anti- state activism** in the midst of a state that has popular support among the population;
- In a country that seeks development and investment, **environmental concerns are not yet an issue**. Sustainable development is the solution, but that too still needs selling to the many who have not understood it yet.

<sup>29</sup> Source: [www.lestersban.com](http://www.lestersban.com)

These conditions are not peculiar to the South African condition, but are shared by the continental view as well. This continental view does not consider the environmental issues to be high on the agenda, and in the aviation industry in particular, there is argument that:

- The **African continent does not experience global aviation activity to the same extent as the developed world**, and as such the environmental issues of the developed states are not necessarily those of the continent;
- The **number of airports in the continent is limited**, and their contribution to aircraft noise and air pollution is thus minimal in comparison to the countries of the West;
- **Public awareness about environmental issues has not advanced to the high level of concern for African governments**. The issues of debt, survival, and political stability preoccupy many African states;
- **Financial constraints force African airlines to purchase old airplanes** from the developed world. Talking of clean aircraft is still a long way off as these come with added expenses;
- The **contribution of the developing countries to global pollution is limited**.<sup>30</sup>

The above points necessitate a **non-ideological approach to environmental issues, and is immediately linked with the mixed economy alluded to earlier**. With both this non-ideological approach and the mixed economy, arises the need for South Africa to weigh the benefits of technology against costs and justify the precautionary approach. For instance, if the benefits of nuclear energy or hydrogen energy are such that more safe energy (non-greenhouse gas emissions energy) is generated, then the option for the movement would be nuclear or hydrogen energy. This would fall in line with the observation made by the President of Toyota when he stated:

*“Environmentally friendly cars will soon cease to be an option...they will become a necessity.”<sup>31</sup>*

Some of the complexities of TEH have been described in the context of this Chapter. The following chapter seeks to expand on these complexities in greater detail.

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<sup>30</sup> Experts Session: Agenda Item 6. Meeting of African Ministers Responsible For Civil Aviation, 1-19 May 2005.

<sup>31</sup> Fijio C, President of Toyota Motors, North American International Auto Show, 2004

## CHAPTER TWO: THE TEH STATE OF PLAY

### 2.1 Introduction

In spite of the tremendous progress that has been made in the cluster approach of governance and policy planning, some sectors have not been adequately integrated to respond to the challenges that affect them. Examples of these sectors would be transport, the environment and health. In and of themselves, these sectors have done admirably well, but there has not been an intense interrogation of the causal links.

The importance of transport in the economy of South Africa is the subject of this Chapter. In this importance, the challenges and the residual effects of the past are also interrogated. Although statistics will intersperse the entire document, this Chapter does discuss a few of these if only to place the argument within a context. The Chapter argues that there is already work in progress, in spite of the many other complications that beset these areas of transport, environment and health.

### 2.2 The Role of Transport in The Economy and Society

Since the time of the discovery of the wheel, transport has played an important role in the economy. In the discovery of the locomotive by Stephenson, was propelled the successes of the Industrial Revolution, the spread of knowledge and the movement of goods and people. While Stephenson's invention was an eye-opener for his century, the importance of transport to the current economy continues to be captured in salutary terms by modern economists and authorities, such as the view expressed the World Energy Council (WEC) which observes that:

*"Transportation is civilization"*

Rudyard Kipling

*"The intricate relationship between energy and sustainability is most pronounced in the transportation sector. Transport occupies a vital socio-economic position by linking supply to demand. Market forces will continue to increase the demand for transport that is indispensable to trade, tourism, employment, economic development and the well being of any economy. Efficient transport systems are a necessity for economic development and social welfare and also reduce the scope for an adverse impact on the environment."<sup>32</sup>*

Transport has been taken to be part and parcel of human existence. Vicariously attached to human activity, the interrogation of transport does not incite discussion about its links to other activities, only because it is *fait accompli* that it does exist. Its importance is only realized when things begin to go wrong.<sup>33</sup> Indeed, the problems about transport, rather than its contributions the heartbeat of the economy, receives much more public debate in the national discourse.

Designed to largely serve the needs of the economy, particularly its export-led growth strategy, South Africa's transport policies have not been adequately scrutinized for the side effects on the environment and health. Because rolling stock and fixed infrastructure has been under-invested for almost 20 years, the need to re-invest has overtaken the need to interrogate this investment infrastructure against the risks of externalities, such as the human health effects of transport. **Pollution, accidents, congestion and others are not considered as externalities.** Their existence, without being quantified and externalised distorts transport pricing.<sup>34</sup>

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<sup>32</sup> Multi Stake Holder Dialogue on Sustainable Energy and Transport, Secretary-Generals Note. UN Commission on Sustainable Development.

<sup>33</sup> Hoyle B & Knowles R. 1992. Transport Geography: An Introduction. London: Bulhaven Press.

<sup>34</sup> Discussion Paper on National Freight Policy, Department of Transport.

The unintended consequence of the liberation of the country has been its ability to attract **new tourists** and the general encouragement of tourism industry. Of course, the growth of the tourism industry is a welcome dividend for a democratic South Africa. It creates employment and projects the political stability of the country. As a result of tourism, aircraft fuel demand grows<sup>35</sup>, and the side effects lead to health and environmental threats. There needs to be a **balance between economic growth and the protection of South Africans against the externalities of the very same growth**. This should be done with the clear knowledge of the potential damage to the environment as

*“South Africa is a country needing rapid economic growth in the medium-term to satisfy the country’s developmental needs,...[and as such] South Africa’s potential contribution to global warming is an area of concern.”<sup>36</sup>*

The issue of balance is also captured by the United Nations when it advises policy developers about the interdependence between transport and social welfare. It states that the **challenge for policy makers is to find solutions to curb the negative effects of transport without reducing its positive contributions**<sup>37</sup>.

In so far as public transport is concerned, the South African policy environment has been trying to deal with its (public transport) adequate provisioning. The provisioning of public transport has been targeted as a means by which many communities can have access to jobs (at 27,2%% as a main purpose trip), education (at 40.9% as main purpose trip), and shopping (at 29.9% as a purpose trip and 28,6% visiting as a main purpose of the trip).<sup>38</sup> A democratised developing state **needs to open avenues and destinations previously closed to a majority of people** and transport is still central to this need for wider access.



Access to public transport in South Africa has still not escaped the stranglehold of the past inequalities. For example, only 9.5% of people have a 1-15 minutes walking time to the train station, 9.1% within the 16 to 30 minutes walk, 5.6% in the minus 30 minutes time range, but a higher percentage of 75.7% who do not have a train service at all.<sup>39</sup> The picture on the left shows a typical railway station.<sup>40</sup>

In terms of access to bus stops, 47.0% have access to the bus station within the 1 to 15 minutes time range, 8.4% within the 16-30 minutes range, 6.9% at less than 30 minutes, but a whopping 37.7 have no bus service at all.<sup>41</sup> But the situation is drastically reversed when it comes to the taxi service, where 74.2 % have access within the 1-17 minutes time range, and only 8.6% have no service at all.<sup>42</sup>

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<sup>35</sup> ERI, Preliminary Energy Outlook for South Africa, October 2001

<sup>36</sup> Fact Sheet: Energy and Environment, 50/50 SABC 2, January 1, 2000.

<sup>37</sup> Secretary-General's Note for the Multi-Stakeholder Dialogue on Sustainable Energy and Transport. Addendum No. 1 Dialogue Paper by Business/Industry. [www.worldenergy.org/wec-geis/publications](http://www.worldenergy.org/wec-geis/publications).

<sup>38</sup> NHTS Table 9.4

<sup>39</sup> National Household Survey, Table 8.1

<sup>40</sup> Source: Department of Transport Photo Library.

<sup>41</sup> NHTS, Table 8.2

<sup>42</sup> NHTS, Table 8.3

### 2.3 The Effects of Nascent Democracy on New Challenges

To an extent, transport has played a limited role as a means of access to places of leisure. With the internal tourism industry still growing, the limited use of transport for leisure is understandable. This should not lull South Africans to the growing dangers that are the unintended consequences of the freedoms they enjoy. These trends are:

- The growing use of private cars as a sign of independence and freedom;
- The growing shopping malls and suburban accommodation is increasing the need for car ownership;
- The relegation of non-motorized transport as a sign of backwardness and lack of sophistication;
- The youthfulness of the South African population and their detachment from nature and the environment;
- Ignorance about other diseases and illness in light of the domination of HIV and AIDS; and
- Easier terms and conditions for purchasing private cars.

We will unpack each of these bullets in turn:

In dealing with the growing use of private cars, the Age of Motor Populations should be considered. In spite of the average age of all motorized vehicles being 10 years, 48,03 of the cars on South Africa's roads are older than 10 years, 15,81 % older than 20 years and 2,67 % older than 30 years. **This means that on average, only 16,10 of all motorized vehicles are less than 3 years old**<sup>43</sup>. The higher number of over-aged cars indicates that their effects on the environment and health are higher.

**The growing number of cars can still not be arrested by the higher costs of South African manufactured motor vehicles.**<sup>44</sup> The number of vehicles on our roads has been accelerated by a used car market which is not subject to the stringent conditions of a franchise between the car dealer and the manufacturers. **The growth in new car sales is complemented by the burgeoning second hand car industry, or the so-called pre-owned dealerships**<sup>45</sup>. The alleged collusion between car dealers and retailers in price fixing has also led to a stand off between these two and the Competition Commission.<sup>46</sup> The outcome of this standoff was that the Commission conducted an investigation and decided to fine the dealers and the car manufacturers who had inflated their prices to 14% beyond the international car prices.<sup>47</sup> For the first time, the new car sales exceeded the 50 000 sales unit<sup>48</sup>, bringing in more cars onto our roads, but not necessarily reducing the old ones which are still found on our roads.

The irony of this growth is that as more cars are introduced into South Africa's road network, their quality in comparison to their import counterparts cannot be guaranteed, and by introducing these substandard cars onto the road network, the risks these cars they pose to the

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<sup>43</sup> Age Vehicle of Motor Population, Department of Transport, September 2004.

<sup>44</sup> Refer to a debate in the Business Fay 1 November 2005 about the comparative costs between South African motor vehicle costs and international ones.

<sup>45</sup> How Competitive Is South Africa's Car Dealership Industry @ [www.Compcom.co.za/resources/newletter](http://www.Compcom.co.za/resources/newletter).

<sup>46</sup> Business Report, September 20, 2005.

<sup>47</sup> Business Report, 7 December 2004. SAFM Vuyo Mbuli Show; 8 December 2005.

<sup>48</sup> Business Report, 5 June 2005.

safety, and their susceptibility to causing accidents in comparison with their import counterparts becomes higher. According to a quality study undertaken by JD Power and Associates, locally made passenger vehicles had 259 problems per 100 vehicles compared with 225 problems per 100 imported passenger vehicles.<sup>49</sup>

In one advertisement by a bank, car financing has been made even easier. Would-be car-owners can now phone the bank which will then do the rest, such as finding a car for the client delivering it to the client's door step, assist with a trade-in for the old vehicle, organize car insurance and registration of the car. Three financing options are given to clients, namely, fixed rate offering, payment holiday option and balloon payment option.<sup>50</sup> These perks make it easier for the new car-owner, but they make things even more difficult for environmental protection.

In a country that still needs to redress the imbalances of the past, there is a tendency to realize this redress through car-ownership which was previously skewed in favour of Whites. In this superior car ownership, Whites were assisted by the policies that emphasized world-class road construction in cities that were made exclusively and politically demarcated for Whites. This serious discrepancy of spatial segregation and distorted land use patterns, meant that many Blacks lived far away from town centres and employment opportunities. With the political changes, and the income increases for all races in South Africa, more and more Blacks found their ways to towns and cities the political changes, and they were driven to the car consumerism of the former inhabitants. The need for car-ownership represents a health and environmental dilemma, irrespective of the race that owns it.

*“With each decision to buy a car – a personal solution – everyone else’s problems becomes that little bit worse... we have encountered the paradox of the tyranny of the small decision – that what are perceived individually as rational. Sensible decisions lead to the collective disaster when taken by everyone..”*

Tolly R and Turton B. Transport System. Policy and Planning: A Geographic Approach.

**Nevertheless, private car ownership is still skewed in favour of Whites;** with about 82.8 % of licensed drivers belonging to this race group, followed by Asians at 55,6% driver licenses, Coloureds at 21,2 % of drivers' license ownership and only 10.2% being Black licensed drivers. **More Blacks still see car ownership as a state of independence, and the idea of the environmental impacts of transport in the midst of some Whites who resist transformation, is seen by many as an anti-transformation exercise.** This point is also discussed elsewhere in this document

This ownership was aptly captured by the then MEC for Transport in KwaZulu-Natal, Mr Sbu Ndebele when he observed that:

*“It is a well-known fact that car ownership in South Africa is skewed in favour of our White citizens. For every 1000 of our White compatriots there are 450 cars available while for every 1000 Africans there are only 20 cars. The rapid motorisation of the South African society should not be viewed as a reflection of the standards of living because it is a double-edged sword impacting on economic, spatial, environmental and even political dimensions of social life.”<sup>51</sup>*

Nevertheless, car ownership shows higher percentages as compared to other modes throughout the country, with the average number of vehicles per household being 0.33 as compared to 0.19 bicycles, 0.01 motorcycles, 0.06 company cars, 0.02 combis, 0.01 trucks and 0.0 others.<sup>52</sup>

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<sup>49</sup> Business Report, 1 November 2005.

<sup>50</sup> City Press, 25 September 2005.

<sup>51</sup> Ndebele S. Speech at the Public Transport Promotion and Fundraising, 15 October 2001.

The above consideration has to be weighed against the transformation agenda of the state, particularly the redress which is encapsulated in the notion of “stranded mobility.” In explaining this concept, Edmond states:

*“Stranded mobility’ is a concept developed in South Africa to describe the poor accessibility and mobility characteristics of the townships. Stranded mobility is signalling both the lack of adequate transport to service locations and the absence of adequate services in the township locations themselves. The ‘stranded’ aspect of the label refers to the segment of the urban passenger market which has no affordable public transport available to it. The concept of stranded mobility provides a useful tool in identifying and remedying the social exclusion of substantial populations from the services and facilities enjoyed by a mainstream majority. In South Africa, the paucity of services in the townships and the constraints on the physical mobility of township residents were part of the **planning of apartheid.**”<sup>53</sup> [The writers’ emphasis]*

In terms of the malls and the distances away from the city centre, it can be argued that to a greater extent, the current spatial development regime has not placed transport at the centre of shelter provision, and more often than not suburbia of scale have been built before transport considerations have been exhausted. As a residue of the past history, **those who need houses do not interrogate the relationship between the type of shelter, the transport planning, distance between their village/suburb and the places of amenities.**

As such, development and town planners miss the crucial mix between the environment, health and transport. The picture on the left shows a new housing development.<sup>54</sup>

In terms of the backwardness of “car-lessness” and the “modernity” of using private transport, the country’s history of deprivation for a majority, and the overabundance of the few led to a warped sense of achievement. **To drive, and own a motor-vehicle is for the historically disadvantaged an indication of having pulled out of the labyrinth of the past deprivation and the first benefit of a democratised state.** It is not uncommon then that the perceptions about environmental awareness, through non-car ownership, and concern with environmental issues is usually seen as a YUPPY or a “coconut” departure. This happens even though the historically disadvantaged have the numerical superiority to turn this environmental debate around. According to Friedrich von Eckardstein, Director: Automotive at KPMG,

*“current vehicle ownership in the country stands at about ten cars per 100 people - still well off countries such as Germany, with 55 cars per 100 people, and the US, with 80 cars per 100 people.”<sup>55</sup>*

Linked to this democracy dividend is the **entry of women into the car market.** While Peter’s study<sup>56</sup> on the disadvantaged position of women in the transport sector is a fresh departure from the male domination of the transport sector, in the South African context, liberation of the previously disadvantaged has had beneficial effects as well to the emancipation of women.

**The levels of car-ownership and access to transport still favour males, but the growth of women in transport ownership does not help to arrest the trend of growing vehicle**

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<sup>52</sup> NHTS, Table 8.15

<sup>53</sup> Transportation and Society With Special Reference to Africa. Class Notes 7 ([www.geocities.co/transport](http://www.geocities.co/transport) and [\\_society](#))

<sup>54</sup> Source: Nicholson, J. Quality of Life of Durban’s People. Page 21.

<sup>55</sup> Engineering News, April 30, 2005.

<sup>56</sup> Peter D. Breadwinners, Homemakers and Beasts of Burden: A Gender Perspective on Transport and Mobility.

**usage.** While male stereotypes abound that “women cannot drive” the opposite is sometimes true. The perception may be informed by societal stereotyping “women should not drive, rather than “women cannot drive.” (This point is also discussed under Chapter Five.)

As it pertains to **the youthfulness of the South African population**, it can be argued that the value system which highlights the environment and health has been overtaken by other competitive occupations and the “need to be seen to have made it.” Both youth and their parents would like to be seen to be modern (read as urban), and the **environment is seen as a pre-occupation of either the elderly or the “unsophisticated.”** The overarching influence of the environment is seen as a concern of old people in its traditional sense, and of the White intellectuals in its modern sense, or the perennial complainants in the socio-political setting.

By design or default, **health and environmental issues in South Africa have been viewed through the Foucaultian prism:** the pre-1994 and post-1994 effect. In this analysis, the diseases and illnesses that were deliberately neglected by the pre-1994 government have been replaced by the health conditions that have grown after 1994. As the devastating effects of the HIV and AIDs pandemic consume most of the media public space, “diseases of sophistication”, or the “rich persons’ diseases” such as cardiovascular conditions, annoyance, stress (as they relate to transport) have been neglected. The predominant concern is that the first disease to avoid is HIV and AIDs. **Conceitedness dictates that the other (diseases) can be treated when they cannot, (or the nation may have lowered its health guards), and their causative links to health in general are not considered high priority.**

In the preceding and the future parts of the document, reference will be made to statistics, data and figures. The **importance of quantification** in such an argument, an indeed in all those that are related to the three variables, needs not further elaboration. In the emotions that are involved, resort to data and the distortions thereof to prove on or other argument, becomes a problem rather than a solution. The next section addresses the issue of statistics in relation to the objectives of this document.

## 2.4 The Statistics

It is prudent to preface this discussion on statistics with a rider of the use and misuse of statistics for political reasons. Stone<sup>57</sup> has noted the **manipulation of numbers and statistics** by referring to what she calls the “hidden stories in numbers.” She lists eight issues which make numbers and counting political. These are:

- Counting requires decisions about categories about what (or whom) to include and exclude;
- Measuring any phenomenon implicitly creates norms about how much is too little, too much or just right;
- Numbers can be ambiguous, and so leave some room for political struggles to control the interpretation;
- Numbers are used to tell stories, such as stories of decline (we are approaching a crisis);
- Numbers can create an illusion that very complex and ambiguous phenomena can be simple, countable and precisely defined;
- Numbers can create political communities out of people who share the same trait that has been counted;
- Counting can aid negotiations and compromise, by making intangible qualities divisible;

I gather young man that you wish to be a Member of Parliament. The first lesson that you must learn is when I call for statistics about the rate about infant mortality, what I want is proof that fewer babies died when I was Prime Minister than when anyone else was Prime Minister. That is a political statistic.  
Sir Winston Churchill  
British Politician 1874-1965

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<sup>57</sup> Stone. D. Policy Paradox: The Art of Political Decision Making. W.W.W. Norton and Company. New York. Page 176.

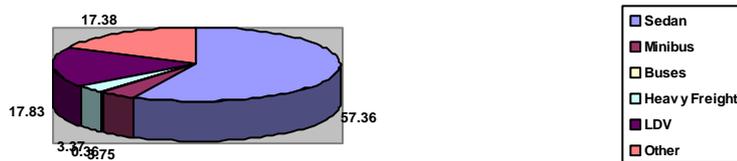
- Numbers, by seeming to be precise, help bolster the authority of those who count.

As a policy development initiative, a proposal for a charter is informed by the dynamic nature of policy and the premises upon which it is based. Previous bases for policy may be changed by both time and space. **The current century is faced with the contradiction of the centrality of transport in education, health, economic development, and access to social facilities, trade, markets and related services.** At the same time, there are growing concerns that current transport policies may be jeopardizing the environment and this has an unintended consequence of casting doubts on both social and economic policies.

The eight points by Stone mentioned above notwithstanding, there is a need to find some solace in the statistics, while admitting that much still needs to be done to deal with their reliability, not just for the transport sector, but right across government data systems.

The size of the problem argued in this document is not assisted by the statistics which inform this charter. The car population in South Africa is about 6 million licensed drivers with 730 000 more cars than there are licensed drivers. These cars travel on a road and street network which is about 500 000 km in length. In light of the previous paragraph, caution must be invoked about the accuracy and reliability of these numbers.

These types of vehicles are broken down in the following graph:



- To keep this **traffic moving on our roads needs about 9500 megalitres of fuel per day**, with the annual vehicle/km travelled being estimated at 98 0000, or 268 km per day<sup>58</sup>. Passenger fuel demands are calculated by a person is the number of vehicles per 1000 of the population.<sup>59</sup> In a “cradle-to-grave” analysis, the 600 million cars and trucks in the world – with this number growing by 35 million per year – more than one car per second, the impact that begins when the car is manufactured to its end in the scrap yard, 90% of this spectrum occurs when the car is used. This 90% impact is due to air pollution in their exhaust and pollution associated with the supplying of fuel. Roads also require that land be cleared and that oil be extracted from a fragile ecosystem,<sup>60</sup>

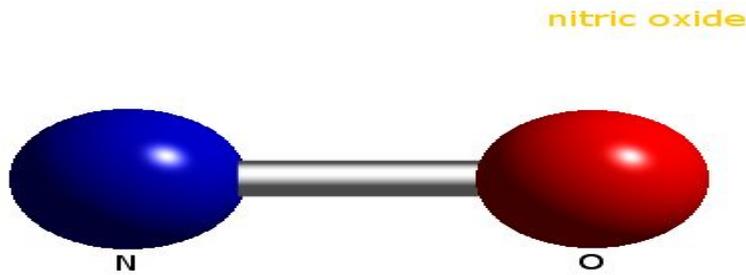
The following charts give an indication of the particulate matters.<sup>61</sup>

<sup>58</sup> Road To Safety, 2001-2005.

<sup>59</sup> ERI, Preliminary Energy Outlook for South Africa, October 2001.

<sup>60</sup> Nichols M. Driving Ourselves to Death: The Environmental Impact of Transport. Forum.

<sup>61</sup> [www.webelements.com/N/N101-10102439.htm](http://www.webelements.com/N/N101-10102439.htm)

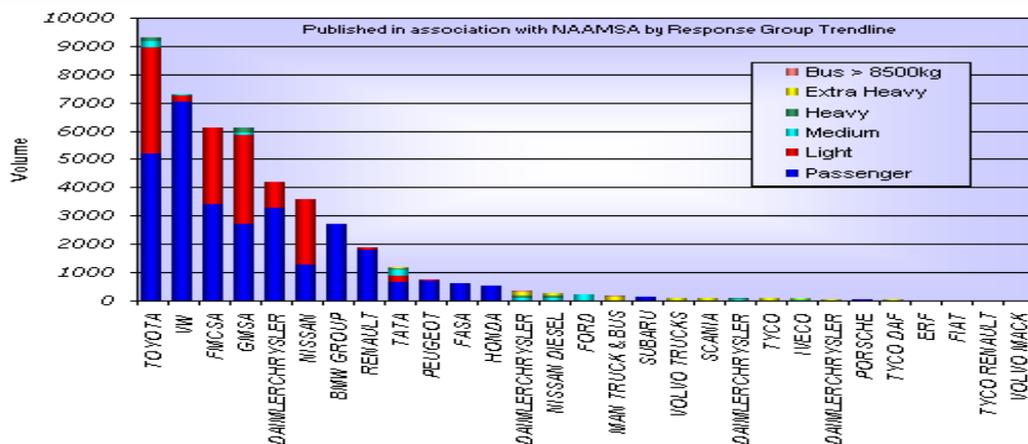


- There are approximately 512 traffic crashes per year, 28 000 of which are fatal or lead to serious injury;
- In 1998 alone 9 086 people lost their lives, while 36 246 were seriously and 84 358 were slightly injured;
- The total cost to the economy of these crashes were estimated at R13,8 billion per year.

Of particular relevance to the reduction of fatalities will be the approach of health warnings against alcohol on alcohol containers by the Department of Health and the department has successfully done with tobacco containers. **Alcohol has had an effect on the number of fatalities on our roads.** According to the Medical Research Council, 585 of all drivers and 61% of pedestrians killed on South Africa's roads are under the influence of alcohol, and in 2004, 2 333 people died as a direct result of drinking and driving, costing the country R1,62 billion.<sup>62</sup>

The following graph shows this increase in car retail sales.

May 2005 - TOTAL MARKET



Sources: National Association of Automobile Association: May 2005.

The number of growing vehicles in our roads is exacerbated by the growth in car retail and the number of models in the car markets. The Business Report has noted that:

<sup>62</sup> Radebe, J. Keynote Address, Easter Campaign and Arrive Alive Patrol Car Launch, Gauteng. 17 March 2005

*“South African motorists are really spoilt for choice. They can choose from about 930 models today compared with only 280 in the 1990s, and the choices available to them are still increasing.”<sup>63</sup>*

To the credit of the car-makers, and perhaps driven by the **rising price of petrol**, these new models are usually small cars, and the whole car manufacturing game has turned a full 360degrees. The big petrol guzzling cars, with sometimes reconfigured engines ( “souped” up as the Americans call it) has been on a decline. This trend of small cars was at its zenith in the 1960s, where European car manufactures were competing in the small car market, with Britain (Mini), Germany (Beetle), Italy (Topolino) and France (Citroen 2 CV) pitted against one another.<sup>64</sup> **The size of cars should however, not deceive us that the world has a lower need for petrol, as a number of these cars, easily available through credit schemes** mentioned elsewhere in the document, makes up for the volumes of petrol that is consumed by big cars. Size and numbers often cross paths. More small cars on the road do not necessarily reduce the need for petrol overall. On the contrary, the smaller and cheaper cars are easier to purchase, and their numbers on the road are increasing exponentially.

The following table indicates the annual and growing numbers of road fatalities per province, and it immediately alludes to the urgent need to arrest this growth. As the table indicates, the hopes of reduction that were raised in the year 2000 were suddenly dashed as the number rose again to about 3000. These declining figures do not, in any way, assuage us towards a perfect and improving world. All it does is to temporarily release our minds from the scourge, and the problem remains constant.

Of course, there is a corresponding growth of road users, and some argument can be made that on average, the rise in these fatalities should be weighed against the growing number of cars on our roads. Nevertheless, the need for more concerted action against this rise still stands.

Year	GA	KZ	WC	EC	FS	MP	NW	LI	NC	RSA
1998	1728	1169	1064	704	615	798	537	409	236	7260
1999	2067	1181	1169	549	589	608	545	382	252	7342
2000	1429	1330	709	491	463	453	439	328	206	5848
2001	2182	1960	1211	596	775	843	551	427	209	8754
2002	2334	2149	1238	729	754	948	811	672	283	9918

Source: Arrive alive.co.za

It should also be emphasised that the decline in road traffic accidents in comparison to the previous years does not impute road safety but a decreased level. One road accident is one too many and the decrease does not mean success along the lines of changed attitudes. As observed by the Committee for Active Road Safety (CARS), road safety should not be reduced to numbers. Ian Auret states:

*“As long as the results are not worse than the year before, we seem to be happy cruising along killing 10 000 people on our roads every year.”<sup>65</sup>*

<sup>63</sup> Business Report, 23 August 2005.

<sup>64</sup> South Africa Car Book, 1986, Automobile Association

<sup>65</sup> The Star, 20 November 2003.

## 2.5 Part of the Work Already in Progress

This Charter is base document for a range of projects which are already underway. One such project is a *Joint Implementation Strategy for the Control of Exhaust Emissions From Road Going Vehicles in South Africa* developed by the Departments of Environmental Affairs and Tourism and the Mineral and Energy. The strategy deals with the known pollutants, such as carbon dioxide, carbon monoxide, nitrogen oxides, hydrocarbons, suspended particles and lead, but does not underplay the role of the hundreds of other motor vehicles' toxic emissions. The collective effects of these on health have shown health effects such as incidences of **pulmonary diseases, such as asthma and emphysema; cardiovascular diseases** that lead to heart attacks and strokes; lung cancer; and mental retardation in children. Environmental effects include damage to buildings, food crops and forests.<sup>66</sup>

Studies already undertaken provide the following effects of the top five toxic materials in our environment: The following table shows these toxic materials and their impact:

MATERIAL	HEALTH IMPACT	ENVIRONMENT
Carbon Monoxide	Heart Problems For Smokers and those with Heart Disease Respiratory Infections for the young and Elderly Also found in car exhaust fumes, passes into the blood stream and displaces oxygen in the blood. The heart has to work harder and reduces its effectiveness in supplying all body parts with sufficient oxygen. <sup>67</sup>	Global Warming, ozone and smog
Nitrogen Oxides	Lund Irritation and respiratory problems especially for those with bronchitis or asthma	Reacting with hydrocarbons to produce zone, With water vapour creates nitrates which leads to acid rain algae blooms and fish kills
Hydrocarbons	Lung and eye irritations Chronic Lung Disease	Combines with nitrogen oxides and sunlight forms ozone (photochemical smog)
Particulate Matter	Penetrates Lungs Enters Bloodstream Respiratory Ailments Lung Infections Premature Death	
Lead	Fatigue, Poor Appetite, Diminished Mental Capacities	Airborne lead pollution

### The Formation of Toxic Poison from Motor Vehicles

When gasoline evaporates or when it goes through the engine as unburned fuels, the formation of toxins starts. Benzene, as an additive of gasoline is emitted through as unburned fuel or it is becomes vapour when gasoline evaporates. Benzene also has its cousin toxics which are formed when there is an incomplete combustion of compounds such as toluene and xylene. These compounds are found in gasoline and the more petroleum is refined, to form high-octane gasoline, these compounds get highly concentrated.

Incomplete combustion may also lead to the formation of new forms of by product toxins such as formaldehyde, acetaldehyde, diesel particulate matter and 1.3-butadiene.

Source: Environmental Fact Sheet. Environmental Protection Agency, August 1994.

In conjunction with the Medical Research Council, the Department of Health is finalizing the **Risk Equalisation Fund**, which will reduce the discrimination of the disadvantaged in the

<sup>66</sup> Nichols, N. Driving Ourselves To Death. The Environmental Impact of Transport. Forum

<sup>67</sup> The Heart Foundation

provision of health in South Africa. There is therefore a need for other departments to be acclimatized to the how the fund will work, so that a wide section of the poor, including those that suffered traffic injuries and environmental marginalization can be assisted.

## 2.6 Unpacking the Particulates and Diseases

In examining the above table, we may need to look at the transport pollutants and their effects health. The following should be mentioned:

The respirable particulate matter, which is measured at less than 10 millionth of a metre and thus small enough to get into the lungs has got to be monitored for the effects it has on the rate of mortality. We may **need also to research the number of people who get admitted to hospitals as result of these particulate matter inhalations**. There is a need for proper diagnoses as most people who get sick because of particulate matter are classified under the general concepts of "coughing." In the proper analysis, it should be assessed how much the particulate matter increases mortality. This should also take into account that **ultra-fine particles are now part of the problem and their permeability into the lungs has increased exponentially**. As it does so, it increases the possibilities of lung infections and asthma. The chemical representations on the left are those of the Carbon dioxide and nitrogen dioxide.

There is a need for a study to determine which of the particulate matters is responsible for the adverse effects of health. **In a basket of particulate matters, there is sulphur, nitrogen dioxide (NO<sub>2</sub>) and others, but there is no clarity as to which one is the most potent cause for diseases.**

There is a need for South African health authorities to **determine the extent of lung infections as a result of ozone (O<sub>3</sub>) in the cause of lung bronchial diseases** and admissions to hospitals. In addition there is a need to **analyse the number of patients who are admitted as a result of carbon dioxide (CO<sub>2</sub>) inhalations**. The effects that lead has on the **neuro-cognitive abilities of children** should also be part of the investigation.

Diesel has been cited as the cheaper and safer option compared to petrol. In South Africa's petrochemical price determinations, diesel is always costs lower than petrol, but **there is paucity in the study of diesel's causes, as a carcinogen, of cancer**. The effects of diesel on a human being are complicated if the driver and passengers are also smokers. Could refineries such as the one in the picture below be modified to develop alternative fuels such as ethanol-based fuel from sugar cane?<sup>68</sup>

Apart from the ethanol-based power, South Africa has vast reserves of natural gas and reduce its reliance on exported crude oil. Currently there are 200 000 barrels of fuel per day that is produced through the gas-to-liquid (GTL) technology. 45 000 of these barrels are produced by one company (PetroSA) In terms of proven reserves, South Africa has 18 trillion cubic metre in gas reserves. In addition there are opportunities of deep-water exploration on the South African Coastline.<sup>69</sup>

Further paediatric studies need to be undertaken to corroborate the view held in Europe that if children are exposed to vehicle exhaust fumes, notably benzene, they are at a higher risk of catching **leukaemia**.

On lead, the South African Government has taken a decision to ban its use in petrochemicals and reduce the level of sulphur in diesels from January2006. Considering that the World Sumiton Sustainable Development (WSSD) requires that the reduction of the chemical with a

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<sup>68</sup> Source: Mail and Guardian, 23 to 29 September 2005.

<sup>69</sup> Business Day, 27 September 2005.

detrimental effect on health by 2020, this is a positive step but it will need to be followed by a clear path to deal with more additives in petrol which lead to health threats.

There is also a negative connotation which will not remove the threat to the health of the population as far as motor vehicle energy is concerned. Competition among the retailers and refiners regarding which one of their products will be better has been stiff, with Shell Power, Caltex Vortex, BP Cleaner Unleaded, Total Unleaded, Engen Dynamic and Sasol Turbo Unleaded, all vying for the attention of customers. The competition is welcome, if, according to the Minister of Minerals and Energy, Ms Lindiwe Hendricks, emissions from vehicles using leaded petrol accounted for more than 90% of all atmospheric lead pollution which has detrimental environmental and health effect.<sup>70</sup>

Recidivism to harmful additives should be avoided. Government **should guard against companies that want to replace lead with equally harmful additives**, such as the reported case of Caltex, which wants to introduce an additive known as methylcyclopentdienyl manganese tricarbonyl (MMT) against which the US Environmental Protection Agency has launched an investigation. This they want to add to lead replacement petrol for use in engine for old cars that could be damage if they use unleaded petrol.<sup>71</sup>

According to Collin McLelland of the SA Petroleum Industry Association (SAPIA), about 5% of the vehicles on South African Roads required lead replacement petrol, which could contain MMT, potassium or phosphorous, depending on the brand. This will cost the oil refiners and synthetic fuel producers between R6 billion and R10 billion.<sup>72</sup>

Evidence, mostly based on studies in Europe, has individually linked the components to one or other disease. It is in the sum total effects of these components to climate change that the world should address itself to. Climate change affects many people through heat waves. In Italy, the heat waves that took place there in 2004 led to the deaths of about 20 000 people.

## 2.7 Policy Foundations Backing The Charter

The Charter broadens the issue of transport affecting health and the environment beyond the issue of emissions and seeks to be a locomotive document from which comprehensive responses and interventions can be developed. These responses should of necessity **include issues such as noise and its further side effects, the benefits of non-motorized transport, the environmental considerations in road and spatial developments, the health dividends of walking and physical exercise, impaired hearings, lack of sleep, performance as resulting from lack of sleep, the integration of a these interventions, propagating for a non-precautionary approach, the inclusion of the issue of HIV and AIDs as emanating from our transport infrastructure and the interventions that are still needed etc.**

The width of the subject environment necessitates that nuances of each of the environmental hazards will be highlighted by the extent of access to the interlocutors to marketing and media platforms. **Government has to prioritise hazards that have the greatest impact on a largest number of people.** For instance, noise pollution may appeal to a vocal number of people, even though the effects of fumes on cardiovascular illnesses affect a greater number of people who are so marginalized that they have also become voiceless.

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<sup>70</sup> Business Day November 29 2005.

<sup>71</sup> Source: Cape Argus September 13 2005.

<sup>72</sup> Business Report, September 20, 2005.

Two other developments in the thematic and cluster approach mentioned in the previous chapter were on the occasion in 28 December 2001 where the Minister of Health called for safer road use, and secondly, for the occasion of the Minister of Health's theme at the World Health Day – Road Safety Is No Accident- Carnage Stops Now" which was held on 7 April 2004. As she succinctly observed,

*"More often than not, road safety has been treated only as a transportation issue, not as a public health issue. Indeed, road traffic injuries are called accidents. The World Health Day has provided an opportunity to address road safety as a critical and rapidly growing public health problem."*<sup>73</sup>

In line with this trajectory linking health and transport (specifically road accidents), the Action on Smoking and Health has observed that;

*"In the next two decades, non-communicable diseases will increase to over 70 per cent of the global burden of disease. Numerous factors influence this new epidemic of non-communicable disease, but one risk factor overshadows all others: tobacco use. Mental illness, cardiovascular disease and **road traffic accidents (our emphasis)** are all in the top five predicted causes of the global burden of disease in 2020. But tobacco is set to be the biggest killer of them all– causing more deaths than malaria, HIV/AIDS and tuberculosis together"*<sup>74</sup>

The thematic approach bears testimony to the comprehensive approach to health as advocated by the World Health Organization (WHO), citing **health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity**. Dr Adrian Davis argues that **being healthy includes physical fitness, being well enough to do what one needs to do, and having the reserve of strength**.<sup>75</sup>

The Department of Transport also works in close cooperation with the Department of Environmental Affairs and Tourism in the field of security, particularly as it relates to the combating of pollution where the *Kuswag* is employed for this function.<sup>76</sup>

Using South Africa as a developing country, it can be argued that not much attention has been paid to the issue of the environment, particularly because **in the developing world's quest to achieve economic development, the issue of the environment has been delegated to the periphery**. This is so because of the connection between environmental and development, and the emphasis of the latter over the other, in the context of the developing world.

But **South Africa is a developing country of a 'special type,' i.e. while there are vast areas of underdevelopment, there are pockets of highly industrialized and concentrated areas which require the environmental, health and transport scrutiny akin to the highly industrialized countries**. In addition to the environmental, health and transport awareness, is the **process of globalization, which argues that in its wake, neither one part of the world, nor one part of a disaster is detached from the other areas**. In other words, the problems of the world are now intertwined with trade, economy, development, politics, etc, and the distances between countries and regions, have been significantly reduced.

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<sup>73</sup> Media Release, Department of Health s.n

<sup>74</sup> Action on Smoking and Health, see also their website: <http://www.ash.org>

<sup>75</sup> Davis, A. Is Health an Issue: European Examples of Initiatives To Promote Routine Cycling. Conference on Cycling and Health, University of Nottingham. March 27 2003.

<sup>76</sup>South African Yearbook. Page 594.

In all these three issues, South Africa is legally obliged to adhere to the international protocols which she has signed with various international bodies. South Africa's stature in the international community is premised on her foreign relations trajectory which assist a **multi-lateralist approach**, and her adherence to these international instruments is a fulfilment of this trajectory.

As it particularly relates to South Africa's direct international role, **her hosting of the World Summit on Sustainable Development (WSSD) in 2001, she is expected to be at the coalface of abiding by the resolutions of this conference** and other subsequent ones to which she is a signatory. Indeed, prior to the WSSD, the Minister of Transport called a conference of the region where a **regional position on sustainable<sup>77</sup> development and transport was addressed.**

It is therefore no coincidence, that the whole chain of the Department of Transport's approach is seized with the issue of the environment, safety and health. **From the Department's own document, Sustainable Transport for Sustainable Development<sup>78</sup>, the issues of environment and health permeate through the strategies and tactics of modal integration, Infrastructure Development, Safety First Not Profits, HIV/Aids, and Community Empowerment.** These directly, and indirectly speak to the issues of environment and health. These are underpinned by the White Paper on National Transport Policy<sup>79</sup> which specifically argues that its objectives will be achieved

*"in a manner which is economically and environmentally sustainable, and minimized negative side effects,"*

and also goes on to cover the whole of the contents of the Charter where it states the policy objective is

*"To provide safe, reliable, efficient, and fully integrated transport operations and infrastructure, which will best meet the needs of the freight and passenger customers at improving levels of service and cost on a fashion which supports government strategies for economic and social development whilst being environmentally and economically sustainable."*

The **Satchwell Commission Report on the Road Accident Fund (RAF)** has also commented extensively on the connection between road accidents and health, particularly volume 2 Section 12. The report is an instructive document to develop these connections across the departments. It should be mentioned from the outset that the data used in the Satchwell Commission report is based on those who are linked to the Road Accident Fund (RAF) and does not give the full picture of road accidents that go unclaimed or unreported.

Sister documents and acts, administered by other Departments, call not only for the DOT's adherence with them, but to work closely with these Departments in adhering to the requirements of the documents and acts. With all of them finding their roots in the Constitution of South Africa Act, of 1996, the requirements of the following documents (over and above those that have been mentioned) will be dealt with together in the formulation of the Charter:

- The White Paper on Integrated Pollution and Waste Management Act;
- The White Paper on Energy Policy;
- Hazardous Substances Act, No 53 of 1973;
- The National Environment Management Act, 1999;

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<sup>77</sup> Sustainable development requires an interrogation of both the risks and benefits. The balance between the two is the end of product of sustainability,

<sup>78</sup> August 2002

<sup>79</sup> Published in September 1996

- The National Land Transportation Transition Act 2000;
- Air Quality Management Act (No 39 of 2004); and the
- Petroleum Products Act.

In terms of the environment, **Section 24 of the Bill of Rights of the Constitution of the Republic of South Africa Act, No 108 of 1996**, South Africans are have enforceable rights to their health and well-being. This section is to be read together with Sections 27 (right to health-care, food, water and social security) and Section 32 (the right of access to information) The Department of Environmental Affairs and Tourism (DEAT) has set up in motion a number of legislative pieces that cover biodiversity, protected areas, sustainable coastal management air quality management, pollution control, water management etc.

In terms of this constitutional provisions, **the present and the future generations should be given an environment that is not harmful to them, and that in general, legislation to prevent pollution and ecological degradation and to promote conservation, should be promulgated.**

The three issues identified (transport, environment and health) for the development of the Charter are themselves subject to the vagaries of mobility. Transport is the means through which people and goods move across vast planes of areas. Health disasters can be easily transmitted because of the ease of movement through transport. **The more transport moves, the higher the rates of the destruction of the environment.** In a way then, the three elements feed onto each other.

*“To waste, to destroy our natural resources, to skin and exhaust the land instead of using it so as to increase its usefulness, will result in undermining in the days of our children the very prosperity which we ought by right to hand them down to them amplified and developed.”*

Theodore Roosevelt, December 3, 1907

A project of this nature, i.e. the Charter, will serve as a radical departure from the understanding of the environmental issues of the continent as merely limited to the expansive nature reserves and trans-territorial cooperation, or the development of these verdant paradise areas and animal kingdoms for tourism. They will add to the protection of these areas, and the concrete jungles of the cities. By doing so, the project will be delving into the totality of the environment as a concern for all the nations of the world.

To the extent that these vast nature reserves cross territorial boundaries, the Charter can, after wide regional consultation, be adapted to serve the efforts of the other states to achieve their environmental targets. **The extension of the Charter to regional bodies and regional states will have to take into account the very nature of environmental concerns i.e. that they are viewed from the different perspectives informed by the developmental path of the countries concerned.** So, while the Draft Charter, as a discussion document, does invite debate, it will not immediately translate to a trans-state document. If it does, it may have to go through adaptation to suit the regional states concerned.

If it cannot be a harmonizing document for the different Transport, Environment and Health approaches of the other states, at least it will lead to some form of standardization.

The centrality of transport in human movement presents a variety of health and environmental problems across all modes, and the elements of the modes are even more exacerbated by all levels of the development of that mode. **From the simple issue of planning for roads, environmental and health issues crop up as they relate particularly to location and timing, the size of the roads being planned, the volume of traffic on the road, the signalling and the road signage posted, the distances travelled etc.etc.** All these come together to have an effect on both the health of passengers, their exposure to the environmental elements.

As it specifically refers to planning for roads, Minister Radebe raised the importance of the

environment when he stated that

*“the environmental and spatial issues emerge as crucial components of all transport planning and implementation.”<sup>80</sup>*

A few of these environmental and spatial issues are reflected in

- The manner in which the current traffic accidents have grown in the country;
- Connections and evidence between traffic and cancer;
- Air pollution and its effects on heart and lung diseases;
- The ever-presence of noise from all modes of transport;
- The psychological effects from road accidents etc.;
- The therapeutic effects of using non-motorized transport forms.

In its final analysis, a Charter integrating Transport, Environment and Health would have to:

- Promote land use practices and modes of transport that encourage healthy living lifestyles;
- Inform the public about the transport, related health and environmental risk to population;
- Encourage public debate, awareness and participation in healthy and environmental friendly transport systems;
- Locate health and the environment issues to play a driving role in the development of public transport policies;
- Have an economic evaluation of health and environment effects of transport;
- Assess, develop and implement transport policies which impact on health and the environment;
- Encourage meaningful involvement as a tripartite (of these departments) on Pilot Projects and further research.

In dealing with the relations among the three sectors, the Charter will have to pronounce a Government position and the desired outcomes ranging from

- The need to delink transport growth from economic growth;
- More focused involvement in renewable fuels;
- Promoting an overall sustainable transport system;
- Non-motorised transport as Alternatives;
- Promotion of Healthy Lifestyles;
- The centrality of people in the whole debate.

A project of this nature therefore is broad, but it links previously unrelated concepts such as:

- The road vehicles' emissions and the need to improve air quality. The quality of air means the reduction of carbon monoxide, organic compounds, nitrogen oxides;
- Inspection of vehicles to check whether they are being maintained;
- On Board Diagnostic Systems on instruments panels;
- For both light and heavy vehicles, to shift responsibility for the reduction of emissions to the manufacturers for the first 100 000 km;
- To enforce cold start emissions in congested or city areas and towns;
- Reduction of sulphur and lead in petrol and aromatics. Sulphur content in South African produced diesel is at present 0.55%. Legislation to reduce this from January 2006, should further be reviewed such that it is brought down further. In Europe it is 11 times lower.<sup>81</sup> **As from January 2006, South Africa will ban lead from petrol.** The local oil refineries have invested R10 billion in preparation for this ban;

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<sup>80</sup> Radebe, J. SATC Opening Address, Pretoria, 12 July 2004.

<sup>81</sup> Discussion Paper on National Freight Policy. Department of Transport.

- The Department of Health has also embarked on a programme to legislate against the use of lead in paint and crayons<sup>82</sup> for children, which indicates the danger of the substance to the health of people, particularly young children.
- Renewable Energy studies which imposes on the country to review its energy policies and to link this energy policy with the threat of environmental change. Together with this, the **Charter should emphasize the need to enhance research on fuel cells and hydrogen power.**

The point on renewable energy if even conceded by the players in the industry, such as McClelland of the South African Petroleum Industry Association (SAPIA) who argues that:

*“We need a renewable source of energy that does not cause global warming and climate change, but that will take time and money. I believe the immediate possibilities involve the more efficient use of existing energy sources, revamping the public transport system to ensure fewer vehicles on the road and designing our cities in a way that will bring people’s homes and places of work closer together.”<sup>83</sup>*

## 2.8 The Other Complications: HIV/AIDs

The first complication is the advent of diseases that are not transport direct, but are found within the milieu of transport and then lead to both the environment and health arenas. Major road arteries in South Africa add to other forms of diseases such as the Sexually Transmitted Infections (STIs).

**Driving over long distances, away from their wives, heavy trucking in South Africa is experiencing higher levels of HIV/AIDS infections.**

*The situation implies that the sexual contacts resulting from the seafarers’ interactions with the local community are of much lower risk than those of the truck drivers. Therefore, it appears that the port of Durban contributes to the spread of HIV primarily through the road traffic it supports.*

*Aids Analysis, Africa 11(6) April/May 2001*

A study conducted in KwaZulu-Natal on the N3 revealed that 56% of truck drivers and sex workers were HIV positive. Two thirds of the men reported having a sexually transmitted infection in the previous six months. Condom use was not very high; almost a third of the truckers reported never using condoms, while less than half reported always using condoms.<sup>84</sup>

A study conducted by Kelly Industrial found that at least 38% of South Africa’s 35 000 long-distance drivers were HIV positive. This study cited loneliness and fatigue, which were relied by sex-workers at truck stops as the main reasons for this spread.<sup>85</sup>

An exciting project, **Trucking Against AIDs** was initiated by former Minister of Transport **Mac Maharaj, who warned the industry that if the department did not act, truck drivers could spread the iris beyond South African borders.** As testimony to the co-operation that is argued in this document, the Department of Health joined in funding was provided by the United States Government and the European Union the industry got involved and AIDs organisations also got involved.<sup>86</sup>

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<sup>82</sup> SAFM AM Live, 27 September 2005.

<sup>83</sup> Sowetan, 27 September 2005.

<sup>84</sup> Mail and Guardian, September 23 to 29 2005.

<sup>85</sup> Sowetan, December 1, 2005.

<sup>86</sup> Mail and Guardian 23 to 29 September 2005

What aggravates the situation is the availability of sex workers along the main corridors and especially around toll plaza and truck stopping areas. The distance between the residential areas and the roads infrastructure complicates this even further. The shorter the distance, the higher the risk of the truck drivers and local sex workers' interaction.

This does not dispute the fact that **irrespective of the distance, the sex market is very mobile. It may well be that even if stringent measures were taken to prevent sex workers from accessing drivers at known rest spots, the sex workers will find alternatives to ply their trade.** It may also well be, that in the world of supply driven by demand, truck drivers themselves could be innovative as to find the service they want.

The other complication which should be discussed when dealing with the economy as it relates to transport, is that the input industry into the transport sector. i.e. **the petrochemical industry, is of, and by itself, as dangerous to the environment and health of the populations surrounding their plants as the transport that uses their products itself.** (This issue also affects the land use patterns discussed elsewhere in this document). South Africans face a double whammy, of being affected by the chemicals that moves transport even when they (South Africans) have adopted environmentally friendly behaviour in their neighbourhoods.

There may also be a need to reduce the number of petrol stations, or to address its imbalance in favour of urban areas. While this presents the positive face of entrepreneurship and business development, it does not lead to a price reducing competition as petrol prices are regulated. The subdivision of the petrol price and taxes from a litre of petrol does not get diverted to the development of safety in the industry, but taxes get diverted to other causes such as Road Accident Fund (RAF) and SASRIA.

**The Department of Transport may have to engage with National Treasury about diverting a portion of the tax on fuel to be ploughed back into the industry, and to promote ideas such as safety and alternative fuels research.**

Lents J, and Nikkila R.<sup>87</sup> on their assessment of overall air quality management systems, made a recommendation that South Africa should address the potential for long-term transport problems, citing specifically the significant nitrogen oxide emissions from high stack refineries, which in the long term will cause **visibility and acid rain problems** to South Africa and her neighbours. As if to respond to these suggestions, the Department of Environmental Affairs and Tourism declared the Vaal Triangle as the first South African clean air hot spot.<sup>88</sup>

Traffic on the road creates numerous challenges on the roads all by its own. The added dimension is the content of what the traffic on the roads carries as it relates to transport. The carrying of contraband goods does have an effect on how drivers trying to avoid the road traffic management officers behave. The direct environmental and health effects pertain to the toxic contents of usually overloaded heavy vehicles. The picture on the left shows an abnormal load

#### Trucking Against AIDS

- *There are ten Trucking Against AIDS wellness centres across South Africa that provide truckers with counseling and information on HI AIDS*
- *Almost 140000 drivers and women at risk have been reached through the programme.*
- *About 50 000 patients have visited the centres.*
- *About 22 000 patients have been treated for sexually transmitted diseases*
- *An estimated 3,1 million condoms have been distributed from the wellness centres.*

Mail and Guardian, 23 to 29 September 2005.

<sup>87</sup> Lents, J.M and Nikkila R. Key Points of Analysis of South Africa's Air Quality Management System. October 2000.

<sup>88</sup> Department of Environmental Affairs and Tourism, Media Statement 5 June 2005.

vehicle on the road.<sup>89</sup> **Government may have to decide which type of cargo should be on the road and which one on rail.**



The added complication is that the **vehicles which knowingly carry contraband and highly toxic contents will use smaller side roads** and by doing so, congest traffic and accentuate health and environmental hazards there.

So both as a carrier of hazardous substances<sup>90</sup>, and the higher pollution compared to the smaller vehicles with catalytic converters, heavy trucks cause a double-whammy to the environment and to the people who are affected.

**An effective charter will thus have to interact with the fuel industry** which has, under pressure from government, discounts prices below the list price, but which discount does not reduce their market margin, and even worse, because these market margins can be implemented without resorting to government again. Clearer controls on the industry should be undertaken, but it should be without resorting to a highly regulated mechanism.

Robin Pratt, of Deloitte, indicates the “scourge” of the rising oil prices in relation to carbon emissions when he states:

*“Although emissions trading could help slow the longer terms growth in aviation emissions, variations in the future price of oil are likely to have a far greater impact on fuel consumption and ticket prices than emissions trading.”<sup>91</sup>*

In other words, the **relationship between the government and the industry has to be restructured**, without limiting sustainability of the industry. On this score, signs of community awareness and involvement are encouraging, as both the Wentworth (Durban) and the Milnerton (Cape Town communities) are holding some petrochemicals giants to honour their pledges of reducing the environmental effects of their products on communities.<sup>92</sup> One such company in Durban was threatened with a court case by the Department of Health after it was discovered that it had exceeded its permissible limits of sulphur dioxide by 64%.<sup>93</sup>

It is hoped that the charter will lead to a political commitment that recognizes that transport policy is central to the environment and health and should thus lead to strategies that take these into consideration.

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<sup>89</sup> Source: Department of Transport Photo Library.

<sup>90</sup> See The Star, 18 September 2003 for a story on highly toxic spills on Gauteng involving asbestos and nitric acid.

<sup>91</sup> Green Sky Thinking: Aviation Emissions Trading: Potential Impacts and Policy Options. April 2005.

<sup>92</sup> South Africa: Oil and Gas Industry- Key Issues ([www. Mbendi.co.za/indy/oilg/afsa/p0015.htm](http://www.Mbendi.co.za/indy/oilg/afsa/p0015.htm))

<sup>93</sup> SABC News, 19 July 2005, Businessday, 20 July 2005.

## 2.9 Policy Guidelines

The South African Government has embarked on a path that will reduce lead found in hydro carbonated petrol. There is a need to expand the reduction on all particulates that cause health complication.

The **technological improvements of catalytic converters**, which are currently under way, should be expedited while at the same time removing all old engine cars on the road through incentives for purchasing new ones. This task should fall on the government, the vehicle manufacturers and financing houses.

**Commission of research on a variety of pollutants found in vehicle and aviation fuel** as one pollutant may host another more harmful pollutants should also be one of the policy directions. This will require more research on further pollutant sequestration. For example the components of lead should be further studied individually. There should be strategies to reduce the volumes of traffic on the road. It is counterproductive to reduce the number of pollutants when the number of vehicles increases.

## CHAPTER THREE: TRANSPORT NOISE AND ITS EFFECTS

### 3.1 Introduction

The connection between transport, the environment and health is that noise is a form of pollution on the environment, and as such it has a long-term effects on the health of the population. **The inconveniences of not hearing have an effect of the psychological e people who have hearing disabilities**, and these effects may add to the annoyance mentioned elsewhere in the document. There are four direct and often cyclical health effects of noise on people, and these are:

- Irritation (may alter the behaviour of an individual);
- Interference with verbal communication (creates irritation as well)
- Reduce working efficiencies, and this has its own economic effects);
- Disturbs sleep (and affects the productivity of the workforce, and
- Damages hearing which is a direct health impacts and may lead to irritation.

The above picture indicates the intricate parts of a human ear where noise pollution affects the person exposed to it most.<sup>94</sup>

The frequency and the intensity of each noise type increases exponentially. The two concepts are discussed elsewhere in this Chapter.

As it pertains to aviation, South Africa is a member of the International Civil Aviation Organisation a well as the continental body, the AFCAC. Her reaction to noise levels (as well as aircraft emissions) are governed by the two multilateral organisations.

The issue of transport noise, particularly as it relates to aircraft noise (and other environmental concerns), was put into sharp relief with the withdrawal of the Supersonic Concorde from the skies.<sup>95</sup> Yet as the environmentally-conscious celebrated this end of an era for the super noisy aircraft, new inventions of the A380 have made this a single step forward but two backwards. The discussion on this issue has thus never been more necessary.

This chapter interrogates noise levels coming from all modes of transport, and the other noise origins which are within each particular mode, notably tyre noise and opened windows., vibration noise (apart from the combination of both), train noise on bridges, construction noise and all other associated noises.

We also look at the effects of noise on sleep and how this lack of sleep increases underperformance and anxiety.

### 3.2 The Problems Caused By Traffic Noise

The following diagram explains this cyclical pattern mentioned in the previous paragraph:

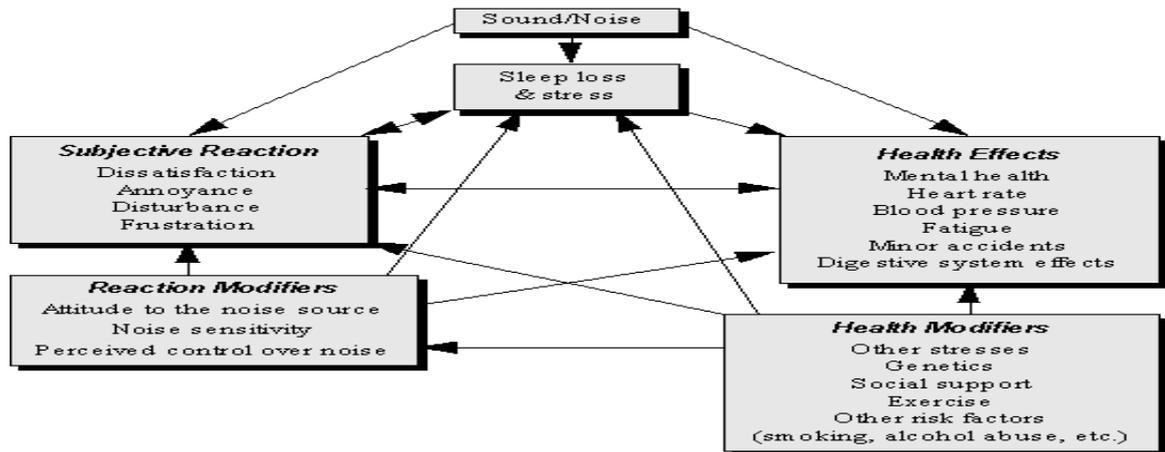
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<sup>94</sup> [www.google.co.za/imgres](http://www.google.co.za/imgres)

<sup>95</sup> Sunday Independent 12 October 2003.

*“From the persistence of noise comes the instance of rage, From the emergence of tone comes the divergence of thought From the enlightenment of music comes the wisdom of..silence”*

Visions of Gregorian Chants.



Source: Department for Environment, Food & Rural Affairs: *Noise and Nuisance Policy. Health Effect Based Noise Assessment Methods: A Review and Feasibility Study* September 1998

**Transportation noise from road and air traffic is the predominant noise source in South African communities.** In a study by Babisch in 2000 it was found that outdoor sound levels for day-evening-night ( $L_{den}$ ) > 65-70 dB(A) were found to be associated with odds ratios of 1.2-1.8 in exposed subjects compared with unexposed subjects [ $< 55-60$  dB(A)]<sup>96</sup> Because large parts of the population are exposed to such noise levels [European Environmental Agency (EEA) 2004], noise policy can have a significant impact on public health.<sup>97</sup>

We have alluded in the Introduction to the six metropolitan areas in South Africa. Although noise pollution has not been thoroughly researched, it can preliminarily be argued that the levels of road rage take place mostly in the urban areas. This is borne by the fact that this is where most drivers' licences are recorded. 29.5% of licensed drivers in the age group above 18 years in metropolitan areas, 24.5% in urban areas, and only 8.1% in rural areas, even though these figures represent only 20.3 % of the total South African population.<sup>98</sup> The role that traffic noise plays in road rage can at this stage not be determined. Studies in Europe indicate that traffic noise is eliciting a growing number of complaints.<sup>99</sup>

In South Africa road rage is a combination of history, culture and psychology and class. As one anonymous psychologist observed:

*"South Africa has a culture of road aggression,... South African drivers' inflated egos, selfishness and violent past are the main reasons behind the country's escalating road rage....Big cars can give people exaggerated egos. Drivers feel the size and power of their car gives them more rights than those in small cars, and that these smaller cars should know their place on the road."<sup>100</sup>*

<sup>96</sup> Babisch W. 2000. Traffic Noise and Cardiovascular Disease: Epidemiological Review and Synthesis. *Noise Health* 2(8):9-32.

<sup>97</sup> Kempen et al. 2002; Neus and Boikat 2000).

<sup>98</sup> NHTS, Table 9.17

<sup>99</sup> Green Paper on Future Noise Policy @ <http://europa.eu/int/en/rcord/gren/gp> 9611

<sup>100</sup> The Southern Cross, January 7 – 13, 2004

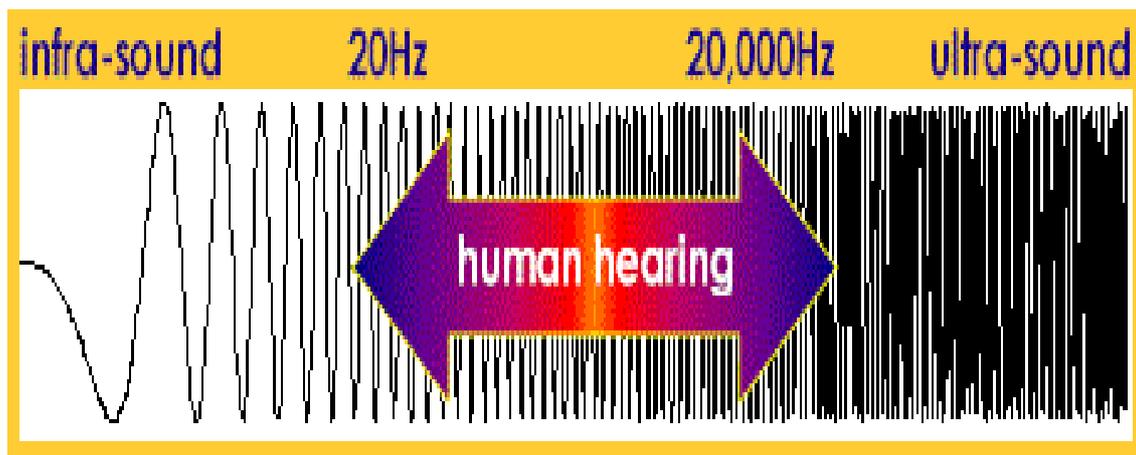
In a questionnaire based on the study carried by Bluhm et.al., out in a municipality in Stockholm, with a sample of 1000, in the age groups 19-80 years old, the following findings came out:

- frequent annoyance as a result of traffic noise was reported by 13% of subjects exposed to Leq 24 hr >50 dBA compared to 2% among those exposed to <50 dBA, resulting in a difference of 11% (95% Confidence Interval (CI) 7%, 15%);
- Sometimes or frequently occurring sleep disturbance was reported by 23% at Leq 24 hr >50 dBA and by 13% at levels <50 dBA, a difference of 11% (95% CI 4%, 18%);
- A positive exposure- response relation was indicated for annoyance as well as for sleep disturbances when classifying the individuals into four different exposure categories (< 45, 46- 50, 51-55 and >55 dBA Leq 24 hr);
- There was some habituation to noise for problems related to sleep but not for annoyance. The prevalence of both annoyance and sleep problems was higher when bedroom windows were facing streets;
- People living in apartments had more sleep problems compared to people living in detached or semi-detached houses;
- In conclusion traffic noise exposure, even at low levels, was associated with annoyance and sleep disturbance. Access to a quiet side seemed to be a major protective factor for noise related problems.<sup>101</sup>

### 3.3 The Three Dimensions of Noise

Noise can be complicated through three levels, namely frequency, intensity and duration.

- Firstly, **frequency** is the number of times that the air is compressed and decompressed in a second, and is measured in cycles per second, or *Hertz* (Hz). A human ear can tolerate between 20Hz (which is low pitched bass sound) and 20,000Hz (which is high pitched and is whistle like). The human voice produces frequencies between 500Hz and 2,000Hz. Below 20Hz and above 20,000 Hz, sound cannot be heard but it can still be harmful. The ear is most sensitive to sounds between 1000 and 4000Hz.. The infra-sounds and the ultra-sounds, although not heard by humans, produce feelings of nausea, giddiness and headache in people exposed to them. Infra-sounds are the most subtle and can occur in aeroplanes and other vehicles. Noise from heavy road vehicles can penetrate the walls of houses. Protection against this is discussed elsewhere in the chapter.



<sup>101</sup> G. Bluhm<sup>1</sup>; E. Nordling; N. Berglind Road Traffic Noise and Annoyance - An increasing Environmental Health Problem [Noise and Health](#), Jul - Sept 2004, vol. 6, no. 24, pp. 43-49(7) nRn Publications

Source: Ergonomics4 schools. The Learning Zone: Noise

- Secondly, decibels are used to measure the second category of noise, i.e. intensity. **Intensity**, the second level, is from the low spectrum of zero decibel for normal hearing people, and the loudest is more than a million times. Although intensity does not rise gradually, logarithmically, each increase of a decibel is about 10 times than the previous intensity. Over time the intensity can cause ear drum rupture and hearing impairment.
- Thirdly, **duration** refers to the exposure during the working day and during full extent of a person's working life. Exposure should be more limited at frequencies and cause damage. In the South African environment the need to raise awareness as a result of traffic noise has to be inculcated. As it happens, it is usually the less privileged and the many who do not know how much their hearing impairments are caused by traffic noise. Their failure is ascribed to the fact that they are not closest to the cities, but this is a negation of the fact that most poor people do come to the cities, and that they are as exposed to traffic noises as their rich counterparts, but unlike their rich counterparts, they do not have the means to deal with it, either as complainants or as litigators.

### 3.4 Noise From Modes

The above paragraphs have mixed modes in relation to noise. This subsection briefly deals with aircraft and train noise.

#### 3.4.1 Aircraft Noise

In South Africa the higher levels of noise aircraft noise are experienced in cities with major airports, particularly on landings and take off. The low levels of environmental interest aggregation as compared to the developed world, does not reduce the need to be vigilant, and for the transport industry to be pro-active without being prodded by the aggregation of the environmental groups.

Led at first by the South African Bureau of Standards (SABS), the **noise pollution debate and classification in South Africa is about three decades old**. The Environment Conservation Act (ECA) Act No 73 of 1989 makes provision for the Minister of Environmental Affairs and Tourism to make regulations (published in 1990) for noise, vibration and shock (DEAT 1989). These regulations provided for the local authorities to apply to the Minister to make the regulations to be applicable in their areas. Noise reduction measures are thus a concurrent responsibility.

In aircraft noise alone, **some courts have implemented heavy sentences on aircraft that have over the limit noise emissions**, and have fined these aircraft heavily. For instance, in Japan, about 4000 residents in the Kadena air force base of the United States in Okinawa were compensated a combined 2.8 billion yen, the largest compensation ever aid for aircraft noise pollution.<sup>102</sup>

On 5 October 2001 in Montreal, the International Civil Aviation Organisation (ICAO) endorsed the concept of a balanced approach to aircraft noise management, based on the following four elements,

- reduction at source (quieter aircraft);
- land-use planning and management around airports;
- noise abatement operational procedures, and
- operating restrictions on noisy aircraft.<sup>103</sup>

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<sup>102</sup> Japan Update.com, February 24, 2005.

<sup>103</sup> ICAO Assembly Resolutions Focus On Improving Aviation Safety And Security

In spite of Government having committed to reducing noisier aircraft (Chapter 2) over the period of seven years from January 2003, and a total phase out by December 2009, the problem still exists and with the culture of extensions of deadlines in South Africa, the 2009 date, in spite of it being an ICAO decided date, may shift.

In terms of the ICAO recommended practice, stakeholders agreed to the proposal that after 4 years 50% of the Chapter 2 aircraft must be phased out or 80% of the total fleet must consist of less noisier Chapter 3 aircraft. Six years later about 75% of Chapter 2 aircraft must be phased out or 90% of the total fleet must be Chapter 3 aircraft.

The South African aviation scenario faces particular challenges post-democratisation in 1994. While some of these reside within the domestic domain, many are of an exogenous nature occasioned by the need of the South African aviation industry to respond to its international obligations.

With the number of developed countries enforcing measures to reduce and finally prohibit the number of noisier aircraft, these are dumped into the African continent because they are cheaper to buy in developed countries. South Africa has become a major hub for continental aviation and the danger may be that those aircraft which are bought cheaper by African airlines, find their way to the South African air space. The growing danger of these aircraft is not made any less by the **growing number of foreign operators** who have trebled from a mere 21 airlines in 1991<sup>104</sup>. Domestic air traffic has doubled in the past 10 years and international air traffic has increased fivefold in the past 15 years.<sup>105</sup>

This takes place as the aviation grows exponentially, and the lack of controls fuelling that growth even further, no doubt encouraged by:

- falling ticket prices. For instance, in Europe, low cost carriers have benefited the European consumer to such an extent that travelling across Europe starts from less than 10 Euros.<sup>106</sup> In South Africa, the price wars has begun.<sup>107</sup>
- new runways at London airports;
- heavily subsidised, with
- no tax on aviation fuel, and
- no VAT on domestic flights. Reduction of Air passenger duty on cheap flights.

The **time and day also has an effect on the levels of noise produced**. As more people travel to and from work in the mornings and in the afternoons, the levels of noise at this peak hour when the greater number of people are heading for or coming back from their places of work, means that more people are exposed to noise at about the same time.

The obverse side, of noise at night, does not make it any less harmful, because this takes place in competition with the hours of rest and thus leads reduced sleep hours (discussed below). **Reduced hours of sleep has costs to the national productivity**, and should correctly be seen in economic terms. The quantification of this loss in productivity and the resultant economic impact would require a different thesis, but its importance cannot be underestimated.

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Meeting Caps Most Productive Triennium In Recent ICAO History. Montreal, 5 October 2001

<sup>104</sup> Bierman, J. Mabaso L. Lephuthing R and Teegler Trevor. Draft Status Report and Programme of Action: Environment Issues.

<sup>105</sup> Business Day, 5 July 2005.

<sup>106</sup> Business Day, 21 November 2003.

<sup>107</sup> Sunday Times, 16 November 2003.

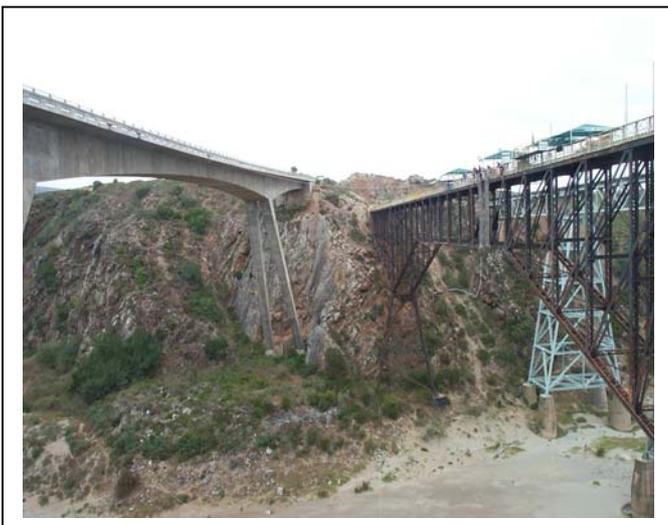
As a source, noise which affects sleep comes from slow speeds. At low speeds, most traffic noise is caused by vehicle engines, transmissions, exhausts and brakes. The stop-start braking and acceleration during peak-hour congestion also increases noise levels. **On freeways, where speeds are high and relatively constant, most noise is caused by a combination of tyre contact with the road and aerodynamic drag over the vehicle.**<sup>108</sup>

### 3.4.2 Train Noise

Although it elicits a minor level of complaints, train noise also add to the general well- being of people who reside near the railway line and/or stations. Railway stations are usually the hub of the development of a city, but **improvements in station design** particularly in Europe, have led to most rail stations where there are a number of people embarking or disembarking being built underground.

Two types of noise emanate from trans-city and railways, namely wayside noise and the related vibration and interior noise.

In **wayside noise and vibration, distinctions should be made between intercity and mainline railways and the transit trains.** In intercity and mainline railways, differences in noise between trains that use electric locomotives and those that use diesel-driven locomotives, with the diesel ones having higher noise levels. In transit trains, levels of noise are distinguishable from the activities such as wayside noise from train operations, ground-borne noise and vibrations, station noise, ancillary equipment noise, bridge noise and maintenance noise from the storage yards.



In interior **noises there are differences in noise between levels between locomotives and coaches.** The rear of the coaches have higher noise levels that the front part of the coach, and passengers near the doors of the coaches experience higher noise levels than those far away from doors. **The level of auxiliary extras in the coach also add to the levels of noise, for instance, if the coach has air conditioners, generators and heaters, the noise levels will be higher.**<sup>109</sup>

The picture of bridge building above<sup>110</sup> extends the sources of transport noise beyond the conventional, and indicates the combination of noises, both the train noise and the vibration noise as areas of further analyses.

A combination of the noise in the interior and the exterior of the moving vehicle or train increase levels of annoyance.

There are some other noises which are dependent on the nature of the movement of the train itself. These can be classified as:

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<sup>108</sup> Quiet Please: Fighting Noise in Australian Cities.

<sup>109</sup> Nelson,P. Transportation Noise Reference Book. Butterworths 1987.

<sup>110</sup> Source: Department of Transport Photo Library.

- The wheel/rail noise generation where the wheel and rail are set into a form of vibration by the action of friction on each other;
- The noise that comes from overt rail and wheel roughness;
- Flange squeal which is a noise that emanates from wheels when trains negotiate rough curves;
- Higher noise emissions from freight trains as compared to passenger trains;
- Aerodynamic noise sources.<sup>111</sup>

### 3.5 The Health Side Effects of Noise

A number of areas of adverse effects of noise pollution can be discussed in this section. These are communication, school performance, sleep and temper, cardio-vascular effects and hearing impairments, loss of quality of residential life, physiological changes, loss of workplace quality of life etc<sup>112</sup>. There is also evidence that noise levels have an effect on pregnancy and low birth rates<sup>113</sup>.

#### 3.5.1 Communication

The levels of audible speech is measured as 100% intelligible when the background noise is 45 dB LAeq<sup>114</sup>. When the background noise is 10 decibel beyond this level, the person who is speaking has got to raise his voice. If general conversations, meetings and in classrooms, elder people, and children are comfortable with a noise background which is 10 dB LAeq less than the speaker.

In rural settings hearing impairments is evidenced in older populations, as there is less transport noise in vast areas. **In airlines routes, airline traffic travels at a higher altitude and its noise impacts are reduced as compared to the cities where they take off, land or fly at lower altitudes.**

There are three standards related to aircraft noise in South Africa<sup>115</sup>. These are based on the recommendations of the World Health Organisation: The three are:

- The SANS 10117, a mathematical methodology which is used to both calculate and predict aircraft noise around the ports for land use purposes;
- The SANS 10103 which is measurement to rate environmental noise as it related to land use, health, annoyance and speech communication;
- The SANS 10328 that is a methodology for environmental impact assessment.

There are complications with the application of these standards, namely the desire of the South African Government to comply with the **Yamoussoukro Protocol** has an unintended consequence of allowing airlines from the continent which are both unsafe and noisy onto South African airspace.

**Most of the aircraft on African skies are purchased from other continents where they do not qualify for noise levels.** The dilemma is that when African companies purchase those aircraft, there is an in-built threat of their business going under as these aircraft will not be allowed to fly into the European or American airspace, where they can make lucrative business.

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<sup>111</sup> Ibid

<sup>112</sup> Nose Impact; Durban Local Agenda 21, Durban Metro @ [www.ceroi.net/report/durban](http://www.ceroi.net/report/durban)

<sup>113</sup> Health Journal of the Netherlands. 1996.

<sup>114</sup> The LAeq refers to the continuous noise kept at a steady level

<sup>115</sup> Engineering News, October 16, 2003.

Only two South African airlines, according to Chris van Tonder<sup>116</sup> of Leaders Unlimited/Korn recruitment agency, can afford to meet the noise standards, with the largest operator, SAA, having diverse Chapters of aircraft, some of which cannot meet the required noise levels.

It is thus encouraging that the airlines such as Comair, over and above their voluntary adherence to ICAO standards, consider passenger protection against aircraft to be their core business. They also advocate a balanced approach to the impact on the airports themselves.<sup>117</sup>

This approach by smaller airlines is not surprising if viewed from the opinion of De Loitte and Touche when they state:

*“No frills” carriers have been historically more flexible than the larger network carriers, as they have fewer complexities to deal with – from bilateral traffic rights, slot trading restrictions, labour agreements in different jurisdictions, , code and revenue share agreements with other airlines and so on.”<sup>118</sup>*

### 3.5.2 Sleeping

Sleeping is an unavoidable human need that has to be accepted as such. It presupposes that it is a time of quiet from the daily toils. It is also a human condition for revitalizing the body and mind for the next day. To the extent that it is being disturbed by noise, lack of sleep indicates that the productivity of people on the following day is compromised. This may lead to other discomforts related to work, such as underperformance, underpayment, being exposed to industrial hazards such as machines and expulsion.

Three types of sleep-related disturbances can be ascribed to transport noise.

- The first one is the difficulty with falling sleep when there is noise;
- The second happens in the event that people finally get asleep, they get woken up by traffic noises;
- The third one is the decreased performance during the day when people have woken up as a result of inadequate sleep or going to sleep rather later as a result of noise.

There is a need to reduce these levels to the acceptable levels below 30dB LAeq continuous noise or 45 dB LAm<sup>119</sup> indoors.

Without attaching much evidence on the data that supports the argument of noise, it can be argued that at a **physiological level, health is enhanced by the high levels of sleeping without disturbance**. To sleep without interruption for a specific number of hours, the number of hours slept, and sleeping during the night, has always been cited as a health enhancing experience and a requisite for healthy living. **Disturbances that take place during sleeping hours do not augur well for a healthy and productive working next day.**

Since sleep is naturally a nocturnal pursuit, **it is doubtful whether day sleeping has any additional health effects**, and the levels of disturbance of sleep during the day arise out of the nature of the predominantly day work regime.

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<sup>116</sup> Engineering News, April 10 2003.

<sup>117</sup> Comair Limited , Annual Report 2004

<sup>118</sup> Green Sky Thinking: Aviation Emissions Trading: Potential Impacts and Policy Options> Deloitte: Corporate Finance, April 2005.

<sup>119</sup> This refers to the noise that is generated by the noisy events.

This excludes the additional effects on the human body such as increased blood pressure, increased heart rate, increased finger pulse amplitude, vasoconstriction, changes in respiration, cardiac arrhythmias, increased body movement increased fatigue, depressed mood or well being, and decreased performance.

### 3.5.3 Effect on Performance

There is evidence that **children who are exposed to aircraft noise have lower reading acquisition skills**. This is according to a study conducted by Professor Stephen Stanfeld of Psychiatry at St. Bartholomew's and the Royal London School of Medicine and Dentistry and Queen Mary and Westfield College at the University of London.<sup>120</sup> They **also have attention<sup>121</sup> problems and are generally weak in problem solving.<sup>122</sup> Memory to deal with complex analytical problems, mental activities that require attention, are also affected. Other complications that arise from aircraft noise on children are: reading (lower test scores), motivation (learned helplessness), speech (potential delays in language acquisition), and memory (memory deficit).**<sup>123</sup>

In order to adapt to these problems through the use of **tuning out methods and noise ignoring, and the pressure to perform under these conditions results in high blood pressure**. It also leads to the growth of stress hormones, blood magnesium levels, and changes in the immune system and gastro-intestinal tract. The mere fact that there is ongoing research on the effects of noise on these illnesses enjoins the world to be far more careful about noise as a causal factor.<sup>124</sup>

### 3.5.4 Annoyance

Annoyance is accentuated by the level of noise. Moderate annoyance is at 50 dB LAeq and serious annoyance is experienced at 55 dB LAeq. There are also a number of factors which also affect the manner in which people respond to noise:

- **Firstly, noise pollution coming from aircraft, or if aircraft noise is accompanied by vibrations, and if these vibrations also interfere with other social and environmental actors, they are likely to cause more annoyance.**
- **Secondly, the geographical location of where the noise takes place also has an affect on the annoyance levels. The topography of the area and the acoustics of the slopes also influence the levels of noise** and hence the levels of annoyance as a result of those levels.

**The South African government still has to update the current noise contour model. It may well be that land previously planned for development, both industrial and residential may now not be available.**<sup>125</sup>

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<sup>120</sup> [http://www.health24.com/news/Enviro\\_Health\\_/1-1308,32065.asp](http://www.health24.com/news/Enviro_Health_/1-1308,32065.asp)

<sup>121</sup> [www.health24.com/news/hearing\\_management](http://www.health24.com/news/hearing_management).

<sup>122</sup> Consequence of Aircraft Noise on Children's' Learning: A Summary of Recent Scientific Literature. The Heathrow Studies. ([www.bhanantinnoise.org.uk/Noise-effects.htm](http://www.bhanantinnoise.org.uk/Noise-effects.htm)).

<sup>123</sup> Miller, R. Noise 101 Aircraft Noise Effects and Land Use Compatibility, March 2003

<sup>124</sup> Guidelines for Community Noise, Chapter 4. World Health Organisation.

<sup>125</sup> Press Release, Department of Transport, 26 September 1999.

### 3.5.5 Increased aggression

There is also evidence that loud noise also increases aggressive behaviour to predisposed individuals. At the levels of 80 dB LAeq noise levels also decrease the willingness of people to help others (helping behaviour) According to Dr Hagler<sup>126</sup>, noise exposure, per se, is not believed to produce aggressive behaviour. In combination with provocation, and pre-existing anger or hostility, it may trigger aggression. It is also suspected that people are less willing to help others, both during and after a brief period of exposure to noise. Noise above 80 dB is consistently associated with reduced helping behaviour and increased aggressive behaviour. **There is concern that high levels and continuous environmental noise may contribute to feelings of helplessness in schoolchildren.**

### 3.5.6 Heart Disease and Hypertension

**Ischaemic heart disease and hypertension** show evidence of emanating from noise levels of around 75-70 dB LAeq. In South Africa these diseases are neglected as diseases of the "rich." **Research indicates that some South African long-haul truck drivers suffer from hypertension. This may require greater health interventions and transport's assistance in reducing the noise effects of transport.** There also appears to be a correlation between sleep apnoea and heart failure and the likelihood of strokes or hypertension.<sup>127</sup>

**Hypertension as a cardiovascular outcome of noise** is accompanied by other indicators such as pulse rates, respiratory rate, ECG, self reported symptoms and cardiovascular morbidity and mortality rates.<sup>128</sup>

According to a study in *New England Journal of Medicine*, air pollution not only causes long-term health problems, but it might **also trigger heart attacks**. In a study of 700 patients asked by doctors in this study, patients were nearly three times as likely to have been in traffic in the hour before the attack than to have been someplace else.

In a slap in the face for alternative transport such as **public transport (busses) and fitness inducing cycling, the finding showed that bus passengers and those who ride bicycles also were more likely to have heart attacks**. That suggests the culprit probably isn't stress but particles spewed by cars and trucks.<sup>129</sup>

### 3.5.7 Hearing Disturbances

Whether the noise comes from aircraft, cars, and trains or from road building machines, it cannot be considered harmless once it gets above 70 db LAeq over 24 hours for a period of forty years.<sup>130</sup>

In a study conducted by Mathee and Swart on indoor settlements in Johannesburg, it was reported that apart from the other results,

*"a further 13% were concerned about crime and violence, while 8% and 6% respectively disliked the noise levels and the lack of electricity."<sup>131</sup>*

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<sup>126</sup> Adverse Health Effects of Noise. www. Nonoise.org.library.

<sup>127</sup> Accident Waiting To Happen, in Science in Africa, November 2002

<sup>128</sup> Nelson P. Transportation Noise: Reference Book. Butterworths, 1987. Page 4/5

<sup>129</sup> USA Today/com/news/2004-10-20

<sup>130</sup> Protective Noise Levels. EPA/ONAC 550/9 77-004 March 1974.

**Being hearing-impaired has added disadvantages when drivers and pedestrians cannot respond to other traffic warnings issued by noise related instruments such as hooters.** Hand signals do not often bring in quick warnings, in addition to the difficulty of other passengers drivers and road users not being able to easily recognize people with hearing impairments.

### 3.6 Policy Guidelines

The overarching considerations for noise management procedures should be based on the three principles, namely:

- The precautionary principle which argues that the protection of the public from noise does not need to wait for the scientific results to prove that noise exists;
- The polluter pays principle which means that the damage to the environment must be paid for by the institution/people/business which caused it;
- The prevention principle which argues that where possible, action should be taken to reduce the level of noise.

#### 3.6.1 Emissions Control

To the extent that the amount of toxins will depend on the amount of fuel that goes into tanks of vehicles, and the fact that these toxins are inescapable components of fuel, there is a **need to change fuel composition and to improve the technology that drives the engines of cars.**

The Government has already embarked on the lead phase out in petrol with an aim of eliminating mobile source emissions of the substance. The other interventions which may be considered in future have to follow the US example as set out by the Environmental Protection Agency (EPA). Inter alia:

- **The evaporation of gasoline should have limits imposed over a certain number of years. The reduction of the hydrocarbons will also lead to the reduction of air toxics because most of the toxics are in fact hydrocarbons;**
- The introduction of reformulated petrol, particularly in cities which have a higher populations. In the United States this was introduced as way back as 1995;
- Sulphur in diesel fuel must be reduced and this will have positive reductions not only for buses and trucks, but will also reduce toxins in private cars that are now using diesel fuel;
- Encouragement of technology that use catalytic converters;
- The testing of carbon monoxide emission during winter or low temperatures will reduce air toxic emissions in the earlier stages of the vehicle use;
- Cars should be tested periodically for emissions and for computerised diagnostic systems that indicate to drivers whether their emissions controls are still functioning;
- Restricting vehicle access to some parts of the city;
- Compulsory vehicle inspection accompanied by the scrapping of vehicles which have higher emissions rates;
- Improving the tailpipe designs and standards.

#### 3.6.2 Noise Friendly Road Surfacing and Pavement Building

Motor vehicles using the latest technology such as the low noise road (smoother) surfaces and equally less noisy tyres are likely to contribute to noise emissions reduction and to general environmental improvements. Pretorius, Wiese and Henderson have elaborated on **efficient**

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<sup>131</sup> Mathee. A. and Swart, A. A description of living conditions and health status in indoor informal settlements in Johannesburg. Medical Research Council of South Africa.

**asphalting** where they look at asphalt product differentiation for rural and main roads, urban freeways, residential roads and airport runways. They interrogate the optimum mix type, the main benefits of the type, its durability and its estimated costs.<sup>132</sup> The tyre interaction with the type of pavement being used is also indicative of the efforts by researchers in South Africa to reduce noise levels. McNerney et.al. al., have observed that South Africans have developed the “Whisper Course” open graded pavement, which has the a noise reduction of 9 dB over a single surface and as high as 11.7 dB over a grooved surface.<sup>133</sup>

This should be balanced with the regulation, promotion and enforcement through compulsory testing of vehicle road-worthiness. At a noise level, there should be higher fines for noisy levels, which could also be accompanied by regulations that bar a certain aged car on the road. Speed controls which are currently gaining prominence in South African road traffic should be enhanced, not so much because of the way they lead to reduced accidents, but that cars which drive at regular speeds also have less noise and less emissions.

### 3.6.3 Changing Traffic

Given that the emission control through technology is still in its infancy in South Africa, and that law enforcement for these interventions will require more resources directed towards traffic office training, a balance should be struck between these interventions and the cities own plans about the routing of traffic.

Authorities in congested areas can also **determine at what time they should permit traffic to be on their roads, and also limit the number of traffic during certain hours.** For aircraft, the delimitation of flight corridors away from residential areas should also be identified. Undergrounding and tunnelling of roadways where possible, in spite of the infrastructural costs, should also be considered as options near areas where there is a higher concentration of people.

### 3.6.4 Insulation

Noise can also be insulated from the public through the use of building materials that “absorb” noise. **The architecture of the building, and the location of rooms most likely to be used by a greater number of household dwellers can also assist in reducing the levels of noise.** This requires that builders and architects first identify the likely source of noise, and then locate bedrooms at the back of the buildings.

On insulation, Agrément South Africa, looks at building materials as enhancing the need to reduce the ingress noise from outside such as road traffic and goes on to suggest the normal thickness of wall bricks and block types and the types of finish (plastered or unplastered, plastered on both sides etc) to those wall types.<sup>134</sup>

### 3.6.5 Levels of noise inside the vehicle

A growing tendency on South African roads, particularly mini-taxis and private vehicles is the level of noise through the acoustic systems and the speaker outputs. Added to the vibration levels of the vehicles, the high volumes of CD players and radios also have an effect on

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<sup>132</sup> Pretorius F.J., Wise J.C. Henderson M. Development of Application Differentiated Ultra-Thin Asphalt Friction Courses For Southern African Application. CSIR. Page 10.

<sup>133</sup> McNerney M.T.; Landberger, B.J. Turen. T, and Pandelis A. , Comparative Field Measures of Tire Pavement Noise of Selected Texas Pavements, Centre for Transportation Research, University of Texas at Austin, Page 2.

<sup>134</sup> Assessment Criteria: Building and Walling Systems Acoustic Performance of Buildings: Agreement South Africa Document.

annoyance, body vibrations, and on to the eardrums. The noise emanating from the vibration of the car increases the damage that is caused by the droning engines and the honking horns.

Although mostly during the summer season traffic authorities in certain areas have clamped down on the noise emanating from the car itself, such as in Durban where beach going revellers are ticketed for master blasters speakers, much still needs to be done. Neville Grimmet warns would-be tourists:

*“One word of warning about taxis- they are not for the squeamish - the drivers are always in a hurry and the decibels are usually very high. Many taxis spend more money on their sound system than the value of a small car, so if you have sensitive ears, wear earplugs.”<sup>135</sup>*

There is also a lack of awareness among children about the long term effects on the levels of noise, and most often their choice of a vehicle to take them to leisure particularly during holidays is the vehicle that will make the most music noise, in spite of their still developing and the vulnerability of their ear drums.

### 3.6.6 Road construction



During road construction, road users are temporarily affected by the levels of noise if they pass through the area where construction is taking place. **On the side of the workers, this noise is incessant and takes as long as the construction carries on. It would be required of all categories of workers to be issued with earmuffs** to limit the effects of noise on their eardrums, and also reduce the stretches of roads works that could be done in a single day.

At a technological level, **research should be conducted on road construction machines that will produce less noise while achieving the same benefits.** The noise emissions of road construction machines should be factored in as part of the environmental impact assessment of the road construction. The picture on the left shows a road construction site where workers are exposed to high levels of noise.<sup>136</sup>

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<sup>135</sup> Grimmet, N. Taxi Hand Signals . [www.durban.gov.za/eThekweni/Tourism](http://www.durban.gov.za/eThekweni/Tourism)

<sup>136</sup> Source: [www.nielsonconstruction.com/roadconst.html](http://www.nielsonconstruction.com/roadconst.html)

## CHAPTER FOUR: ACCIDENTS AND INJURIES FROM TRANSPORT

### 4.1 Introduction

This Chapter zooms into the nature and causes of the injuries and accidents from transport. It goes further to interrogate the severity of the accidents, locate the numbers and modes of transport from where these accidents and incidences occur, identifies the places and the time of the year and of the day when these accidents occur. There is an analysis of the profile of accidents victims; the types and categories of vehicles which cause accidents, and the accidents that are caused by alcohol.

Myers has observed the number and the economic impacts of road accidents in South Africa. According to her,

*“Road traffic accidents on the South African road and street network rate amongst the highest in the world. In the order of 10 000 persons lose their lives annually while about 40 000 are seriously injured and 110 000 slightly injured in 500 000 accidents. These accidents cost the country more than R 13 billion per annum.”<sup>137</sup>*

*“The ideal transportation mode would instantaneous, free, have an unlimited capacity and always be available. It renders space obsolete. This is obviously not the case. Space is a constraint for the construction of transport networks. Transportation appears to be an economic activity different from others. It trades space with time and money.”  
Merlin*

### 4.2 The Trends In Transport Accidents And Injuries

#### 4.2.1 Determinants of the Severity of Accidents

In spite of the indispensability of transport in the modern economy, the collateral damage of transport is that it is inherently a dangerous field. **The moment a decision of travelling is made, or a business decision about cartage is reached, the risks associated with that travel are immediately stark.** In terms of speed at which transport travels, the human element involved in the mobility of a transport mode, the transport vehicle's own manufacturing inadequacies, the nature of the terrain in which it travels only serve to amplify the danger alluded to. It is the direct impact that transport has on human beings in terms of accidents and injuries that the dangers of transport continue to dominate health and environment debates.

The speed and the burst of energy which propels transport vehicles is commensurate to the severity of the injuries and the accidents they cause. The Medical Research Association (MRA) agrees with this view when it states that

*“All injuries can be characterized from the perspective of an abnormal transfer of energy. For example, the catastrophic injuries arising from plane or automobile crashes can be characterized as injuries which arise from the transfer of energy between the victim and a stationary object (the ground) or a moving object (another vehicle), which lead to trauma and possibly death. Interference with normal energy exchange may also result in injuries through drowning and frostbite.”<sup>138</sup>*

Statistics indicate the extent to which road accidents have become legend in discourse around transport. Road traffic accidents on the South African road and street network rate amongst the highest in the world. In the order of 10 000 persons lose their lives annually while about 40 000 are seriously injured and 110 000 slightly injured in 500 000 accidents.<sup>139</sup>

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<sup>137</sup> Meyers, D. National Evaluation Of Arrive Alive 2003-2004 Festive Season Communications And Enforcement Strategy

<sup>138</sup> [www.mrc.ac.za/Supercourse](http://www.mrc.ac.za/Supercourse) lecture 0231/003.

<sup>139</sup> [www.ukzn.ac.za/uniarc.workshop](http://www.ukzn.ac.za/uniarc.workshop)

The Satchwell Report indicates that between 1988 and 1998 the total number of road accidents increased by 22%, from 418 to 512 000.

In terms of their severity, the Report indicates that 48% of those who claimed and were paid suffered light injuries, 17% moderate injuries, 17% serious injuries and 8% fatal injuries.<sup>140</sup> The percentages of fatal injuries should not be taken as the whole true reflection as the Road Accident Fund repudiates and contests some claims, particularly those with fatalities.

#### 4.2.2 Aviation and Marine Accidents

Because of the domination of road transport compared to other modes such as air and shipping, these two modes of transport display lower numbers of accidents fatalities and injuries.

In spite of its reputation as a safe mode of travel, accidents in the aviation mode are higher when comparison is made by the size of the aircraft. The smaller private aircraft have more accidents than their larger counterparts. Smaller charter aircrafts have shown a higher rate of accidents. Large commercial/Air Transport aircraft accidents, categorized as operations Part 121, the highest number of these accidents as was in 1998 where there were six accidents. However,

- As of March 2005, no accidents had been reported. In the category Part 127, 133, 135, 138 and 141, which deals with small commercial/Charter/General Aviation, the highest number of accidents was experienced in the year 2003, where 55 accidents were reported;
- As of March 2003, only 9 of these had been reported. In terms of private operations, categorized as Part 91, the years from 1993 to 1999 recorded over a hundred accidents per year, with 159 accidents being the highest in 1993;
- As of March 2005, 25 accidents had been reported. Recreational and sports aircraft accidents, categorized as Part 91, the highest number of accidents was in 2001, where there were 29 accidents. As at the first quarter of 2005, only 3 had been reported.<sup>141</sup>

**The declining numbers of accidents in relation to the number of vehicular traffic do not call for laxity, and neither do they overlook both fatalities and injuries as a result of these accidents.** The study of the circumstances under which these aircraft accidents take place, the terrain where recovery and rescue operations take place should be undertaken. In addition to the study, **there should be efforts to reduce the air pilots “disease” known as “get there-it-is”**, that is where pilots become more concerned with getting the wheels to touch down on land than they are about safety of the trip.<sup>142</sup>

**The figures for accidents on the seas are also negligible, but are nevertheless a concern for a safety regime that seeks a zero defect.** This concern is corroborated by the warning that came from the marine insurance sector, which warned that **South Africa is under-insured to cover a large-scale marine environmental catastrophe caused by a shipping casualty.**<sup>143</sup> This does not mean that each sea accident is minor, but this argument is only in terms of figures.

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<sup>140</sup>Road Accident Fund Commission Report 2002, Vol. 3, Page 59.

<sup>141</sup>Derived from a Paper prepared by Mr Seboeso Machobane and Johann Bierman for internal discussion in preparation for the Meeting of African Ministers' Responsible For Civil Aviation

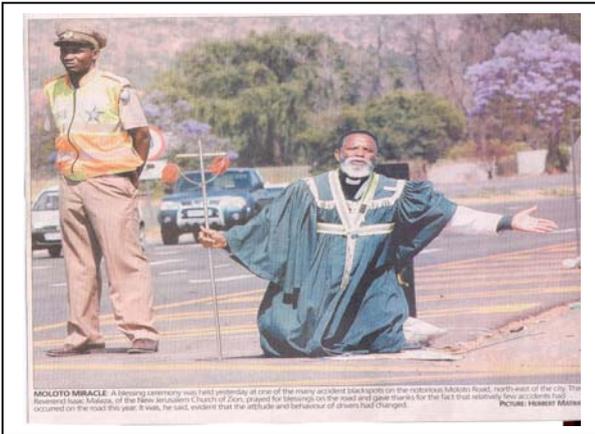
<sup>142</sup>The Star, 5 September 1991.

<sup>143</sup>Business Day 14 October 2003.

In September 2003, a ship, carrying 3 700 tons of fuel beached close to the Milnerton in Cape Town, and it came close to causing an oil disaster.<sup>144</sup> This was part of the 45% of the 6,1 million oil that enters South African territorial waters coming directly from the shipping lines.<sup>145</sup> As **South Africa is only a signatory to the 1969 Convention, and has yet to accede to the 1992 Protocol and associated compensation fund there is a need for the DOT to move with speed in acceding to the protocol, particularly the synchronisation of domestic law with international law.** The urgency was expressed by the Minister of the sister department, the Department of Environmental Affairs and Tourism when he stated that

*“we certainly have a duty to re-look at our current approach to the precautionary principle with a view to strengthening to leverage of our maritime authorities to deal with this kind of incident.”<sup>146</sup>*

#### 4.2.3 Where Accidents Take Place



Certain places are more prone to accidents than in others. In South Africa some of these places where accidents take place have been identified, and road users are warned through signage either to reduce their speed or to be vigilant because the areas has been designated a high accident area. A mix of factors lead to these categories, such as traffic volumes at certain times, the number of pedestrians, the surface of the road, the time of day and the climactic conditions. The picture on the left shows a priest at a blessing ceremony on the notorious accident spot<sup>147</sup> in Moloto Road as part of an integrated approach to the preventions of and awareness on road accident spots.

In analysing the South African Police Services' crime statistics specific to the city of Tshwane, the Pretoria News observed that motorists living in Sunnyside, Lylleton, Nierderbrug, Akasia and Riegat are more likely to fall victim to hijacking syndicates with 119,96,73, and 59 and 57 reported for these areas respectively, with drivers having their cars taken at gunpoint.<sup>148</sup>

On average a high number of children suffer in road accidents happen in built up areas. In its pamphlet on the killing effects of speed in built up areas, the Department of Transport has warned:

*“Let's suppose that you are travelling through a built up area and a child steps off the pavement 35 metres in front of you. At 50km /hr (the recommended speed) you would stop with 9 metres to spare. At 60km/hr (the speed limit) you would only have 2 metres to spare. At 70km/hr, the **child would be dead.**”*

Importantly then, because of speeds and traffic volumes on freeways, the risk of dying there are higher than in other areas.

<sup>144</sup> Ibid.

<sup>145</sup> South African Yearbook, Page 244.

<sup>146</sup> The Citizen, 28 August 2003.

<sup>147</sup> The Star, (s.n)

<sup>148</sup> Pretoria News 24 October 2005.

The interface between people and vehicles increase the dangers in roads near schools and houses. **Children are more vulnerable because of the contestation for space between the cycling and playing ground for children and vehicles which use the same space.** Because of lack of sports facilities in many poor areas in South Africa, roads are sometimes used as recreational areas, which increases the danger to children.

Even where there are recreational amenities, **children will still use any space, including roads to play.** If children do not get a space to play, their physical development is hampered, they become dependent on their parents, while parents have their own realities to face and thus fail to cater for the physical exercise needs of their children. The longer-term effects of lack of physical activity among children are seen in lower academic performance, lack of stamina and lack of alertness at school.

Warning on playing toys in spaces where communities do have paying spaces, the Road Safety Council warns that parents should avoid wheeled and rolling toys and choose toys that fit in with the environment of the home.<sup>149</sup>

The spread of these accidents across the provinces indicates a seasonal tendency with most accidents taking place during the holiday seasons, in December and during Easter weekends. In 1988 large percentage of these took place in the province of Gauteng at 37.7%, followed by KwaZulu-Natal at 18% and followed by the Western Cape at 14.7%.

The KwaZulu-Natal province experiences increased growth in traffic during the holiday season and the Easter holiday season largely because of the traffic that flows from the rest of the country to this holiday resort province, which accounts for 20,2% of holiday trips to that province.<sup>150</sup> In the dilemma of choice between other things to do (e.g. elections,) and going on holiday most South Africans choose to go on holiday and thereby perpetuating the high traffic volumes during these times of the year, and by extension, increasing road accidents.

A safety audit undertaken by the Automobile Association (AA) indicated that most fatal road accidents happen in “sleepy” Pietermaritzburg where about 71,32 fatal accidents per 100 000 accidents, as opposed to the fast car growing Johannesburg, which stood at 33,2 fatal accidents per 100 000.<sup>151</sup>

Accidents take place in different road types, with urban roads contributing a large percentage at 70.9%, and followed by accidents on highways and freeways contributing 18,2% and a negligible amount of accidents take place in parking and loading areas.

Claims related to the Road Accident Fund do not represent the sum total of accidents as not all of them lodge claims with the fund. For example, **while the Satchwell Report indicates that there were 118 606 injured and 9 068 dead victims in 1998, only 58 596 and 5097 victims respectively claimed from the Road Accident Fund.**<sup>152</sup> The remainder find their way to the health system which may not have budgeted for them, or they give wrong the reasons of their injuries. The environmental aspects of their injuries, and the cars and drivers who caused the accidents, are not known.

Based on urban bias of the claims it can be **postulated that many accidents take place in urban areas, and the less rural area is covered by the province such as Gauteng, the lower the number of rural accidents.** For provinces with an almost equal split between rural

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<sup>149</sup> Tots, Toys and Traffic: A Fatal Combination: Pamphlet. National Road Safety Council

<sup>150</sup> NHTS, Table 9.24.

<sup>151</sup> Sunday Times, 3 September 1995

<sup>152</sup> Road Accident Fund Commission Report 2002, Vol.3 Page 58.

and urban areas, the number of the accidents between the two spatial areas are not very far from each other, and this is clear in the case of Mpumalanga and Limpopo.

Rural area accidents and injuries bring more complications to the victims and to the traffic officers and rescue personnel as **hospitals are far in between, or are inadequate to assist victims.** In relation to the **behaviour of the rescue drivers** Rambos, as they are euphemistically called) such as ambulances and fore brigades, there should be stricter training on emergency driving and defensive driving techniques. Three issues related to this were reports in 2004, where an ambulance driver got involved in accidents when he was driving a woman in labour to hospital, a medic who died when an ambulance overturned, and where fire-fighters were treated for injuries after the fire truck overturned.<sup>153</sup>



Some of the accidents take place at intersections and where there are no traffic lights. As was the case of the accident on the R28 Hendrik Potgieter road in Pinehaven on August 25 2003<sup>154</sup>, most of the solutions to these intersections is the construction of an interchanges or a flyover bridges for cars and pedestrians. However, there should be more education about the use of flyover bridges as pedestrians ignore these facilities and cross on the road. The picture on the left shows an interchange as one of the features of the South African Road network.<sup>155</sup>

#### 4.2.4 Who Are the Victims of Accidents?

While there is no doubt that car accidents kill or injure more drivers (48 204 accidents in 1998) and occupants/passengers (46 292 in 1998), or of the number killed or injured on the roads, a thought should be reserved for those who do not drive or re not passengers. In these categories we would have to examine the number of pedestrians and cyclists who are also killed on the roads. On South African roads, about 31 234 pedestrians are killed or injured in 1998. Cyclists contributed about 3 941 of accidents.

The cycling culture in South Africa is not that high, but this not detract from the fact that both pedestrians and cyclists suffer more severely from injuries than from their driver and car occupant counterparts. This is as a result of their exposure, and the impact of metal on human bodies. The higher the speed of the impacting vehicle on a pedestrian or cyclists, the higher the severity of the injuries. In 1998, 31 234 pedestrians were involved in accidents in 1998.

**Cyclists can also be victims of the conditions of the road itself.** This refers to the weather the potholes and lack of signage. According to the press, a cyclist had sued the KwaZuu-Natal Transport Department to the value of R7 million for the injuries he had suffered when his bicycle hit a pothole in 2004.<sup>156</sup>

**The injuries, and the lack of awareness among cyclists and motorists about the rights of cyclists requires further research.** Such research should lead to a National Cycling Strategy that will encourage cycling throughout the year rather than the periodic awareness around certain dates, such as the Car Free Day which took place on 20 October 2005, or the periodic mention of cycling when Government makes donations of bicycles. However, for the public to

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<sup>153</sup> The Star, 20 July 2004.

<sup>154</sup> The Star, 10 October 2003.

<sup>155</sup> Department of Transport Photo Library.

<sup>156</sup> Pretoria News, October 20, 2005.

see the Minister of Transport riding a bike<sup>157</sup>, is a perfect kick-start for a cycling culture. This should be done in spite of the fact that the Department of Transport.

We have alluded elsewhere in the document that the number of cars, although lower than those of the United States at 42.73, or the United Kingdom at 34.73 per 1000<sup>158</sup> people, and South Africa standing at 7.63 per 1000 people, statistics do not show a decline in the number of pedestrian accidents. **The number of people who walk have not declined even when there is the increasing availability of mobile transport.**

*"Have you ever noticed? Anybody going slower than you is an idiot, and anyone going faster than you is a maniac"-- George Carlin*

The obverse side of this argument is that as more vehicles get onto South African roads, and as their speeds on the road grows, the risk on the decreasing number of pedestrians is not reduced.

The number of cyclists killed or injured stand at varying degrees between four and five thousand per year, approximately 3.5% of all road accidents casualties.<sup>159</sup> **The severity of motorcyclists accidents and injuries are compounded by the fact exposure of cyclists multiplied by the speed at which they cycle.**

Extrapolating from the figures of the Road Accident Fund, it can be concluded that 53% of the victims are African, 30% White, 11 % Coloured and 6% Indian. To reiterate, these figures represent about half of the total victims and the policy options should take into cognisance that they are dealing with the severity of the problem at twice the figures based on Satchwell's Report. Between 1998 and 1999, there were 69 407 road accidents victims, but only 33 622 had their claims settled, there were 37 644 White accidents but 18 598 were paid out, there were 15 203 road victims but 6 946 were paid out, and there were 7418 Indian victims but only 3561 were paid out.<sup>160</sup>

**Most accident victims are male**, accounting for 56% as compared to 44 % for female victims. Payouts by the RAF of these victims indicate that at 27 503 for female as opposed 35707 for females, there is **a narrowing of the gap between payments to male and female victims.**

### 4.2.5 When Do Accident Take Place?

We have indicated that in certain months, such as the Festive Holidays and Easter weekends, some provinces experience higher rates of accidents, the reality is that it is that the same number of drivers migrate to other cities and destinations within South Africa, and this does not reduce the average number of road accidents per month, which stand between 7% in February and 9% in most months.

**Most of the accidents take place during the period of economic activity that is between 06h00 and 18h00 in the evening, with the highest number being between the peak hours, 08h00 in the morning and between 17h00 and 19h00 in the evening.**

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<sup>157</sup> This happened during the Car Free Day in Pretoria – SABC TV News, 20 October 2004.

<sup>158</sup> Ribbens, H. Pedestrian Facilities in South Africa: Research and Practice: Transportation Research Record 1538.

<sup>159</sup> Satchwell Commission Report, Chapter 8

<sup>160</sup> Ibid. Page 63.

In a study on mortality conducted by Matzoupoulos et.al. **most of the female traffic fatalities were on Saturday at 19.5% followed by Sunday at 19.3%, while for males on Saturday 21.,7% faced fatalities, followed by Sunday at 18.4%.**<sup>161</sup>

The periods and days mentioned above does not mean that other period are accident free. Neither does it mean that if long distances are taken, and the prospects of accidents are higher as result, short distances are safer bets. Indeed it does happen that a freak accident takes place on a short drive to a shop, or when the driver was just about to reach home.

### 4.2.6 Vehicle Types

At 52% of the total number of accidents caused, private cars are the highest vehicle types to cause accidents. They are followed by minibus taxis at 17%. Light vehicles are the third contributors to road accidents at 14%. In most instances, two cars collide against each other, and these accounted for 74% of the accidents. There may be pile-ups of three to four or more cars. A sizable amount of cars are involved in accidents without colliding with any other vehicle. Single vehicle car accidents account for 17% of the road accidents.

### 4.2.7 The Role of Speed in Accidents

Adrenalin drivers contribute to road accidents. The mobility of the vehicle has a tremendous effect on the amount of damage that it does to an object that is hit. Speed has a double whammy effect on accidents: if the victim is as soft as a human body, the effects and the severity of the impact on the hit object is higher, but if the hit object is as tough as concrete or another vehicle or stationary object, the effects on the driver and passengers will be higher. At both levels, speed is dangerous.

There is **an argument that the safety features of the modern vehicle, the balance and the aerodynamics justify the speed.** This argument cites the autobahn experience in Germany, where speed is allowed. But this is viewed from the vantage point of convenience and time saving, and it does not take away the negative impacts that speed may have in the event of an accident. The argument is also flawed from the perspective of our South Africa's road quality as compared to those countries where high speeds are permissible. The spill-over effects of permissible higher speeds can be felt n the entire road system, meaning that the view that speed should be allowed on certain roads does not mean that the users on other roads will observe slower speeds.

Reduction of speed at a rate of 1 km per hour results in about 3% of the reduction in accidents.<sup>162</sup>

The Department of Transport, on releasing the results of the first month of the ARRIVE ALIVE campaign in November 1997, estimated that speed played a role in more than 50% of the 323 fatal accidents reported in October, in which 457 people died.

There is, however, a greater need for the Department of Transport to enter the Speed Debate aggressively. The position adopted so far<sup>163</sup> requires far more nuanced elaboration, bringing finality to issue.

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<sup>161</sup> Matzopoulos et al. National Injury Mortality Rate Surveillance System

<sup>162</sup> <http://www.arrivealive.co.za/pages.asp?mc=speeding&nc=speedingfact>

<sup>163</sup> The Road To Safety, 2001-2005. Page 17-20.

#### 4.2.8 The Role of Alcohol in Accidents

In a Road Traffic Offence Survey (RTOS) that was recently completed for the National Department of Transport in 2003, driver alcohol levels were recorded at an increased rate of 16%.<sup>164</sup>

*The intermediate stage between socialism and capitalism is alcoholism.*

Norman Brenner

In 2003 alone, the Medical Research Council (MRC) gave the numbers of persons killed in road accidents that were found to be under the influence of alcohol. In accordance with these figures, the Blood Alcohol Concentration (BAC) of 46,5% of all drivers killed in crashes exceeded the legal limit of 0,05 g/ml while 9,5% consumed more than 5 times than the legal limit.

The BAC of 57, 1% of pedestrians killed in crashes exceeded the legal limit while 24, 7% consumed more than 5 times the legal limit of alcohol. Taking into consideration the high percentage of pedestrians jaywalking, the figures are a matter of great concern."

These increases were noticeable in the province of Mpumalanga and the Western Cape, and in the last province it was because of the legal issues surrounding the breathalysers.

The possibility of being caught under the influence of alcohol is a real threat for most drivers, but the double-edged sword is that this fear consumes drivers while still sober and once they are inebriated, the fear disappears. Also drivers know exactly which roads to avoid and which ones are under policed. Normally traffic officers persuade drivers caught under the influence of alcohol to take passengers seat and any other passenger which is "assumed" to be sober, is allowed to drive the vehicle.

In another surveillance system by Matzoupoulos, more pedestrians (61.1%) tested positive for alcohol in their blood. Drivers were the second most intoxicated subgroup. Among the positive cases, railway deaths had the second highest mean of blood on alcohol.<sup>165</sup> The picture on the left shows acceptable levels of alcohol before driving.<sup>166</sup>

Negligence is also thrown into the mix. If, when sober, a driver would be careful to fasten the seatbelt, when inebriated he or she is unlikely to do so. Or if he or she does fasten the seatbelt when inebriated, he or she will not observe the other road traffic regulations which attend to this, particularly driving when sober in the first place.

Worried by the fiscal implications of alcohol on road accidents, some observers, such as Dr Sebastian van As, **have argued for the establishment of an alcohol injury fund** (along the lines of the Road Accident Fund) to specifically compensate victims of trauma by paying for health costs and other damages suffered could reduce the ill effects of alcohol. Victims of alcohol-related crimes are frequently poor and have little recourse to legal action or compensation.<sup>167</sup>

#### 4.2.9 Finding A Correct Indicator For Accident Rates.

Statistics and statistic interpretation and analysis in South Africa is a contested terrain. As a result of its past, there are still tendencies to compare the pre-1994 governments and the new one and in the process, statistics to prove this or other side have become hotly contested. Not

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<sup>164</sup> [www.arrivealive](http://www.arrivealive).

<sup>165</sup> Matzoupoulos, et. al.

<sup>166</sup> [www.accidents.co.za/road-safety/images/drink](http://www.accidents.co.za/road-safety/images/drink).

<sup>167</sup> van As S, The taxing issue of alcohol Abuse: Establishing An Alcohol Injury Fund January 2004. Also Sowetan, 17 November 2003.

that there are no inconsistencies in general. In the particular area of transport statistics, calculations of accidents rates still rely on the old indicator expressed in terms of the p-kilometre travelled. **The p-kilometre indicator requires revision because of the longer distance that people can now travel.** Ironically, it is precisely because people can now travel easier that people travel longer distances. The pressure to arrive in the shortest possible time to cut down in time delays and the costs related to accommodation on the route, speed is resorted to.

The maritime industry has a categorisation of incidents and accidents, and one we come to that differentiation within the road sector, we may well find that the figures and their severity paint a different picture.

### 4.3 Policy Guidelines

There is no doubt that education and public awareness have been embarked upon on to alert the population about the issues of speed and alcohol. These range from radio broadcasts, newspaper information, toll-free numbers and billboard adverts. The effects have been dismal, not because of the inadequacies of the messages that are sent through the above-mentioned media, but because of the growing number of road users. In essence the messages are trying to get at a moving target.

Efforts to **control blood alcohol through breathalysers** has had a limited effects because they are embarked upon on a larger scale at certain periods of the year, namely the festive season and Easter weekends. Traffic authorities have noticed this trend when Wendy Watson states that this is especially worrying in light of traditional New Year parties and the fact that more people seem to take the chance of driving under the influence of alcohol at this time of year.

**Roadblocks** do not concentrate on a comprehensive traffic violation checks, and if a driver is caught on one offence, than he escapes another. In other words, a roadblock that does not have breathalyser equipment may issue a fine ticket for a defective vehicle to an inebriated driver. Alternatively, a defective vehicle offence may escape detention because on a particular roadblock only alcohol levels are being tested.

**South African traffic authorities are increasingly relying on speed cameras to arrest speedsters.** While this has helped to reduce speeding:

- The first **drawback is that cameras do not cover the whole road system, and one stretch of the road can be without a camera** which invites the speedsters to speed again once one speed camera has been passed.
- The second drawback is that **speed cameras are mounted at certain times of the month, either for the relevant officer to make up for is quota of arrests**, or to collect as much revenue as possible for the local authority.
- The third drawback is that the **unmanned cameras have not been established**, and as the writers were writing this document, there was a court challenge<sup>168</sup> as to the legality of these cameras.

The above paragraphs point to the **shortcoming about speed control in South Africa**. In most cases, it is seen as a money earner rather than a preventive strategy. So paradoxically, if seen as a revenue earner, speed becomes the preferred offence for certain municipalities and local traffic authorities. To prevent this, there is a need to explore different revenue streams for municipalities and local authorities. For traffic officers who need to make up for their quota of arrests, **a different performance management system is required, and this should not be measured on the amount of arrests that have been made.**

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<sup>168</sup> City Press, September 25 2005.

This performance management system should be nationally enforced and be driven from the National Department of Transport, in spite of the concurrence of powers among the three tiers.

**Drivers and car users have found ways of beating the system. They warn each other of roadblocks and speed cameras.** Therefore drivers can avoid being caught on cameras by driving at permissible speed until they pass the camera and then resume their unlawful speed.

**Use of safety belts is also encouraged.** Depending on the safety features of the vehicle, the use of safety belts varies. Certain vehicles have reminders on their driving pilot instruments. This alone does not mean that a fasten-you- seatbelts light flashing on the screen induces drivers to do so. Another set of safety features emits noise to remind the driver that's seatbelts have not been fastened. The annoyance of the incessant noise reminding the driver may just do the trick, but this feature is only for the driver, and the passengers are not reminded of this.

**Education**, although indicated in the above paragraphs as being ineffective, still remains the main strategy to reverse the trend. From education will arise a culture of driving that draws its strength from the drivers' own convictions that what they are doing is the correct thing to do. In this case the presence of a traffic officer will be insignificant, as drivers will be motivated by their own desire to be safe and to drive at allowed speeds.



**Physical presence and static policing** may be the preferred form of policing rather than the punitive one. In other words, traffic officer should be seen rather than the tendency to "hide behind trees" so as to catch offenders. The same view of "police by proxy" was raised by the Automobile Association (AA) when it called for 30 000 officers from traffic authorities to improve visible policing ahead of the Drive Alive.<sup>169</sup>

This does not mean that traffic officers should not deal harshly with habitual offenders, as was the case by the Gauteng Department of Transport which apprehended 20 trucking firms, six of which were notorious for violating road rules.<sup>170</sup> The picture on the left is of traffic police vehicles which, in the writers' view, should be present for visible policing.<sup>171</sup>

There is also evidence that **drivers should lead by example**. If the driver wears the seatbelt first, it is likely that his/her passengers will follow suit. Connected to this would be to use high profile personalities in raising awareness about road accidents, sad as it may seem to their own individual sufferings. For example, the case of the accident of well-known musician, Ray Phiri of the *Stimela* musical group when his wife passed away, could have been used, more so because for Phiri, a previous accident in the 1980s had nearly lost his career through hospitalisation for months after another car accident.<sup>172</sup>

The **traffic authorities have to revise performance management** for their officers. The notion that the hardest working officer is the one who has the most offence arrests under his belt, may not be necessarily a correct one. A combination of performance targets such as driver education, driver assistance, physical presence etc may have to be looked into.

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<sup>169</sup> Business Report, 11 November 2003.

<sup>170</sup> Sowetan, 21 November 2003.

<sup>171</sup> Source: Department of Transport's Photo File.

<sup>172</sup> Pretoria News, 20 November 2003.

**Vehicle design may also play a role in the reduction of accidents.** To reduce the impact, some ideas around the material for the car and the shape are being mooted. The other option of linking seatbelts to the ignition of the vehicle can also be investigated. The maximum speed of 120 could also be mandatory to all cars designs.

**Road design is another measure than can be used to calm traffic.** Circles and speed humps and speed arrestors can force drivers to reduce speeds, mostly in built up areas.

**Establishing targets for the reduction of traffic offences such as speeding can also assist in the reduction of accidents.** In one province, the operational phrase for their traffic enforcement was zero tolerance, meaning that they would brook no delay in enforcing traffic rules. Although there are no statistics to indicate the success, the awareness about that province's approach to traffic rules enforcement was a correct step. This targeting should be extended to road safety, but it would need setting up realistic and achievable targets so that traffic officers are not put under unnecessary pressure.

Mechanisms should be devised to include **studying the long-term effects of psychological effects on road accident victims** over and above the normal recording of the number of road accidents. This tracking is important irrespective of the severity of the injuries, as even smaller psychological effects on patients requires state health interventions. In this analysis the percentage of people who suffer from post traumatic stress disorder should be aggregated, and those with clinically significant symptoms should be tracked. Post-traumatic stress disorders lead to:

- Victims experiencing their accidents through flashbacks and nightmares well after the accident;
- Victims have avoidance techniques which keep them away from the areas where the accidents happened, and this serves to exclude them from the normal societal activities;
- Victims are always startled and they experience sleep deprivations and difficulties, memory loss and hyper alertness.

In PTSD strong feelings that stay with a person for a long time and start to get in the way of everyday life are signs of a condition called post-traumatic stress. If a person has post-traumatic stress, he, or she may have some of the following problems:

- An ongoing, general feeling of uneasiness;
- Problems driving or riding in vehicles;
- Not wanting to have medical tests or procedures done;
- Irritability, or excessive worry or anger;
- Nightmares or trouble sleeping;
- A feeling that you're not connected to other events or people
- Ongoing memories of the accident that you can't stop<sup>173</sup>

The reduction of accidents on the roads will be assisted by **the motorists feeling the pain of paying for them**, either in post accidents stage or in the security of insuring their vehicles. If it is considered that only 35% of vehicles on South African roads are insured<sup>174</sup>, it is axiomatic that the rest of the burden for the insured cars is either shared by those 35% insured or by the state. According to ThisDay, only 2 million vehicles in South Africa are insured and insurance claims resulting from accidents costs the insurance industry up to R5 billion a year in at least 900 000 crashes a year. **The State may have to enact some legislation or regulation which excludes uninsured cars on the road network** to bring this in line with the United Kingdom where 98% of the vehicles were insured through third party insurance.<sup>175</sup>

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<sup>173</sup> Arrive Alive.co.za

<sup>174</sup> This Day 20 November 2003.

Many of the high-level traffic interventions mentioned here are commendable, but these should be supplemented by the low level and simpler ones so as to reduce traffic accidents. Among these simpler ones would be education about how to sit in a driving position, or the **ergonomics** of driving and access provision, so as to reduce stress when driving. In their analysis of how they came to such lower road toll deaths, as composed to house ones, the Austrian Minister of Health, Naria Rauch-Kallt when presenting figures which showed that far more people in Austria die in a home, or sporting and leisure accidents than on the country's road, she indicated the simple precautions as:

- Wearing a helmet while cycling (discussed under cycling below);
- Covering electric plug sockets, and
- Straightening rumpled carpets.<sup>176</sup>

In general, traffic authorities should begin where they have not started, and enhance their efforts where they have, in areas of enforcement such as

- Enforcement of road signs compliance;
- Static and mobile speed cameras;
- Evidentiary breathalysers
- Enforcement of seat belt usage and moving violations;
- Integrated incident /emergency management systems.<sup>177</sup>

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<sup>175</sup> The Citizen, 14 November 2003.

<sup>176</sup> The Citizen, 23 September 2003.

<sup>177</sup> The Road Safety Strategic Map. 2—1-2005

## CHAPTER FIVE: VULNERABLE PEOPLE

### 5.1 Introduction

Intimated elsewhere in the previous Chapters has been the disadvantaged position that some road users or commuters and classes of people are faced with. This Chapter is not to reiterate those disadvantages but to emphasize the other points of disadvantages and the manner in which people are vulnerable to the vagaries of transport-generated environments and health effects.

This trajectory is necessary in the document if only to emphasize the fact that transport is not just the pursuit of the engineers and the coach-makers, but is inextricably linked to the social milieu in which it exists.

### 5.2 The Calamities Of Car-Based Transport.

We have alluded earlier to the status particularly in the post-1994 period of many Black people associating car ownership with prestige. This does not indicate that all people who buy cars do it for prestige, as a large number of them do it for necessity. Car-ownership on its own is a material condition which means that those who have cars will enjoy a better life (in terms of access) as compared to those who do not have cars.

We have mentioned that mobility in rural areas is not at the same level as urban ones, but the situation is gradually changing. The growth, albeit slow, of car ownership in rural areas has **unintended consequences of the closure of shops and amenities in rural areas, forcing rural people to increasingly rely on urban based facilities.** Located in a particular mindset that services are better in cities, rural people will try all efforts to have to access to towns and cities than to use facilities and services provided in rural areas.

We have also earlier alluded to the fact of the **youthful population of South Africa.** The unintended consequence of this growth and material vertical mobility of youth is that in the growing ownership of cars by the youthful population, public transport now becomes the mode of transport for the old, the infirm and the vulnerable. Teenagers and young men who harass old and vulnerable people in public transport do so in the understanding that there is no comparative age cohort to protect these vulnerable people.

**For many people, having a car is not a positive choice. It is forced on them by the way that we have organised our society.** The freedom, health, and quality of life of those who choose not to travel by car is damaged by other people's cars. **As a consequence of a car-based society, people without cars have restricted mobility.** In rural areas, greater car ownership has led to the close of thousands of local shops, post offices and pubs and **walking along country lanes after dark now means dicing with death.** That is a situation we have created, it is not inevitable.

In **urban areas, many people feel unsafe walking around or using the bus,** partly because all the fit young adults are travelling by car, leaving the streets to the very old, the very young, the poor and the vulnerable; and partly because creating a welcoming environment for walking or public transport takes low priority while billions are spent on roads to serve motorists.

**There is thus a disconnect in ages – those who are still fit to use public transport, walk or cycle, use private transport, and those who can ill afford private cars, cycling and walking, are lumped into the public transport.**

## 5.3 Categories of the Vulnerable

### 5.3.1 Rural People

The distance from the centre of places of convenience such as schools, clinics and markets means that the rural poor have to pay more than their city counterparts to access these amenities. While road accidents can take place anywhere on a journey short or long, it is also correct to state that the longer the journey, the higher the exposure to road traffic accidents, and the longer the exposure to emission gases and the higher the rate of exposure to vehicle vibrations and traffic noise.

In terms of facility improvements, the rural poor also get the short end of the stick in the following manners:

- Efforts to improve transport facilities in developing countries rarely benefit the poor;
- Priority is usually given to developing large-scale road systems that encourage the use of private motorised vehicles;
- If there are transport improvements, they are not subjected to the same quality checks as their urban counterparts;
- Transport linkages cater for the rural elite and roads lead to their residences.
- Lighting on available roads is limited.

In her Doctoral Thesis, Sabina Mahapa raises a specific issue of rural women, when she notes three main themes suggesting that **rural women use the transport system in order to satisfy their multiple roles**. She further notes that transport practitioners provide transport facilities and services that are often characterised by constraints that create problems for these women and hence impact on their opportunities. Consequently, unresolved problems lead to opportunities denied. She concludes that policy makers should generate new strategies to address African rural women's transport needs.<sup>178</sup>

The example of two projects in the North West Province indicates the level to which Government is trying to assist the rural populations, namely:

- The project known as **Scholar Transport for the Farm Child Pilot Project** was established in 2003 with an aim of establishing a 100% transport subsidy for the identified sites. This system targets about 160 learners in the province of North West.
- Over 4 000 bicycles have been procured and the Pilot Project was launched by His Excellency President Thabo Mbeki during the Imbizo Focus Week in Kgalagadi. This translated to the allocation of 1 561 bicycles covering 27 schools and so far, 1 000 beneficiaries have received their bicycles. These allocations are done on a criterion based on deserving cases such as minimum distances of 7 km and other basic requirements.<sup>179</sup>

### 5.3.2 Young People

In a society that closes the space for youth, the young children find that they are further subjected to a different set of physical, societal, cognitive and other vulnerabilities. The following are just a few of them:

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<sup>178</sup> Mahapa ,S.M. Spatial and Social Exclusion: Travel and Transport Needs of Rural Women in South Africa. University of Pretoria

<sup>179</sup> North West MEC Frans Phenye Vilakazi's Address To Transport Stakeholders To Listen To The Elderly, Taxi Operators/Drivers And Commuters At An Imbizo, Churchill Constituency Office, 10 July 2003.

- They are likely to be sent to shops and thus be exposed to traffic dangers more than their older counterparts;
- Their legs are shorter and therefore strides to run away from possible accidents are also shorter;
- Their cognitive ability to measure speed of oncoming traffic is still low;
- Their height is such that on impact, the larger part of the body, including the head is affected as opposed to adults who may be hit on their legs by vehicles;
- Firmness of the bones do not withstand the impact of the collision can easily fracture;
- Mental capacities to anticipate danger may not be fully developed as their adult counterparts;
- They are at an experimental stage of trying to emulate adults who do wrong things in traffic;
- They do not articulate the severity of the injuries for fear of reprimand by their parents or the elderly;
- Speech is not developed to relay the scene and cause and circumstances of the accidents which injury;
- Courts are more likely to believe the version of the adults who have transgressed and caused accidents than innocent children who have been victimised;
- Cultural inhibitions which recognizes children as inferior, irrespective of their correctness.

*To get back my youth, I would do anything in the world, except take exercise, get up early or be respectable.*

Oscar Wilde (1854-1900)

Studies in Europe indicate that proximity to busy roads and those roads which are used by heavy trucks affect children living in these proximities. They face a higher risk to respiratory diseases.<sup>180</sup>

The **young people who suffer more from these discriminatory practices are those in rural areas**. There is therefore a need to help rural young people to access education, training healthcare and leisure, collectively referred to as life chances. This would mean decreasing their independence on their parents or other relatives for their transport needs as these are also engaged in personal businesses which exclude children.

In most cases where transport is provided for rural children, it is usually a one return journey each day. Such **young people get trapped in either their homes if they miss the bus, or get trapped in their school while waiting for the bus to take them back home**. Unlike their city counterparts, rural students consequently do not have a fair academic advantage, as they do not use study facilities at schools or libraries after school hours when the time for the homebound bus has come.

**On most transport routes, young children pay an adult fare even though their weight is less and they generally face bad bus driver attitudes** and scolding by older passengers. This full fare is paid even when the youth are still at school at school.

While in certain instances school children have an advantage of school busses, **once young children are out of school but still young enough to work they face changed transportation challenges**. This is even more so now that children graduate, or finish their mandatory Matric earlier than previously. In instances where they do get work, **young people do not have the flexibility to negotiate flexible working hours that relate to their transport services**. Neither do they get salaries commensurate with their transport needs as compared to their older work colleagues.

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<sup>180</sup>[www.eesi.org/.../2005/Transportation/ChildrensHealth/Kimpresentation.pdf](http://www.eesi.org/.../2005/Transportation/ChildrensHealth/Kimpresentation.pdf)

The effects of lead have been described elsewhere in this document, but in so far as its direct impact on children, it can be argued that in children, lead has the effect of reducing neurobehavioral functions if the blood lead levels are lower than  $0,5 \mu \text{ mol/litre}$ . In addition, lead has cognitive dysfunction affecting academic progress in teenagers. This is accentuated by the fact that children's' intake of lead are higher than their adult counterparts. At the time of writing this document, the Department of Health had taken a firm stand against lead in paint and in pencil.

The Pretoria News<sup>181</sup> has also indicated that the misperception about the white tailpipes indicate an engine that is working perfectly when in the actual fact, the white deposits of lead oxide have a detrimental effects on health, particularly in children and on the environment (air quality and plant life).

According to the National Referral Centre for Lead Poisoning in India (NRCLPI) children's digestive system absorbs up to 50% of the lead they ingest. The high retention occurs from birth to age 6 when the brain is developing and lead interferes with its development. By the time physical symptoms are evident - **headache, lethargy or hyperactivity, nausea, stomach aches, vomiting, and constipation - significant brain damage has already occurred. Abdominal pain, vomiting and constipation** help greatly to differentiate lead from infectious disease that cause similar symptoms and are common, but result in diarrhoea.<sup>182</sup>

### 5.3.3 The Poor

**The poor do not only live in areas of squalor, but provision of both transport facilities and road quality are extremely low.** As a result of their poverty, they are more than likely to be passengers, or when relatively better than the other poor, afford vehicles that are not roadworthy. **They are perversely integrated into the system of cycling not because of its physical benefits, but because of the absence of alternatives.**

In the event that they are involved in car accidents, they are unlikely to afford the high medical costs which severely limits their chances of surviving accidents. Because of **their low level of resistance to diseases as a result of their poverty, they are more than likely to be easily affected by a host of diseases caused from vehicle emissions.**

*“Two nations between whom there is no intercourse and no sympathy; who are ignorant of each other's habit, thoughts, feelings as if they were dwellers in different time zones, or inhabitants of a different breeding, are fed by different food the rich and the poor.”*

**Benjamin Disraeli.**

Generally, the South African transport, environment and health scenario is characterized by the following:

- The marginalisation of the poor in decision-making;
- The poor are located far away from the centres of welfare;
- The poor have no choice in what is provided to them.

### 5.3.4 Women

On the issue of marginalization, women are marginalized through the spectrum of the categories that are discussed in this Chapter. The subsection only represents those issues about women that have not been captured in the other section.

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<sup>181</sup> The Pretoria News, 24 October 2005.

<sup>182</sup> [www.leadpoison.net](http://www.leadpoison.net). NRCLPI.

Transport and women interact in manners which usually escape transport and economic analyses. Given that women have numerical preponderance in terms of demographics, and have more responsibilities than men, more so in the modern context, it is *fait accompli* that they need transport far more than their male counterparts. We have mentioned elsewhere in this document that women have entered the car market and despite this, their use of transport displays different frequencies and needs to those of men. These frequencies are higher, in that over and above their work, women have to take children to school, to crèche, do shopping and take care of the needs of the house. Admittedly there is growing tendency to share responsibilities between married couples, but these are still low to change the general short changing of women in the transport provision.

Mired in the myth of female inferiority, and the fact that women were not allowed to work and have to be domestic executives, the patriarchal theses failed to understand that even when playing a domestic role, there is a need for female mobility to fulfil those tasks that are considered domestic.

Academic Fatima Meer, in her study, "*Women in Apartheid Society*", alludes to the fact that during apartheid women resisted transport fare hikes.<sup>183</sup> This they did in the context of the general uprising against apartheid, but transport was one of those targeted for protest by women because of its centrality to the needs of women.

*"...our notions of what a human being is problematically depend on there being two coherent genders. And if someone doesn't comply with either the masculine norm or the feminine norm, their very humanness is called into question." –*

*Judith Butler* The Believer Magazine  
- Interview - Issue 2

In her doctoral thesis, Mahapa notes that in the policy documents, namely the White Paper on National Transport Policy, the White Paper on Provincial Policy Limpopo and Moving South Africa, and the National Rural Transport Strategy, are limited in their pronouncements on gender.<sup>184</sup> The following picture indicates the disadvantages women face in relation to transport, through long distances, on unsafe roads and carrying heavy loads.

**Female drivers suffer from a mistaken perception that they are bad drivers and they are more than likely to cause accidents.** This is pure myth as all drivers are susceptible to bad driving out of their own inadequacies or because of the road and/ or weather conditions, or a compendium of other road conditions. Driving is not an easy task. It competes with other mental questions that afflict humans.

There are a number of these conditions as they were listed a Swiss couple's claim against the South African Roads Board. The couple who were in a group of 35 European tourists injured in Riversdale in 1996. They listed the following road conditions as arguments in their case:

- The composition of the seal on the road was deficient and defective;
- The bitumen content of the seal was excessive;
- The texture of the seal was uneven and irregular;
- The co-efficient of the friction in the seal was uneven;
- Failure to make the road safe for vehicles;
- The road surface was not safe;
- Sections of the road were excessively smooth.<sup>185</sup>

As compared to men, women have different needs and uses of transport. Their attitude towards transport leads them to different preferences whether this is in commuting, child-care,

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<sup>183</sup> Meer, F. *Women in Apartheid Society*. From "Notes and Documents", No. 4/85, April 1985

<sup>184</sup> Mahapa, S.M. *Spatial and Social Exclusion: Travel and Transport Needs of Rural Women in South Africa*. University of Pretoria

<sup>185</sup> The Star, 23 October 2003.

commuting and employment. There is a need for transport officials to undertake gender auditing so as to assess if transport operators and services does take into account the different needs of women as well.

Women get double jeopardy problems if their gender is mixed with the other categories of vulnerabilities raised in this chapter.

### 5.3.5 The Elderly

Because of age, **the opportunities for the elderly to have learnt for driving their own vehicles are far surpassed by the growing opportunities for driver lessons in these recent decades.** In most cases therefore, **the elderly do not know how to drive, partly because of this shortcoming and also because of the unaffordability of the vehicles.** Usually the age gap removes the elderly from enjoying the well-being of people of all ages such well being as meeting friends, being part of community activities and enjoying a social life

As pedestrians, the elderly have **limits to the distance they can travel.** The gradient and the number of roads to be crossed exacerbate the situation. The problems are also compounded by **crowds who are not empathetic to the elderly, and the steps and undulating surfaces which makes the mobility of the elderly difficult.**

Facing physiological changes makes driving difficult for those elderly people who still drive, and these physiological limits refer to increased reaction time, deteriorating visibility, night vision reduction and the reduced ability to split attention between several tasks and issues.

Attendant to these difficulties is the belief that the large populations of the elderly, by extrapolating from the spatial distribution of the general population, are found in urban areas. The logic continues that because the distances in urban areas are shortened by the availability of transport facilities, there is little incentive to cater for the numerically inferior numbers of the rural elderly.

In the South African scenario, **most of the elderly people are in rural areas either because they are dumped there by their off springs, or because they themselves do not like the bright lights and the behaviour reducing effects of the city.** With most of the city dwellers also maintaining a home in the rural areas (so-called "farms") urban people usually have a place to go to, and the elderly look after and provide for the rural homestead.

Because of their age, **it is assumed that because they are retired, the elderly do not need much transport.** This is based on the assumption that travelling to the workplace dominates overall transport needs. It overlooks the need for the elderly to contact their medical institutions, meeting other relatives and other daily chores.

### 5.3.6 Pedestrians

If just going by the findings of the Satchwell Commission, it is obvious that the pedestrians receive short thrift. Exposed to share space with vehicles in cases where there are no pavements, and still in equal danger even in parts of the road where there are pavements, pedestrians always face dangers of carelessness of the drivers.

**By sheer differences in constructions, metal against the human flesh, the impact of the former on the latter has devastating effects.** The chances of the former fatally injuring the other are higher, and in instances where death does not occur, the pedestrian is likely to suffer disabilities well into the end of their lives.

**In road construction, the interests of the vehicle owners supersede those of the pedestrians.** In instances where pavements are constructed or pedestrian safety is considered, it is peripheral to the integrated planning for roads.

**More often than not, it is pedestrians who get blamed for their status or for their injuries, based on the uninformed position that roads are for cars, and the pedestrians are not required to be on roads.**

In addition to the pedestrian death figures which have been mentioned in certain sections of this base document, it is worth noting, for the sake of emphasis, that:

- In the age group between 0-14 years, pedestrian fatalities stand at 65.1%;
- In the age group between 15 and 24 years, these fatalities stood at 33.6%, followed by passenger fatalities at 21.5%;
- In the 25 to 34 year age group, pedestrian fatalities were at 35.5%, followed by motor vehicle unspecified fatalities at 21.3%;
- 35-44 years age group fatalities stood at 37.3% followed by motor vehicle unspecified at 20.9%.<sup>186</sup>

### **5.3.7 The Physically Disabled**

The term “disabled” refers to the four major categories of the physically disabled, namely:

- people with learning (intellectual) difficulties, forming about 13,3% of the disabled;
- hearing-impaired people, at 11.6% of the disabled;
- visually-impaired people at 18.4% of the disabled; and
- mobility-impaired people at 44.0% of the disabled.<sup>187188</sup>

All these categories of people have one or other disadvantage when it relates to mobility and access to transport. The situation of complexity is compounded if one or two levels of vulnerability is linked to another or others, such as being elderly and a pedestrian and being visually impaired at the same time. The proportion of the disabled in South Africa increases with the age after 25 and have as many as 10% of the disabled in the oldest age group.<sup>189</sup>

In a study conducted by the Centre for Scientific and Industrial Research (CSIR) on behalf of the Department of Transport, it was found that approximately 2,1 million disabled people and about 11,6 million children and the elderly have been identified as categories of special needs users excluded from mainstream transport in South Africa.

The basic principles which inform a strategy to accommodate the physically disabled should be based on the principles of safety; security; punctuality, accessibility; reliability, and affordability.

Tossed about as to who should bear responsibility for them as far as access to transport is concerned, the disabled face both the difficulty of their condition and the indifference to the solution of their problem. For women being disabled is a double jeopardy of both the patriarchal society and their condition of disability. In a study conducted by University of Cape Town’s Ms Theresa Lorenzo, the disabled women identified the unavailability of transport as a big problem since that prevented them from participating in community activities.<sup>190</sup>

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<sup>186</sup> Matzapoulos et al. National Mortality Rate Surveillance System, Chapter 2

<sup>187</sup> NHTS Table 9.5

<sup>188</sup> Towards a More Inclusive Public Transport.:CSIR.

<sup>189</sup> NHTS, Page 65.

<sup>190</sup> MRC News, April 2001 Vol. 32 No.2

The general problems relating to the disabled and transport is thus characterized by the following:

- **The disabled have been seen as a responsibility of the welfare system of the state at best**, and alternatively have been left to their own devices to make it in a world that structurally discriminates against them, at worst;
- **Some states have tried to avoid their direct responsibility by pumping funds to non-government organisations (NGOs)**, which, when used without accountability measures tend to being an industry of their own and a pressure group by default, and thus fail to concentrate on their core tasks;
- By their own constitution **NGOs do not enact legislation to address the plight of the disabled**, and their ability to influence policy positions differ from one political system to another;
- **The strength of the charity community is seen as a direct intervention justifying the state's lack of response.** Charity communities may be driven by other motives, such as tax benefits rather than total empathy with the disabled.; Inequalities within society leads to double suffering by the disabled. There are few disabled people who can provide for their own mobility, either through the use of wheel chairs and modified vehicles. The rest rely on state interventions;
- **A large number of the disabled are not just hidden from society, but the practice is such that even if there were efforts for the disabled to have access, they would still not be able to make it because of these inherited inequalities between the able and the physically disabled;**
- **Immobility exacerbates their situation** through lack of access to education, health and other amenities which their able counterparts can access;
- **The provision of access to the disabled is not integrated**, and when in one mode there may be access, the other parts of the transport value chain may not have the same access.

**The aviation industry does provide the mobility impaired with the wheel chairs and the individual care after all the able passengers have disembarked.** This is a commendable gesture but it is limited by the fact that the mobility infirm have to be the last to disembark, and by the very fact that air travellers in general, and the mobility impaired in particular, do not represent the bulk of the disabled who seek access and mobility.

The fact that they are the last ones to embark, means that in terms of time-keeping, they have to compromise. If they were the first to disembark, and be checked in and out earlier their able counterparts, means that the disabled will be able to make up for the time loss because of their disability, particularly because apart from the airport and airport facilities, they may have to face other hurdles in places where they are going to, which discounts any positive gesture and respect that they get from the airlines. The airlines have **not provided for the ablution facilities for the disabled on the plane**, and they (the disabled may have to travel long distances without the comfort of rest rooms corresponding with their needs.

A more co-ordinated access and mobility, as explained in this chapter, should be linked to the **provision of these services to the ancillary airport services such as car hire, baggage collection, ablution facilities, lifts to parking**, etc. Lifts and access to aircraft, shops and other facilities should provide access for the disabled.

The danger of factoring in this free service as a cost will always loom, and the **disabled community in South Africa should always put pressure on the airlines to provide this service at no cost to them.** For instance, the low cost airline Ryanair warned by the British authorities against factoring in assistance to the disabled as a cost to the consumer.

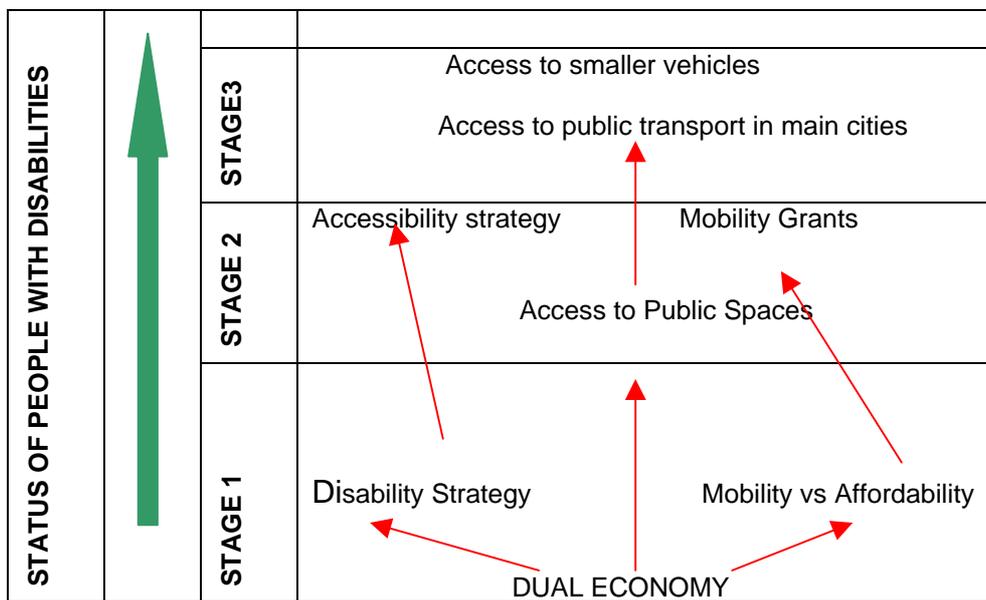
Ryanair believed that wheelchairs also represented a frill. Until a year ago, the airline charged passengers for wheelchairs.

At the end of last year, a London court ruled that Ryanair had acted unlawfully by not providing a wheelchair free of charge after the British Disability Rights Commission brought an action on behalf of Bob Ross, who suffered from cerebral palsy and arthritis.

While travelling from Stansted airport to France in 2002, Ross was charged £18 (R205) for the use of a wheelchair to take him from the check-in desk to the plane and the same fee on his return trip.

Source: Business Report, 27 October 2004

The following sketch indicates the levels of progress towards access provision for the disabled.



Source: Towards the development of comprehensive guidelines for practitioners in developing countries. Christo Venter et.al. al.

Despite this rather gloomy picture, a lot has been done by the South African Government (SAG) in solving the problem of mobility and access.

- The disability advocacy stage for the cause of the disabled was in the late 1980s where pioneers such as Mr Friday Mavuso and others, catapulted the cause of the mobility disabled into the psyche of the nation. The deficit now may be in the allocation of resources against the other competing needs of society;
- The athletic abilities of South African Paralympics has raised advocacy and awareness about the disabled. The extension of this awareness to transport facilities would be a logical conclusion;
- In the case of the Taxi Recapitalization Plan, it has been noted that the manufacturers of the proposed new vehicles would like guidance about the modifications of the new models for the purpose of accommodating the physically disabled;<sup>191</sup>

<sup>191</sup> [www.dpsa.org.za/displayArticle.asp](http://www.dpsa.org.za/displayArticle.asp).

- The Department of Transport has allocated R1 million for a pilot project of the modification of the Durban Metropolitan buses with hydraulic lifts for allow wheelchairs to be lifted onto the buses;
- The Dial-A-Ride project was initiated in Cape Town in order to provide a home to destination service on request, as it is generally normal practice in other parts of the world;
- Wider consultations with the disabled have been initiated as a response to the advocacy positions of the disabled themselves which are encapsulated in the slogan, "Nothing About Us Without Us."
- At a top level of Government, the Office of the Status of the Disabled is located in the Presidency, reporting to a Minister in the Presidency;
- At a policy level, the Government has a White Paper on an Integrated National Disability Strategy which covers various areas of disabilities and encourages equitable participation across all levels and programmes of government;
- A raft of other policy and legislative instruments enforce the representivity of the disabled which ipso facto, means they should also modify their buildings for access, provide transport etc;
- Government, in general interacts with the issues of the disabled at different occasions, spanning from the lower level to Ministers.

The physically disabled have on their own assisted the awareness programme on road safety by using themselves as shock tactics volunteers. In 2002 and 2003, the Quadriplegic Association of South Africa (QASA) deployed 40 quadriplegics in eight garages to encourage motorists to wear safety belts.<sup>192</sup>

The Department of Health fully acknowledges that disability is a substantial contributor to poverty and has arranged for free medical services for people with disabilities. The categories of people who can claim this benefits are:

- People with permanent, moderate or severe disability. This includes amongst others people who move with difficulty and cannot continuously walk between 10 to 200 metres on their own; those who cannot take care of themselves like being able to dress or eat on their own; and those with communication problems, vision and hearing difficulties.
- People that have been diagnosed with chronic irreversible psychiatric disability. These patients will qualify irrespective of the fluctuation in their mental status.
- Frail older people and long-term institutionalised state subsidised patients.

The medical assistance that the disabled get include the provision and the maintenance of the following:

- orthotics and prosthetics;
- wheelchairs and walking aids;
- hearing aids;
- spectacles and intra ocular lenses.<sup>193</sup>

*I have never taken  
any exercise  
except sleeping  
and resting.*

Mark Twain

### 5.3.8 The Obese

The sedentary lifestyle related to absence of physical exercise is usually considered to be the cause of obesity. This aspect of obesity is discussed briefly in Chapter Six., but for emphasis, and to bring the idea to its own seriousness within the analysis's of the

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<sup>192</sup> The Star, 21 November 2003.

<sup>193</sup> Department of Health Statement, 1 July 2003.

culture and power prism, the “homebound-ness” is not necessarily an agoraphobic prelude

In this subsection the obesity that is referred to is that over which the individuals have no control, and may be triggered by a different set of circumstances that inform lack of physical exercise. This does not also mean that the castellated communities, whose boom gates do not only keep the supposed “intruders” out, but obversely keep the owners in, are free from these problems. These sets of circumstances may include:

- Genetic inheritance;
- Psychological factors;
- Socio-economic factors;
- Poor diet;
- Diabetes;
- Emotional problems - depression often causes people to turn to food for comfort
- Thyroid problems.

In transport, the obese face ridicule and shame because of their frames which cannot fit into the seats designed for both private and public transport in South Africa. The obese do not fit into the idealized individuals, whether this is in clothe sizing, shoe design, equipment manufacturing etc.etc. But it is in transport where their condition is used as a denial to accessibility and mobility is mostly exacerbated.

In public transport such as in the mini-taxi, the seating arrangement is determined by the size of the passenger in a particular seat, and mini-taxi drivers are averse to have obese passengers in their taxis as they are charged the same fare as normal passengers. In some cases, the obese have been required to pay for two passengers, much to their embarrassment and the amusement of the lean. **Most of the mini-taxis were designed for a market where passengers have a smaller frame,** usually the Japanese made vehicles, at both the seat and the vehicle balance levels. The picture on the left shows minibus taxis in South Africa.<sup>194</sup>

The construction and the space of minibus taxis might have been sufficient for the citizens of the country where they were designed, but they do not correspond to the conditions of South Africa.



Because of their exclusion, **obese people are often locked indoors** and do not have access to other amenities, including those that can help to reduce their condition. Under such circumstances, they are bound to be resigned to their fate. They eat more, watch television more and lack exercise.

In instances where the obese provide their own private transport, the seat sizes of cars are so small that they make driving an uncomfortable experience, and often decrease the level of concentration of the obese drivers. Because of their frames, driving and reaction times are affected, and when there is a need to vacate a vehicle in the event of accidents, it is difficult for the obese to react quickly.

Airlines have also complained about obese passengers, threatening to charge twice for plane seats that were made for a particular size of passengers. The position taken by Air France

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<sup>194</sup> Source: Department of Transport Photo Library.

about obese passengers paying for two seats was also supported by the International Air Transport Association (IATA) when it stated:

*"It is a commercial matter and also a question of the rights of other passengers. If the plane is full, you can't tell someone who paid for his ticket to get off on the pretext that another passenger is taking up too much space."<sup>195</sup>*

With the consumer issues being hotly contested within the aviation industry, the time for the South Africans obese passengers to mobilize may be now, in light of the fact that the South African Airways (SAA) conducted a survey in 2003, in which it found that:

- The average weight of men, with their hand luggage was 91kg while for women it was 72kg;
- Men topped the scale out a whopping 97.6kg, about 6 kg heavier than they were five years previously.<sup>196</sup>

### 5.3.8 General Public vs Criminals

The inclusion of the general public as vulnerable people may send negative signals about vulnerability. It may also divert attention away from the categories mentioned above by subsuming them under the general public. It is mentioned here to indicate that in certain instances, people who suffer from criminal activities cannot be categorized as the cases that have been mentioned above, simply because criminals strike where least expected in a non-discriminatory manner.

Although the issue of crime in transport can be seen more as an issue for the police, a recent court hearing in Bloemfontein Supreme Court of Appeal (SCA),<sup>197</sup> called on the rail company to provide security for its passengers. Indeed, when by and large people think of travelling or using transport, they are more concerned with punctuality, costs, access and frequency. To the extent that the state has to bear responsibility for the safety of passengers, and for the continued support of those who become victims of crime should the courts decide so.

Two surveys conducted in South Africa highlight the issue of crime and the public transport:

Firstly, in a survey conducted for the eThekweni Municipality on safety on public transport, around one in ten victims said they were robbed either at public transport ranks or while travelling in public transport.<sup>198</sup>

Secondly, in a survey into people's perceptions of security and crime on public transport conducted by the United Kingdom Department of Transport (UKDOT), the apprehensions spanning race, age, gender and ethnic group found the following:

- Men who are more likely to be victims of violence and robbery, felt more fearful of the presence of groups of other men;
- Women, who were more likely to experience harassment or sexual assault, are more concerned about the behaviour of lone men;
- Younger people were found to be most likely to experience being threatened or stared at in a hostile and intimidating manner;

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<sup>195</sup> Dispatch on Line, 21 August 1999.

<sup>196</sup> Pretoria News, 2 September 2003. The Star, 2 September 2003.

<sup>197</sup> The Citizen, 10 September 2003.

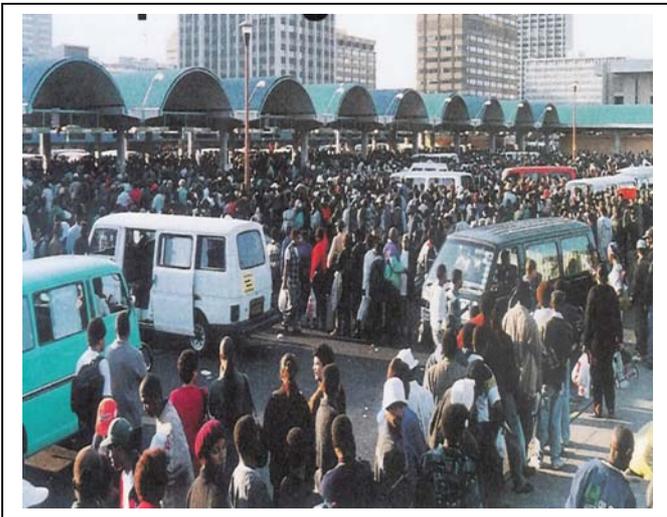
<sup>198</sup> Reducing Crime in Durban: A Victim Survey and Safer City Strategy

- Ethnic minority passengers felt further exposed to the wider experience of racial harassment and therefore likely to have concerns, but were less likely to report any incidents;
- Disabled people felt particularly vulnerable to the threat of crime where access to transport is limited via poor lit, isolated areas.<sup>199</sup>

In South Africa, the situation is unlikely to be different from these survey findings as **ethnic minorities, the disabled, the elderly and the young suffer from the same societal vulnerabilities that are found throughout the world.**

A trade union, the South African Transport and Allied Workers' Union (SATAWU) went on strike to complain about violence against their members on trains.<sup>200</sup> Train drivers and other train workers had been assaulted by passengers in the past because the trains were late.<sup>201</sup>

The lateness of trains adds another dimension of joblessness, which incrementally increases the vulnerability of passengers to other forms of lack of well-being, linked the broad-based meaning of health, namely unemployment. This was the case in September 2003, and other later dates, when trains passengers reportedly lost their jobs due to trains repeatedly arriving late.<sup>202</sup>



Trains are not the only mode of transport which cause passengers to be late. In taxi ranks, peak hour passengers also face similar problems, and in order to make up for the time lost, passengers often require drivers to drive faster, or drivers themselves drive with the intention of making as many trips as possible during the peak hours, that is in the mornings and the early evenings. In some cases it is not the volumes of passengers which leads to congestion, but the way the rank infrastructure is build.

For control purposes, most ranks have only one entrance and one exit. While this makes it easier for authorities to close ranks when there is a need to bring order to the warring factions, its unintended consequence is the slow movement of taxis and long queues.

The exits of taxis and their entrance into the taxi do not assist commuters who want to reach their destinations or who want to connect with other modes of transport. This does not engender an intermodal split of travel patterns. Ranks, like the exit roads of townships built for control, require a revamp, creating easy access and exit, reducing delays and congestion. In the sent, taxis do not respect ranks, and there are often spill-overs to roads near taxi ranks that cause inconveniences to other road users. The picture above shows congestion at a taxi rank.<sup>203</sup>

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<sup>199</sup> [www.dft.gov.uk/stellent/groups/dft\\_mobility/documents/page/dft\\_mobility\\_032765.hcsp](http://www.dft.gov.uk/stellent/groups/dft_mobility/documents/page/dft_mobility_032765.hcsp) - 31k

<sup>200</sup> The Citizen, 15 October 2003.

<sup>201</sup> Business IAfrica.com. Wed, 15 Oct 2003

<sup>202</sup> Sowetan, 03 September 2003.

<sup>203</sup> Source: Department of Transport Photo Library.

Violence also becomes endemic in instance where rail workers go on strike, either from the intimidation of passengers by the strikers or the criminal elements taking advantage of the situation. Another source of destruction are irate passengers who burn coaches and buildings because trains are running late, as it happened in the case of Pretoria Central Station on 19 February 2004 and it also happened in Daveyton Station in the East Rand on the week ending 17 September 2005.<sup>204</sup>

Fittingly, the Minister of Transport, inaugurated a Garden of Remembrance for the victims of a train stampede in the East Rand on 24 October 2005 during the October Transport Public Month.<sup>205</sup> The picture shows a revamped Pretoria Central Station after a fire that gutted it as irate passengers ran amok against the delayed trains.<sup>206</sup>



On 21 October 2002, at 21:00, four persons between the ages of 13-21 years old were found next to the railway line between Esplanade and Bay Junction stations in the Western Cape. Of these four, two were fatally injured and the other two injured were taken to hospital. It was suspected that they were thrown from a moving train.

Another view was that it could not be ascertained whether they were robbed, or whether they were the robbers who were thrown off the train by irate passengers. No independent source of this could be found by the writers, but the murder of people thrown off the trains either for criminal or political reasons before 1994 are well documented.<sup>207</sup>

Regardless of the reason for the deaths, **a moving train is also a source of possible death and safety breaches.** On the strength of its speed alone, people who find themselves inside an unsafe train (without closing windows and doors, are as exposed to danger as those who walk on the rail tracks.

**Human error such as negligence can also cause untold damage to rail passenger' safety.** In the case of Metro-rail on October 24 2003, Metrorail had to apologize after 34 commuters were treated for shock because of the negligence of the driver after the train collided with a stop bloc.<sup>208</sup>

In summing up the whole safety and security scenario in the railways, Honey Mateya, Chief Executive Officer (CEO) of Metrorail, stated a number of factors such as:

- Passengers standing between carriages;
- Passengers blocking doors from closing;
- People burning trains when they do not arrive on time;

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<sup>204</sup> The Sunday World, 18 September 2005.

<sup>205</sup> SABC Television News, 24 October 2005.

<sup>206</sup> Source: Department of Transport Photo Files.

<sup>207</sup> For instance see the Truth and Reconciliation Report.

<sup>208</sup> Sowetan, 17 November 2003.

- Children sitting on railway tracks;
- Thieves forcing the train to halt so as to loot passengers;
- Cable theft;
- Driver fatigue;
- Retrenched drivers not being replaced;
- Low staff morale;
- Implementation of affirmative action policies,<sup>209</sup>
- 200 informal settlements on Spoornet land next to rail lines.<sup>210</sup>

The **road users taking the law into their hands** is not only limited to trains. It can be extended to the taxi industry as well. In spite of perceptions against themselves as unprofessional and dubious of customer friendly conduct, taxi drivers have worked to protect their passengers against criminal elements. In the case on Church Street Pretoria for instance, a group of taxi drivers assisted the police in arresting a suspect who was part of a gang that had robbed a Pretoria businessman of nearly R2 million.

One taxi driver stated:

*"We, like any other businessmen, are running a business here and do not need criminals destroying our livelihoods."<sup>211</sup>*

Another disturbing growing trend is **road rage** (which has been mentioned elsewhere in this document). Although derided as a figment of the imagination of the sensationalist media,<sup>212</sup> it cannot be argued that personal pressures and reactions to nuisance on the road have turned certain drivers into threats against other road users. This form of violence cannot be easily detected or prevented, except through inculcating the culture of tolerance amongst road users. It would also require that all road users respect the road etiquette through respect for road signs.

In its advice on beating road rage, Linda Ledi, Managing Director of Drivers and More, an employment services consultancy agency in the transport industry gives various tips from music to avoiding eye contact, and further advises that:

*"by implementing your anti-road rage programme you will enjoy your driving once more.. Your proneness to error and accident falls, as your aggression drops, so will your fuel bill."<sup>213</sup>*

Neither can it be ascribed to traffic offence on the road, as a myriad of other conditions and instances outside the road could cause these reactions.

In the case of the road rage case in October 2003, the incident was so minor, (a motorbike struck a side mirror of another driver) as to cause road rage on its own.<sup>214</sup> In another case<sup>215</sup>, where the driver could have driven away and "not exceeded the limits of self defence" as noted

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<sup>209</sup> The Citizen, 23 October 2003.

<sup>210</sup> The Citizen, 29 August 2003.

<sup>211</sup> Pretoria News, 20 November 2003

<sup>212</sup> Shukai A. 2003 Technical Report: An Exploratory Study of Road Rage, Aggressive Driving and Other Hazardous a representative sample of During Behaviour among A representative Sample of Motorists in Durban. MRC UNISA Crime, violence and Injury Lead programme. Durban.

<sup>213</sup> Inside DOT: Volume 2/2002, Page 16.

<sup>214</sup> The Star, 9 October 2003. Kroeger vs Matekane Case

<sup>215</sup> Saunders vs Marck Combrink and Marc Walden, Pretoria News 9 October 2003.

by the sentencing magistrate, the matter was also minor. This does not mean the scourge will end as in certain instances it is road users who are in the right who get abused by those who are in the wrong.

The road rage debate is still fairly new in South Africa, and studies about these issues are pretty much at a nascent stage. A study by Anesh Sukhai in the Durban area considers road rage to be an

*“uncontrolled anger displayed by a motorist in the form of threatening/intimidating behaviour or assault on the road. This may be directed at another driver, vehicle or object.”<sup>216</sup>*

She goes further and makes distinctions between road rage, aggressive driving and other high risk driving behaviour or other hazardous driving behaviour.

In a survey conducted by the Medical Research Council (MRC) in the Durban area, it was found that one quarter of those interviewed said they had experienced extreme forms of road rage in the past year (2002) including:

- A driver getting out of the car to argue with them (717.8%);
- A driver getting out of the car to hurt them (5.1%);
- A driver deliberately colliding with or damaging their car (9.2%);
- Being shot at or having a gun pointed at their car (5.9%)<sup>217</sup>

Possible harm to the general public is not confined to trains and land based transport, but also includes possible harm in aviation. **The very nature of possible harm in the air is exacerbated by the fact that the mode itself may, in the event of a crash or a disturbance, cause more harm than an unruly passenger.** What consoles is that international aviation rules are stricter than other modes, just as was the case of an arrest of a passenger who had tried to enter the cockpit during an SAA flight to the United States who was arrested in Atlanta in September 2003.<sup>218</sup>

The general public is also exposed to indirect forms of criminality such as the **theft of traffic light controls for resale to scrap dealers.** Sold at about R10 per aluminium door off a control box for traffic lights, vandals expose motorists to damaged controls to the tune of R70 000<sup>219</sup>, because once the computer mechanism has been damaged it has to be replaced at this huge cost.

There are three other criminal activities to which motorists are vulnerable to, but these will be mentioned and not discussed. These are:

- Carjacking;
- Smash and Grab;
- Tailgating;
- Chop shop operations.

### 5.3.9 Other Forms of Exclusion

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<sup>216</sup> Shukai, A. Ibid

<sup>217</sup> Pretoria News, 21 August 2003.

<sup>218</sup> The Citizen, 19 September 2003.

<sup>219</sup> Pretoria News, 17 September 2003.

**Transport is not running to the right places.** In most cases transport competes with other modes in the same transport routes, and all transport modes exclude places that are excluded. In other words transport providers are not innovative as to start new routes, and those bold enough to start new routes with initial losses, are suddenly flooded by other competitors once a route is seen as profitable.

**Missing links in road and rail and public in transport facilities.** Connections are either left unfinished for political reasons, and were either under developed under apartheid. The South African road landscape is replete with roads the end nowhere, and train routes that leave out populous areas. In the provision of roads, the end of the tarred road is normally in affluent suburb and the connecting gravel road leads to the underdeveloped and poor areas.

**Investment opportunities are encouraged by the existence of transport facilities.** These under developed are underprivileged areas do not attract investment as a result, and their condition are caught in a vortex of poverty and deprivations.

**The best services are located in places where only those with private cars can reach them.** For the poor who want to access services that are expensive anyway, they have to pay more money for transport to those facilities.

**Spending on health environmental protection and transport has been skewed in favour of those who can afford** it because they are more vocal in the aggregation of their interests.

**Redlining of certain suburbs** decreases their value and thus decrease the prospect of capital investments and the movement of professionals who provide valuable services, such as doctors, accountants etc. to these areas.

### 5.4 Government's Response

The Cabinet approved a commissioned a study, conducted jointly by the Council for Scientific and Industrial Research, the Human Science Research Council (HSRC)(and the Centre for the Study of Violence and Reconciliation (CSVR) to look into crime and crime prevention in the transport system The end product, a 300-page research report, found that on-board crime was crippling the transport industry and suggested ways to eliminate crime in the transport system.<sup>220</sup> According to the study:

*"A feeling of helplessness exists among the users of public transport, as well as the providers of the transport,.....It was found that the modus operandi of criminals depends on economic opportunities and that all users of public transport are potential victims."*

The late Minister of Transport, Mr Dullar Omar committed Government to the national goals of infrastructure development, safety on the rail network, job creation, public-private partnerships, Black Economic Empowerment and Skills Development. This was at the re-opening of the revamped Pretoria Railway Station which had been burnt by irate passengers who were complaining about the poor trains service.<sup>221</sup>

(The picture below<sup>222</sup> is of Ms Maria Ramos Groups Chief Executive of Transnet. The more women can involved in transport issues, attitudes against them in transport may be reduced.

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<sup>220</sup> [http://www.csir.co.za/plsql/ptl0002/PTL0002\\_PGE038\\_ARTICLE?ARTICLE\\_NO=4790138](http://www.csir.co.za/plsql/ptl0002/PTL0002_PGE038_ARTICLE?ARTICLE_NO=4790138)

<sup>221</sup> <http://www.info.gov.za/speeches/2002/02062410461001.htm>

<sup>222</sup> Source: True Love Magazine, June 2004. Page 102.



The South African Rail Commuter Corporation (SARCC) has deployed dedicated teams to provide security and these teams provide the following:

- Medical assistance to injured commuters;
- Armed response on SARCC infrastructure;
- Removing trespassers from SARCC property;
- Reporting and intervention in terms of acts of sabotage and violence;
- General crime prevention patrols on stations;
- Development of intelligence capability;

The strategy by Government and the SARCC to reduce crime on trains revealed its success by indicating the number of people who had been arrested and the decrease in criminal activities. The number of people arrested were as follows:

- Arrested cable theft syndicates with SAPS. (Syndicates also involved in other criminal activities such as drug trafficking, etc.)
- 28 perpetrators arrested;
- Recovered stolen property;
- Cable theft decreased in the study area from an average of 45 incidents per month, to zero incidents for three consecutive months.

In a response to a question at the National Assembly, the Acting Minister of Transport reported that between October 2002 and December 2002 the decrease in criminal activities were reported as follows:

- Serious crime-related incidents - Decreased 63%;
- Serious liability incidents - Decreased 60%;
- Murder - Decreased 63%;
- Attempted murder - Decreased 63%;
- Assault - Decreased 58%;
- Robbery - Decreased 53%;
- Asset damage - Decreased 20%.<sup>223</sup>

## 5.5 Policy Guidelines

In spite of the above-mentioned measures, the following measures should either be enhanced or established:

- Enforcing train punctuality;
- Clear signage, presence of staff, CCTV and help points;
- Information desks about the services provided to give real time information;
- Local street maps, clear signage taxi ranks and public premises nearby;
- Transport operators to work in partnership with law enforcement officers;
- Travelling in groups;
- Lit pedestrian walkways;

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<sup>223</sup> Parliamentary Monitoring Group, 23 October 2002.

- Ensuring doors are closed before trains depart;
- Replacing windows with vandal proof composite materials;
- Investigating the testing of an alarm panic button on trains;
- Re-deployment of security guards.

The efforts of the Government to fund the hydraulic modification of buses for easy access through wheelchairs require to be augmented to include floor heights of about 550 mm, lower and wide steps<sup>224</sup>, good handrails, stanchions and colour contrasts for easy visibility by the visually impaired passengers.

Generation of qualitative and quantitative gender disaggregated information to provide policy makers with adequate and reliable when formulating transport policy interventions.

In problems of accessibility transport practitioners should ensure that their work is cross-sectoral. Accessibility should be made easier by the availability of information, enough financial resources, and infrastructure development in such a manner that not inordinate demands are made on the users.

In terms of statistics as they relate to transport, those accidents which happen in rural areas, such as **tractor accidents should also be included in the statistics as the failure to include them complicates what is already a condition of marginalization.** This will assist in removing farm-workers and most rural people from being the objects of ownership by intransigent farmers. This requires a new definition of tractors, and their re-categorizations as transport medium rather than a farm implement. One of the areas of the concentration of the Department should be to work with the Department of Agriculture in assuring that tractor drivers are accordingly licensed.

**More studies should be conducted on the ergonomic requirements of the physical design of buses, terminals, walking areas and terminals.** Ergonomics should be extended to educating passengers and drivers on appropriate sitting positions so as to reduce stress during driving and travelling. These studies should be undertaken with the correct understanding of the South Africans' anatomy, posture, climate and body mechanics of walking, driving, sitting, and standing.<sup>225</sup>

**In the maintenance of infrastructure, transport practitioners should actively involve the needs of men, women and the disabled.**

There should be Gender-blind advocacy for transport interventions<sup>226</sup> informed by a greater understanding of the non-sexist nature of transport as a medium of the economy. For the research or policy division of the Department of Transport, there will always be a need to integrate women in transport either through research or active intervention and formation of women's forums.

For all the vulnerable categories mentioned above, the use of Intelligent Transport Systems (ITS) should be explored. Among these intelligent systems could be those that assist with the following:

- Infra-red beacons to transmit messages, hand held location and guidance systems to assist the visually impaired

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<sup>224</sup> The Potential of Transportation Systems To Increase Accessibility Transport for Elderly People. Transport Canada,(TPE 12926E)

<sup>225</sup> For an elaborate understanding of the topic of ergonomics, please see Bridgers, R.S. Introduction To Ergonomics: McGraw Hill International: (General Engineering Series).

<sup>226</sup> Fernando, P and Porter, G eds. (1996) Balancing the Load: women, Gender and Transport. Zed Books: London : 1-291.

- Person detectors at intersections that extend the crossing time for the elderly and the disabled people
- Real time transit information that can be available on television while the traveller is still at home (i.e. before undertaking the trip)
- Visual displays of information at bus stops which will reduce anxiety and stress
- Displaying the name of the next bus stop inside the bus or train so that alighting passengers should prepare for off boarding;
- Inductive loops inside the coach or train to assist the hearing impaired to listen to public address announcement;
- Smart card payment system that can be used across the transport modes;
- Systems that can assist the elderly with navigational guidance, traffic information and emergency alerts;
- At a traffic management level, traffic authorities may have to follow the example of the Blue badges, 2 million of which have been issued in the United Kingdom allowing the disabled users to park in certain areas designated for the mobility impaired drivers.

## CHAPTER SIX: THE ROLE OF PHYSICAL EXERCISE.

### 6.1 Introduction

Going back in time, there seems to be a growing awareness that the effects of technology wind the clock back to the ancient modes of transport for health reasons. The irony of this situation is that when in the developing states walking and cycling are more for necessity rather than deliberate health induction, in the developed world it is seen as an avenue away from the sickness inducing comforts of advanced technology.

*"Technology made large populations possible; large populations now make technology indispensable."  
-- Joseph Wood Krutch (1893-1970),  
American critic, naturalist, writer,  
"The Modern Temper"*

It is moot that the poor who walk are all the better for it. In other words, walking, although healthy, should be done in beneficially limited doses. **We should take into account that healthy lifestyles rely on affordability of the other necessities of life**, and the poor who walk of necessity do not have the benefits of the other luxuries such as good diet, affordable housing and potable water. In the absence of these, the practice of forced walking itself compounds rather than resolves poverty.

Motivated by the Brazilian experience of the *Agito Mundo* Programme and the findings of the 2002 World Health Report, on 26 May 2005, **The Department of Health launched the Move for Health Day campaign as part of government's health promotion initiative** that advocates the development of interventions to reduce the prevalence of chronic diseases of lifestyle in the country. This would be achieved by the creation of awareness among our communities on the benefits of physical activity in maintaining healthy lives and controlling lifestyle diseases.<sup>227</sup>

This Chapter looks at walking and cycling as alternatives to use of motorized transport, particularly its health benefits. Two immediate benefits have been mentioned in the previous chapters. The first one is that cycling and walking reduce the exposure of walkers and cyclists to the effects of transported related noise, fumes and accidents. The second one is the benefits of the above-mentioned activities, notwithstanding the reservations about lack of choice for the poor indicated in the previous paragraph. We intend to expand on these benefits, with particularly emphasis on the health benefits emanating from these two activities.

### 6.2 Obesity in South Africa

In her study of the South African dietary patterns, Jane Badham has observed the increasing prevalence of overweight and obesity among South African adults is also of great concern -- as a risk factor for the development of chronic diseases of lifestyle (most commonly hypertension, heart problems, cancer, non-insulin dependent Diabetes Mellitus, and stroke) and because of its ability to increase mortality rate by 50% or more. Mortality from chronic diseases of lifestyle is predicted to increase as life expectancy improves.<sup>228</sup>

**Being overweight and obese is also a concern in found children.** The study conducted by the Medical Research Council Specialist, Dr Nella Steyn found that one in four children surveyed watched four or five hours of television everyday.<sup>229</sup>

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<sup>227</sup> Statement from the Department of Health, 26 May 2005.

<sup>228</sup> Badham J. 2000. Relaunching An Old Product In New Packaging: An Introduction To Food Based Dietary Guidelines

<sup>229</sup> The Star, 20 September 2005.

According to the Cojjo Publications, People With Diabetes<sup>230</sup>, the Diabetes Prevention Program found that diet and exercise resulting in a 5- to 7-percent weight loss lowered the incidence of type 2 diabetes by 58 percent. Participants lost weight by cutting fat and calories in their diet and by exercising (in fact, most chose walking) at least 30 minutes a day, 5 days a week.

A study conducted in 1998 revealed that 9% of South Africa males and 29% of women can be classified as obese with a BMI 30 level or above.<sup>231</sup>

But the above figures are different from the one conducted by Thandi Puoune et. al.<sup>232</sup> In a sample of 13,089 men and women (age,  $\geq 15$  years) were randomly selected and then stratified by province and urban and non-urban areas. Height, weight, mid-upper arm circumference, and waist and hip circumference were measured. Body mass index (BMI) was used as an indicator of obesity, and the waist/hip ratio (WHR) was used as an indicator of abdominal obesity. Multivariate regression identified socio-demographic predictors of BMI and waist circumference in the data. On the left picture are three obese women contestants for a competition known as Grootgat Godin beauty contest.<sup>233</sup>



The results showed mean BMI values for men and women were 22.9 kg/m<sup>2</sup> and 27.1 kg/m<sup>2</sup>, respectively. For men, 29.2% were overweight or obese ( $\geq 25$  kg/m<sup>2</sup>) and 9.2% had abdominal obesity (WHR  $\geq 1.0$ ), whereas 56.6% of women were overweight or obese and 42% had abdominal obesity (WHR  $> 0.85$ ). Underweight (BMI  $< 18.5$  kg/m<sup>2</sup>) was found in 12.2% of men and 5.6% of women. For men, 19% of the variation of BMI and 34% of the variation in waist circumference could be explained by age, level of education, population group, and area of residence. For women, these variables explained 16% of the variation of BMI and 24% in waist circumference. Obesity increased with age, and higher levels of obesity were found in urban African women.

Another survey, The South African Youth Risk Behaviour Survey (YRBS) conducted among grades 8-10 indicates that; 17.2% of adolescents were overweight, and more female (5.3%) than male (2.2%) were obese. The survey also found that a third (37.5%) of learners performed too little physical activity to gain any health benefit in terms of sedentary behaviour, 1 in 4 learners (25.2%) watched television or played video/computer games  $\geq 3$  or more hours per day.<sup>234</sup>

Klugman in "Imperatives for Health Systems Reform Imperatives for Health Systems Reform" has given the following statistics.

Population group	Male	Female
White	14.7%	18.0%
Coloured	6.1%	25.9%

<sup>230</sup> Cojjo Health 24/7, 22 November 2002.

<sup>231</sup> People, Places, Issues: Everything That's Happening In the World of Obesity International Association for the Study of Obesity. 5 Issue 1 2003.

<sup>232</sup> Puoane, T. et.al. Obesity in South Africa: The South African Demographic and Health Survey

<sup>233</sup> www.bigflatblog.com.archives.001102.php.

<sup>234</sup> Reddy S.P.. et .al. Umthente Uhlaba Usamila: The South African Youth Risk Behaviour Survey 2002. Cape Town. The South African Medical Research Council, 2003.

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Indian	3.2%	21.6%
African	7.9%	34.4%

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### 6.3 Other Diseases

The space is not sufficient to explore all the forms of disease that come about as a result of traffic, but there are those disease which are spread by the speed with which modern transport modes move. In the past disease could be confined to one area, and as such limit the number of people exposed to the. Travel restrictions due to non-affordability or the outmoded ness of the transport mode, has a positive spin offs in such instances.

In the case of avian flu in the East China and the severe acute respiratory syndrome (SARS) epidemic in the Asia Pacific, not only did the airline industry faced a \$6.5 billion loss,<sup>235</sup> but through travel, many people were contaminated with the disease. When travellers fear to travel, the GDP of those countries and their destinations which rely on tourism as a greater percentage of the GDP, become affected.

### 6.4 General Physical Activity

Health research institutions and the World Health Organisation have come to incontrovertible proofs that physical activity has numerous health benefits among which are the reductions of heart diseases, high blood pressure, stroke, cancer, diabetes related diseases, while increasing mental health and well being, cognitive functions, air quality.

In one shocking study in Hong Kong, in China, one research found that life of physical inactivity, i.e. life as a couch potato is more deadly than smoking, according to new research which found more people in Hong Kong died from lack of , than from tobacco consumption. The study of Hong Kong residents aged over 35 who died in 1998 found a lack of physical activity caused more than 6 400 deaths a year, compared with just over 5 700 from smoking, the South China Morning Post reported on Saturday.<sup>236</sup>

Although there are no reliable figures for physical activity in South Africa, a Medical Research Council (MRC) Report, estimated that 56.5% of adults age 15-64 years need to change to a healthy lifestyle and that 16.5% fall into a high risk category that need to be diagnosed and managed. These determinants demonstrate the many factors affecting health, and help clarify the bi-polar nature of the epidemiological transition in South Africa.<sup>237</sup>

#### 6.4.1 Physical activity and mortality

In a study *“Plasma Fatty Acid Levels in South African Interethnic Male High School Pupils About Different Ultimate Risks Of Coronary Heart Disease”* conducted by Chetty N, Naran NH, Walker AR, Seftel HC, Joffe BI, and Raal FJ. of the Department of Haematology, School of Pathology, South African Institute for Medical Research, Johannesburg<sup>238</sup> it was concluded that while coronary heart disease (CHD) is responsible for about a quarter of deaths in South African white, coloured and Indian populations, the rate is very low in the black population.

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<sup>235</sup> Business Report, 20 June 2003

<sup>236</sup> Independent On Line July 24 2004

<sup>237</sup> Klugman B. Imperatives for Health Systems Reform Imperatives for Health Systems Reform

<sup>238</sup> Chetty, N. et al. Plasma fatty acid levels in South African interethnic male high school pupils at different ultimate risks of coronary heart disease. South African Institute of Medical Research.

Dietary risk factors for CHD include high intakes of saturated fatty acids and cholesterol, with low intakes of mono and polyunsaturated fatty acids.

According to Health 24 News<sup>239</sup>, a small new European study adds to the growing body of evidence that exercise can stave off mental decline in older people. The 290 participants, all men, were between the ages of 70 and 90 when the study began in 1990. They were asked about such physical activities as walking, gardening, bicycling, and sports.

Ten years later, the researchers found that the reduction in mental ability, as measured by a standardised test, was 2.6 times greater in the men who reduced their activity by an hour or more a day compared to those who maintained their activity level. The situation in South Africa is unlikely to be different.

### 6.4.2 The Charter For Physical Activity and Sports

To deal with childhood obesity in South Africa, a Charter for Physical Activity and Sport for Children and Youth into South Africa was introduced in 2004, with Professor Kader Asmal as its patron. Among the key points highlighted in the Charter are the following:

- All South African children and youth have a fundamental right to be physically active and to play sport;
- Parents, sporting organisations, local and national government, non-government and non-profit organisations, clubs, schools, the private sector and other key role players should work together to provide opportunities for children and youth to participate in safe physical activity and sport;
- Institutions providing physical activity and sport in **an educational framework must assume shared responsibility for the provision of appropriate physical activity**, human movement and sport for children and youth in safe, healthy and effective environments;
- Government, in partnership with the private sector and communities, must provide appropriate and sustainable infrastructure and safe access, facilities, equipment and, where appropriate, transport for all children and youth to be physically active and participate in sport.
- **The protection of children and youth participating in physical activity and sport at all levels, including those children performing at an elite level, is essential and participation in physical activity should be given equal recognition to winning.**<sup>240</sup>

### 6.4.3 Gyms in South Africa

The general physical activity in South Africa does not escape the perennial divides of opulence and poverty. Physical activity awareness will have to be inculcated in order to reverse the following problems in the South African physical activity deficit:

- Gyms and the high-flyer image related to gyms and physical fitness distorts the affordability of physical. It is linked to designer clothes which further limits the affordability among the poor;
- Gyms are located in inaccessible suburbs such that the poor cannot access them;
- Fees are linked to status and wealth and the lock-up contract periods marginalize the poor;
- In spite of linking up gym membership to other benefits, such as free magazines, the following benefits of exercise are not well publicised:

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<sup>239</sup> Exercise keeps old mind Healthy, Health 24. December 28, 2004

<sup>240</sup> <http://www.health24.com/news/Fitness/1-911,31438.asp>

- ✓ Health;
- ✓ Physical fitness as an employment opportunity;
- ✓ Add on benefits to sport activity fitness.

- At factory level, the working conditions and perks which include gym are allocated to the highly paid leaving the rest of the workers without this healthy benefit. Top management can also be allowed to take time of to attend to their gym sessions;
- Companies are more amenable to perks that are health reducing such as bars than those that enhance health and life like in company gyms;



- With an eye for tax rebates, sport sponsorship by company targets well-placed and marketable sportsmen and women than their own employees. The picture on the left on the left shows this trend.<sup>241</sup>
- Blacks find solace in age bound physical activities such as soccer, and the facilities are usually not sufficient to cater for all interested.

The myth about physical activity being an elitist occupation should be debunked. This will require that physical fitness be described broadly, and not only limited to gyms.

**In effect, all categories of people, including the physically disabled have the ability to be involved in physical activity, which may include, walking, carrying own luggage, walking, work and this should be done liberally, without total involvement but enough to reap health benefits from these activities.** One such physical activity, the in flight physical activity, can reduce fatigue and increase blood flow between the heart and the legs. This may include such exercises as foot pumps, ankle circles, knee-lifts<sup>242</sup> etc.etc.

Ordinary people and sport associations should begin to adopt, and engage the Sports Transformation Charter which seeks to spread sports across all racial and urban rural divides. The Charter's all encompassing aim is to

- Increase the participation levels in sport and recreation;
- Make sport and recreation accessible to all South Africans, and
- Promote greater involvement of marginalized groups, such as women, people with disabilities, people living in rural communities and the youth in sports and recreation.<sup>243</sup>

## 6.5 Cycling

Previously considered as the low order mode of transport, the benefits of cycling to health has made a come back.

Commenting on the need for the cyclists to take it upon themselves to improve their safety standards, Sean Badenhorst, editor of the Bicycling Magazine, also emphasised the role of parents when he stated:

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<sup>241</sup> Picture Source: Sport SA. Official Yearbook of South African Sport, 1997.

<sup>242</sup> Sawubona Magazine, July 2004

<sup>243</sup> Sports Transformation Charter

*“Our children don’t ride to school anymore... I have a son and I wouldn’t allow him to ride to school because it is too dangerous. Something has to be done to change the situation and it should start with us cyclists.”<sup>244</sup>*

Another cyclist complains about the safety on the roads. A concerned cyclist in Pretoria complained that both of his knees were badly damaged as a result of an inconsiderate car driver on a normal suburban road and this was not attributed to the cyclist’s non-adherence of road rules. His main point was that there was a general deterioration of roads, an increase in road traffic and general unavailability of proper usage areas exclusive to cyclists, pedestrians and roadrunners.<sup>245</sup>



There is also a general negative attitude towards cyclists from motorists, as it was the case when the Pick n’Pay Cycle Challenge organisers were blamed for having disrupted traffic, even though the funds that are raised at this event are for a worthy cause. Asking the motorists to be patient, the event organiser, Bongi Mokaba, requested Johannesburg motorists to accept the Cycle Challenge as part of Johannesburg Sporting Calendar.<sup>246</sup> The picture on the left shows a boy with a cycle.<sup>247</sup>

Another cycling sport day analysis, the Cape Argus, revealed that over 35 000 bicycles took part in this race. Cycling as business was also booming because

*“including children’s models, up to 300 000 bikes are sold each year through retail outlets. A customer survey at Game and Makro stores late in 2003 revealed a huge shift to the black market. In 1997, Blacks accounted for only 15% of sales of children’s bicycles. Now they account for 60%.”<sup>248</sup>*

Over and above the health benefits of cycling, there are also benefits of access to other services such as education. In the case of the Limpopo Department of Education, the provision of bicycles to students in the Waterberg District, the 1848 pupils who received bicycles from the transport education have raised the number of enrolled children at 25 schools. According to the spokesperson of the department:

*“The problem wasn’t that the children were not enrolling because they hated school, but because they didn’t have transport. It’s worked so well that principals are now asking for even more bicycles.”<sup>249</sup>*

But the health benefits of cycling should not make South Africans oblivious to some of the dangers that persist on South African roads, either from the cyclists themselves not obeying traffic regulations or being victims. This point will have to be re-emphasised that although

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<sup>244</sup> Pretoria News, 12 September 2003.

<sup>245</sup> Pretoria News, 1 July 2004.

<sup>246</sup> The Star, 15 November 2003.

<sup>247</sup> Source: [www.fotoserach.com/comp/CRT/CRT119/003339AT.jpg](http://www.fotoserach.com/comp/CRT/CRT119/003339AT.jpg)

<sup>248</sup> Financial Mail, April 16, 2004.

<sup>249</sup> Mail and Guardian, June 24 to 30 2005.

compared to other modes cyclist deaths are the lowest, most of them who become victims are under the age of 30, a quarter of which are in the age group 10 to 19.<sup>250</sup>

## 6.6 Walking

We have interchangeably linked cycling and walking in the previous paragraphs. This short section seeks not to negate the previous mention of walking, but only to emphasize it as the most accessible mode if it is considered that cycling as a mode has some financial constraints attached to it, particularly for the poor.

*You have to stay in shape. My grandmother, she started walking five miles a day when she was 60. She's 97 today and we don't know where the hell she is.*  
Ellen DeGeneres

As opposed to other forms of physical activity, walking also has advantages:

- It is a free exercise for everybody including the poor;
- If it is done away from the other modes of transport, preferably on footpaths and trails, it is the safest method of physical exercise;
- It is environmentally-friendly as there are no toxic emissions;
- It allows walkers to mingle with other people of the community which could not be achieved through the other socially exclusive modes.

Walking and its benefits have not escaped the benefits of being scrutinized for its benefits on its own people. At a promotion level, walking dominates tourism brochures rather than being integrated into transport planning systems of the cities and metros. The promotion becomes limited to the tourist who comes to South Africa to escape the deleterious effects of motorized transport. Yet the reality shown by the National Household Travel Survey (NHTS) is that a total of 81,05 of people walk to their nearest shop, 43,0% to their traditional healer, 40,7% to their medical service, 49.9 % to their tribal authority, 30,9% to the police station and 27.5% to their municipal offices.<sup>251</sup>

The recreational effects of walking should not be dismissed in totality. To the extent that it does have positive health benefits, it should be seen as a way of an extended version of the rudimentary transport to a more sophisticated aspect of healthy lifestyle encouragement. Walking briskly for 30 minutes per day can halve the risk of developing heart disease (the same effect as not smoking). This level of physical activity also reduces by 50% the risk of developing hypertension. It has similar effect to that of using certain medicines to lower blood pressure.<sup>252</sup>

Commenting on how the design of roads in South African support mobility for the rich and compromises public transport, Brian Williams of the UN Centre for Human Settlements (Habitat) in Nairobi Kenya observed that:

*"Many of the mistakes made in the first world are being repeated in developing countries. Quite a few of them I have witnessed first hand in Cape Town. For instance, your transport system has been orientated to the needs of private automobile user when the solution to mobility lies in public transport and more environmentally friendly transportation modes such as bicycling and walking. This leads to a situation where people's only option is a private automobile trip," commented Williams. ....Cape Town's massive highways which weave through the downtown area enable wealthy residents to zoom in and out of city centre. They bisect neighbourhoods, are unsightly*

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<sup>250</sup> Report of the Road Accident Commission, Vol. 3 Page 117.

<sup>251</sup> NHTS Table 8.5

<sup>252</sup> [www.who.dk/eprise/main/who/progs/hcp/UrbanHealthtopics/20020107](http://www.who.dk/eprise/main/who/progs/hcp/UrbanHealthtopics/20020107).

*and very expensive – especially if you consider that only 20% of the population actually uses the road.*<sup>253</sup>

**Road design has not catered for both the walker and the cyclist, as the roads are meant solely for the use of vehicles.** Mostly in rural areas, walking is a transport of last resort, and if indeed it does lead to the healthier rural people, it is purely by default than the rural people's understanding of the health benefits of their walking.

There is hope that **walking will gradually take centre stage in promoting physical activity among the people of South Africa.** The changing demographics, which previously forced people living far away from towns and cities to walk, is now becoming a possibility with more and more Black people finding accommodation in cities and towns. In town, it is easier and more convenient to walk than to drive because people want to avoid congestion.

**There are also growing positive signals from the Government departments in using walking to highlight the other awareness campaigns, such as the abstinence walk,** addressed by the Minister of Transport and organized by the Department of Health in June 2003, or the Healthy Lifestyle Awareness Day on 25 April 2005 at Standerton addressed by the Minister of Health. There are a number of other walks that have been undertaken by the Minister of Health, including the one in Ntuzuma Durban.

The Department of Transport has highlighted the need for walking, among other things, and the use of public transport during its Transport Month in October. The "monthing" and the "decading" of health initiatives may be good for the Public relations, but the importance of these events is that they should be on-going and be able to change the culture and attitudes. The sustainability of these events will have to be investigated and sustainability measures be interrogated as part of the project.

## 6.7 Policy Guidelines

### 6.7.1 The Role of Schools

At a symposium on 'Kids, Nutrition and Healthy Lifestyle' in October 2004, it was estimated that one in five children is either overweight or obese. In South Africa this alarming problem is being exacerbated by the fact that most schools no longer feature sport or physical education as part of their curriculum.

The fatness is assisted by the problems of modern life: safety issues often prevent children from playing or taking part in sport; children who live in high-rise flats don't get to play and run around; children who are glued to their computer screens or sitting in front of the TV all day long also never get to burn up any energy.<sup>254</sup>

**Healthy lifestyles can be promoted within the school curriculum, but this will require that the parents of learners should be able to afford those healthy lifestyles.** The benefits of inculcating these lifestyles in the classroom cannot be overemphasized. Some limits should be observed, as overemphasizing the benefits healthy lifestyles may have an unintended consequence of marginalizing pupils whose parents cannot afford those lifestyles. They may and increase anxiety in the marginalized children, itself a state of being unhealthy, if we resort to the comprehensive definition of health by the World Health Organization (WHO).

**Parents need to be in contact with schools that provide canteen facilities about the type of foods that they give students, and to encourage teachers through their school governing bodies to include physical education in their curriculum.** Schools to reconfigure their curriculum to include physical education balance al education f emphasized and a balance between academic achievement and physical health should be struck.

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<sup>253</sup> Poverty and Mobility-Get On Your Bike. Press Statement, Department of Transport, 22 September 1998

<sup>254</sup> What Is South Africa Doing About its Fat Kids?, Health24.com./Pretoria News, 26 April 2005

The mindset of getting properly qualified physical education teachers have led to most schools, particularly in poor areas fail to include Physical Education, and the pressures of the modern life of prestige and materialism is pushing many students towards “cash” subjects, such as accounting and Information Technology, to the total disregard of the age-old correlation of “a healthy mind in a healthy body.”

This mindset falls into the **stereotype of physical education being elitist**, when in the actual fact physical activity may mean encouraging students to walk to school, and to change student class arrangements by making students walk to their different classes than to be in one class. In other words for students have to go to their teachers’ centres rather than the teachers coming to them. The five-minute walking in between subjects and lessons will reap tremendous physical benefits to students.

The Government sponsored school feeding scheme should also be monitored for the type and quality of food they provide to children as there may be a tendency by service providers to cut their costs by providing cheap and under nourishing food. This does not dispute the fact unhealthy food has to be cheap, and it may well be that expensive food, may be the least healthy compared to their cheaper counterparts.

### 6.7.2 Cycling Culture

At the launch of the Shova Kalula Project for the provision of about 5000 bicycles, the project leader, Mr Maikel Liewu Kie Song observed the benefits of cycling when he stated:

*“There are many trips that can be made by bicycle. It’s much quicker than walking and cheaper than driving a car. There are also secondary benefits, like the fact that it’s healthy and doesn’t cause pollution,”*

A proper bikeway planning process which will take into account:

- The inventory of Existing Biking Facilities;
- The development of Facility Proposals;
- The Evaluation of Alternatives;
- Plan Selection and
- Implementation Plan.

An analysis of travel characteristics which will take into account the following:

- The generation of bicycle trips based on the location of places of amenities;
- Trip types and purposes such as neighbour hood riding, commuter riding, recreational riding and sports riding;
- The analysis should include trip lengths, travel time and time of trips.

Terminal Facilities and Bikes way development to include among others

- Exclusive bikeways;
- Restricted bikeways and;
- Shared bikeways;

Physical Designs to facilitate cycling and walking such as

- Design Speed;
- Radius of curvature;
- Grade capabilities, Surface requirements and

- Intersections and crossings.<sup>255</sup>

### Policy Intervention

- Availability of scientific evidence for policy decisions and cost benefit analysis;
- Modal shift towards physical transport;
- Development of a Walking Strategy;
- Development of Ergonomic Guidelines For Transport.

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<sup>255</sup> Planning Criteria for Bikeways. American Automobile Association Traffic Engineering and Safety Department, Falls Church, Virginia

## CHAPTER SEVEN. ....IN THE FINAL ANALYSIS

### 7.1 Introduction

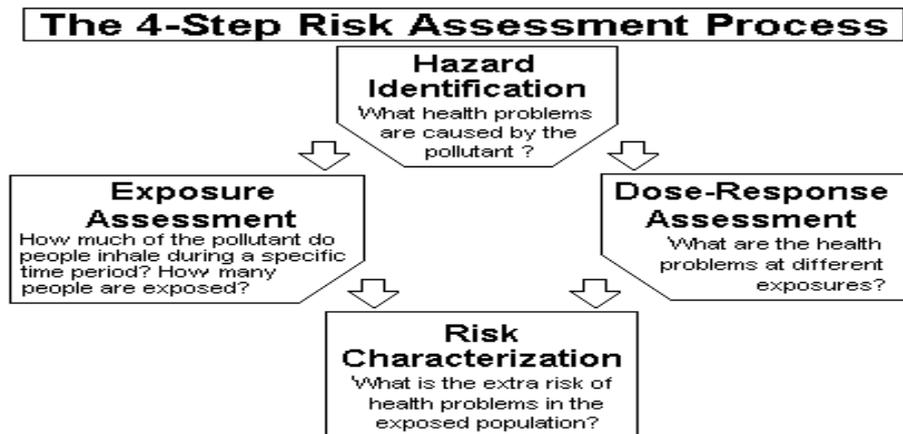
The preceding Chapters have tried to tease out relevant policy positions regarding the three variables. This Chapter interrogates an Ideal policy environment, given the constraints that exist within the South African fiscus regime, and in the second part it lists achievable policy changes, or those changes that are currently under way.

### 7.2 The “Ideal” Policy Environment

Given the fact that policy formulations should be based on reliable statistical data, South Africa, as a developing country, cannot provide accurate statistics to base its policies options on. **Like all developing countries, efforts should be made to use existing information, such as the exposed population, the transport industry, working hand-in-hand with professional bodies in acoustics management and the Deaf Association of South Africa (DEAFSA), at least interim noise management policy positions should be developed.**

Formulating transport, environmental and health policies within the South African context has to take into consideration that **some of these issues are concurrent responsibilities among the three spheres of government.** This co-ordinated approach has been duly dealt with in the earlier chapters of this document. There is a need for central government to give direction about where and how the other spheres of government should engage with these issues. **In some cases, the other spheres of government have moved faster and more authoritatively than central government.**

There is a need to consider the risk associated with transport over and above its convenience. In other words, risk should be taken as *fait accompli*, and efforts should be made to plan for risk in the likely event that it will take place, rather than not plan for it and find ourselves, as we now do, facing these risky situations. The following diagram points the way towards a risk assessment procedure which should be interrogated as one of the policy enhancing exercises.



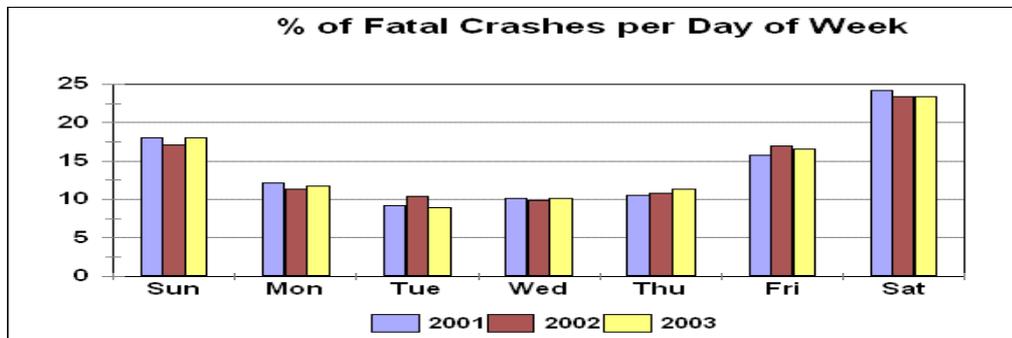
Source: Risk Assessment For Toxic Air Pollutants: A Citizens' Guide. Environmental protection Agency, 450/3-90-024, March 1991.

South Africa's advantage is that there are vast areas of forestry and empty stretches of land which is ideal to mitigate noise levels. The contouring and the geographical position means that noise levels in South Africa is not at the same level as that experienced in Europe. That being said, it would be ideal for the South African Government to consider the eventual

reduction of noise level by trucks to between 69dBA for motor vehicles to 77 dBA for cars and 83Dba for two-wheeled vehicles to 84dBA for trucks.<sup>256</sup>

Driven from any of the spheres, policy should be interrogated for the following before being promulgated:

- **Does the place and specific environment allow for the formulation of policy that would limit the environment or places ability to achieve its goals?** Laboratories, libraries, schools and sporting complexes cannot be subjected to the same limitations about noise levels. An office environment has added noise source which can be compounded by traffic noise, e.g. the rings of telephones, the air conditioners, photocopiers, clocks etc. etc;
- **Does the place get used maximally and at which time of the day or season or weekday is it used?** For example, road congestions in some cities in South Africa is higher on Mondays; there are more traffic incidences during the Easter and December holidays, and Wednesdays generally see the lowest number of users during the week. Each of these should be weighed against sensitivity to the environment. The following graph indicates the number of fatalities per day of the week, and the mid-weekdays show a reduction as a result of less traffic on the road. Many of the accidents take place on Saturdays;



Source: Arrive Alive.co.za

- Does the environment have the capacity to multiply noise in such a manner that road planning and land use should be reconfigured to mitigate this? For example the road gradient, the topography, the proximity of residential areas, all have to be taken into consideration for their environmental impact;
- Have **snap surveys of the demographics, age structure and health survey of the people likely to be affected by the noise been undertaken?** The elderly, the disabled and the children are likely to be quickly affected by noise pollution. In rural settings, an area where the population is largely women through migration) road use and congestion is likely to affect them more. In areas where school children use main roads to access schools, they are likely to be affected by road accidents and noise;
- **What research, information sharing, monitoring and public participation has been undertaken on the noise effects on health** and on noise reduction mechanisms? Are the spokespersons of the public view representing the public or themselves?
- Are there generally **agreed upon methods to monitor human exposure to noise pollution** so that an accurate comparative analysis can be made? What are the identical focus areas for monitoring methods sourced from different service providers? Are they balanced to cater for both the needs of business and the safety and health considerations for the other users?
- **Is enough data on exposure and health effects of noise** available to policy makers before they formulate policy? In other words do transport policy makers have access to

<sup>256</sup> See Article in [www.media.web.co.za/ArticleDetail](http://www.media.web.co.za/ArticleDetail)

health maps that show areas of vulnerability, or to environmentally sensitive areas where roads need to be built?

The final outcome of policy directives from the above questions should include legal instruments that will deal with the following among others:

- Control of noise transmissions through regulations on sound obstructive measures;
- Control of noise emissions to include standards for road and off road vehicles and standards for construction equipment;
- Speed limits in residential areas and near schools and hospitals;
- enforcement of regulations through the Low Noise Implementation Plans.

The following engineering measures:

- Emission reduction through noise modification to include tyre profiles, road surfaces and changes in engine properties;
- New engine technologies in road vehicles, aircraft and construction machines;
- Transmission reduction through enclosures around machinery and noise screens;
- Orientation of buildings through design and structuring for tranquil users and the use of buildings as screens against noise; Within the building orientation, the following<sup>257</sup> can also be used:
  - ✓ using dead-end streets and car-free malls as sites for residential complexes;
  - ✓ depressing freeways and arterial roads below the level of adjoining residential areas;
  - ✓ creating the maximum separation between roads and new buildings;
  - ✓ siting high-rise buildings at the front of a development, thus providing acoustic shielding for any low-rise buildings behind them; and
  - ✓ using natural topographic features to the best acoustic advantage.
- Traffic Management which will include speed limits and road direction and management through electronic means where feasible;
- Implementation of land use planning which will reduce distance between industrial busy roads and residential.

The following education and information dissemination measures, among others:

- Raising public awareness by informing of the public of health and environmental effects of noise;
- Monitoring and modelling of soundscapes and publication of the results;
- Increasing the number of noise experts including the recruitment of historically disadvantaged individuals and women, and
- Research and development through new funding streams.<sup>258</sup>

Policy positions regarding noise abatement and management currently exist, but in the true nature of policy, there needs to be a revamp of these policies, a harmonisation among the different departments and a common understanding of the policy directions across all the three spheres which have concurrent responsibilities for noise abatement and management. In general, the starting point for a noise abatement strategy should be:

- the development of policy, ranging from the agenda setting particularly in a South African environment where the dangers of noise are not yet fully appreciated;

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<sup>257</sup> Quiet Please! Fighting Noise in Australian Cities. ([www.science.org.au/nova/072](http://www.science.org.au/nova/072))

<sup>258</sup> Guidelines for Community Noise. World Health Organisation. ([www.who.int/docstore/peh/noise](http://www.who.int/docstore/peh/noise))

- The analysis of the problem for the sake of the next step, but also for assisting the national understanding of the agenda that has been set. In other words, it is usually helpful to understand the agenda if the problem is clear, and the problem is clearer if the agenda is clear;
- The formulation of policy which should take into account the inputs of various stakeholders;
- The adoption of policy through the three spheres of government, and by all the government departments and stakeholders, including the agencies and parastatals;
- The implementation of policy throughout the spheres and the departments of government;
- To make it a dynamic exercise, this policy position must be valued periodically.

A plan or strategy emanating from this harmonized policy position should identify, among others

- the sources of noise,
- how this noise is transmitted,
- the levels of exposure to noise,
- noise mitigation plans,
- infrastructure and behavioural changes,
- the health effects and their costs.

As it particularly pertains to aircraft noise, reference will be sought from the ICAO, particularly Annex 16 Chapter 2 and 3, which estimates the maximum potential sound emissions under the certification procedures.

### 7.3 Policy Guidelines Towards a Charter

In light of the issues discussed in the foregoing chapters in this document and the preceding subsection in the Chapter, new policy imperatives have shaped up, laying the groundwork for the elucidation of the Charter itself.

#### 7.3.1 Cross-cutting policies

A TEH Charter should be informed by a clustered and **cross-cutting common policy approach** which integrates those, policies, acts, regulations and responsibilities of the Departments of Transport, Environment and Health as they relate to one another. The integration extends beyond these three departments in varying and non-similar yet powerful fashions. Simply put, transport is important player in sustainable development.

As far as the writers are aware, this is the first document which confirms the clustered approach of government. Although there are many documents that have been documents-in-consultation, or work-in-progress developed in a steering committee approach, or en discussed in the Ministerial Committee and Subcommittees, the DG's Cluster, this document takes it a step further if only through the formalization of the approach that was already in place.

#### 7.3.2 Political Commitment

The above two paragraphs emphasize a need for **political commitment** from the relevant politicians and the following of the political direction of the political leaders by officials entrusted to deal with these issues.

#### 7.3.3 Learning from what works

Political commitment in this sense means that there is also a need to **avoid duplication and learn from experiences and initiatives that work** in one part of the country or in other parts of the world – in other words there is no need to reinvent the wheel (no pun) This is particularly so in the South African constitutional scenario where there is a cooperative governance

between the three spheres of government.

#### 7.3.4 Revisions of policies where necessary.

From the above, it is clear that policy emphases which were “siloed” departures by individual departments should give way to coordination. Specifically for the Department of Transport, a policy emphasis that seeks only to reduce the number of accidents on our streets is a great **need for policy revision**, and it may well be that well-being in general benefits and threats of transport accidents to the environment and the post health life, such as post accident trauma, should be interrogated.

#### 7.3.5 Reversing congestions

The policy convergence does not however obliterate the existence of practices which still harm health. The Charter still therefore has to address the **unequal growth, congestion on the metropolitan and urban areas main roads**, the problems experienced at the airports, the externalities of these modes in the environment and public health and the accidents in these modes of transport.

#### 7.3.6 Addressing the economic decline and unemployment

Because of the congestion mentioned in the above paragraph, there has been a large **shift towards road transport** as opposed to the rail transport, while the other modes such as air and sea (save for freight in the latter) have marginalized the rural populations in favour of the cities. Yet the **congestion in the cities and in urban sprawls limits the competitiveness of the economy of the country**, which in turn has negative effects on the economy and **increases unemployment**, itself an extended benefit of the comprehensive definition of well being encapsulated in the World Health Organization’s understanding.

#### 7.3.7 Cost recovery

Congestion is encouraged by the fact that we have not elaborated on the need for the transport industry to cover the costs for the congestion. Neither are these congested streets get respite for the transport owners to pay for the environmental damages, for accident thus caused, the costs of infrastructure. A policy principle dealing with the **recovery of these externality costs** should therefore be covered in a charter that integrates these three elements of transport, environment and health.

#### 7.3.8 Integrating technologies

**Technological advances** have invaded the transport field in a manner that can limit the damage that is caused to health and the environment, but the transport industry and the transport providers in South Africa have not optimally interrogated this technology for leveraging better environment and better health practices. Neither have transport companies. In that understandable sense South Africa and her companies have not developed or integrated these new technologies, and they have not made **maximum use of environmentally friendly modes of transport**. A Charter integrating the three variables needs to make a pronouncement on the need for the use of environmentally friendly technologies while optimally using the available means of transport that encourages a healthy environment.

#### 7.3.9 New investments in the three variables

**Investments** in both new transport modes technology mentioned above, in health facilities and in environmental monitoring equipment, among other things, permeates the policy positions adopted in this paper. If this is not explicit, then it more so implicit. The infrastructure investment into rail and public transport infrastructure announced by the Government recently, should go

hand-in-hand with investment on the side effects of these investments which will have knock on effects on the environment protection and health provision. This issue speaks also the examination of externalities mentioned in this document.

### 7.3.10 Protecting People and the Environment.

Alternatively, infrastructure refurbishment should be done within the context that will not destroy the environment, and should **not compromise the health of both the workers who will work during the erection of such infrastructure and the infrastructure users** who will use the infrastructure after completion.

### 7.3.11 Research and development

For health and the environment not to be compromised by technology, **proper research and development** regimes require strict interrogation. This research and development should not be done only for its currency in the R and D world. but be responsive to the specific transportation, environmental and health conditions that affect South Africa and the region.

### 7.3.12 Positive interaction with globalization

Transport, the environment and health are informed largely by the imperatives of the globalising world. Although the **globalisation drive** is driven by the changing technologies such as virtual shopping and internet, it has allowed access to previously remote places within a short space of time. The need for transport has therefore not been reduced by globalisation, but rather has increased. Growth in trade pushes the limits of road usage, and the **growth of cars on our roads** become the fruits of these positive growths in the economy, and by extension fuel the need for further travel on business and or on relation or on leisure. Together with the growth of cars, is the **growth of the aviation industry and air travel**, complicating the health and environmental effects as consequences.

Driven by the need to maximize profits, global markets, driven by globalisation has resulted in the relocation of production centres in any part of the world, even when there are no direct transport lines to these new areas of production. In order to market these products in remote markets, transportation is resorted to. **Transportation therefore fuels globalisation.** The side effects on the environment and health play second fiddle to the need for access.

### 7.3.13 Addressing air quality and noise

**Air quality** which is breathed by the population and the **traffic noise** emissions recreate the suffering of the populations and compromises the environment on which they live. Although the levels of transport noises vary according to the mode, the cumulative effects of noise and low air quality leads to an unhealthy populations.

### 7.3.14 Increasing access and mobility through non discrimination

The perverse side of this growth in **transportation is its discriminatory nature**, removing the **physically disabled**, cyclists the blind etc out of the loop of its benefit. It also discriminates against the rural and women. A Charter should thus seek ways to respond to these challenges, while encouraging gendered discourses round the issues of transportation and responses to its side effects.

For those categories of the vulnerable **new access and mobility regimes** should be established, and these should be across all modes in a linked manner to all transport modes, to include among others access to stations, to parks, to planes and to taxis.

### 7.3.15 Reducing demand for transport

These above “collateral damages” of transport and globalisation interacting with each other call for the **need to curb the demand for transport, or those modes of transport that reduce rather than enhance life**. As the African Union takes shape on a trajectory of self-sufficiency and independence from the Euro-American markets, the economic growth will increase the need for more transport, more transport will flow into areas in the rural hinterlands which were previously viewed as environmental havens and places to go to away from the suburbia and metropolis, while the major road arteries and corridors will be saturated.

### 7.3.16 Encouraging physical activities

In curbing the need for negative transport modes, there is need to encourage physical activities such as **cycling and walking**. This should be done at schools and in the ordinary social life.

### 7.3.17 Removing hazardous and toxic materials

International trade has led to a growth in transportation of **hazardous materials and goods** on our roads, and these affect the users of the road, such as the drivers, or innocent populations who find themselves located near the dangerous roads and rail when there are spills. The picture on the left shows workers removing hazardous substance from road accidents.

It is not only the hazardous materials that are transported through our roads but the means of transportation, such as heavy duty trucks, cars airplanes, ships are health hazards through the emission of sulphate, **exhaust gases and respirable particulate matter which lead to various health ailments**, including hypertension, heart diseases and general ill health. These gasses exacerbate the depletion of the ozone layer, which in turn leads to a myriad of other ailments and environmental hazards.

To mitigate these effects, and to introduce new technologies, **catalytic converters and new sources of energy** are part of the new vehicles. Many others are under prototype stage, and this will require to be promoted. In the fuel that currently exists there is a need for an **integrated and cohesive rather than isolated pollutant analysis**. **The world on the left is awash with gaseous emissions**.

### 7.3.18 Education and Awareness

Yet as we apocalyptically catalogue the adverse effects of our modern world, and the opportunities presented by it, a large number of the South African population has not even begun to fathom these adverse effects and benefits. The need for **education and awareness** thus becomes the cornerstone of the Charter.

### 7.3.19 Exercising the Legislative Mandate

Education and awareness produce results in the long term and it may well be concluded that quick hits and immediate results are required. This will require that where education and awareness does not have the intended impact, **legislation and promulgation of integrated policies and regulations** should be embarked upon.

### 7.3.20 Using reliable data across the variables.

Most or all of the above interventions require **reliable data** system, whether located within one mode but easier to share, or located in one of the variables but with equal access to all the other variables, or be centralized for all purpose access by relevant service providers and stakeholders.

### 7.3.21 Proper assessment tools

Being unhealthy is not only a state of the body but also that of the mind. There will be need to have integrated impact monitoring, the indicators of which should also **assess the psychological well being** of people who have been involved in road accidents, or are in ailment though one form or other of transport related causes.

## CHAPTER EIGHT: SUPPORTIVE CONVENTIONS, LEGISLATION AND OBLIGATIONS

### 8.1 Introduction

This Chapter established the legal basis and constitutional basis for the document only as it pertains to the three variables. It pulls together the international conventions and protocols to which South Africa has accented or should accent to. At a second level it tries to link these international conventions and protocols to the continental ones, specifically those of the African Union with a clear knowledge that as a new body, the AU might not have reached the stage of the development of these Protocols to the same extent as the international ones. In the event that no continental protocols, it will be assumed that the force of the international ones will prevail.

At a third level, we will try and trace the regional SADC protocols and agreements as they relate to the three variables of the document. Again at this level there will be some paucities of legislative documentation in comparison with the other two levels. On the fourth level, national pieces of legislative obligations will be given. Unlike in the two intermediate levels, to which we were more forgiving in the absence of a legislative obligation, in this particular level, concern has to be raised if the legislative mandate or obligation does not exist. This is so because while the state may have some reasons for not acceding to international obligations, it does not have an excuse to deny its own citizens at least at a national level, the right to protection against these side effects of transport.

### 8.2 International Conventions and Obligations

(CLC, 1969) International Convention on Civil Liability for Oil Pollution, 1969.

(OilPOL 1974, 1974) International Convention for the Prevention of Pollution of Sea By Oil, 1954

11th Session of UN Commission on Sustainable Development (CSD) Multi

Basel Convention on The Control of Transboundary Movement of Hazardous Wastes and Their Disposal

COLREG, 1972) Convention on the International Regulating for Preventing Collisions at Seas, 1972

Convention for the Suppression of the Unlawful Acts Against the Safety of Maritime Navigation

Convention for the Protection, Management and Development of Marine and Coastal Environment of the East African Region, Nairobi Convention

Convention for the Protection, Management, and Development of Marine and Coastal Environment of the West and Central African region (Abidjan Convention

Convention on Limitation of Liability for Civilian Maritime Claims, 1976.

Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC) Rotterdam

Convention on the Continental Shelf

Convention on the International Regulations for Search and Rescue, 1979

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International Convention for Safe Containers, 1972, as amended.

International Convention for the Safety of Life At Seas, 1960 (SOLAS)

International Convention on Load Lines

International Convention on Standards of Training, Certification and Watch keeping for Fishing Vessels (STCW-f) 1995)

Liability/Nuclear Ships, 1962) Convention on Liability of Operators of Nuclear Ships and Additional Protocol, 1962.

Luggage by Sea, 1974

Maritime Safety and Protection of Maritime Environment, 1982.

Memorandum of Understanding Between Air Pollution Network for Africa (APINA)

Memorandum, of Understanding on Port State Control in Implementing Agreements on

Montreal Protocol for the Protection of the Ozone Layer, September 1987

PA., 1974, Athens Convention Relating to the Carriage of Passengers and their

Persistent Organic Pollutants

Preventing Collisions at Sea, 1972

Protocol of 1988 relating to the International Convention on Load Lines, 1966 (LL PROT, 1988)

Protocol on Road Signs and Signals Geneva 1949.

SADC Health Protocol August 1999.

SADC Protocol on Transport Communication and Meteorology

SF, 1977 Torremolinos International Convention for the Safety of Fishing Vessels, 1977;

SOLAS Protocol, 1978) Protocol of 1978 relating to International Convention for the Safety of Life At Sea 1974 as amended.

Special Trade Passenger Ships Agreement, STP 1971

Tonnage Measurement of Ships

Treaty Banning Nuclear Weapon Tests in the Atmosphere in Outer Space and Underwater.

Combating Climate Change in Africa, programme Areas 5 NEPAD.

Action Plan for the Environment Initiative of the New Partnership for Africa's Development, June 2003

African Civil Society Declaration on the Environmental Initiative, NEPAD.

The New Partnership For Africa's Development: Health Strategy

United Nations Millennium Declaration

United Nations Convention on Road Signs and Signals.

United Nations Convention on the Law of the Sea

United Nations Convention on the Law of The Sea 1982 (UNCLOS)

United Nations Framework on Climate Change (UNFCCC)

United Nations Recommendations on the Transport of Dangerous Goods (UNRMTDG) (the Orange Book ) 1956

Year Programme (2010/11 Thematic Cluster of Transport, Chemicals Water

### **8.3 South African Law, Notices, Proclamations and Regulations**

Amendment: Draft EA Regulations, 14 January 2005-07-11

Atmospheric Pollution Prevention Act, Act No 45 of 1965.

Atmospheric Pollution Prevention Act, No. of 1985

Constitution of RSA, 1996, No 108 of 1996

Draft Environment Health Policy, October 2004

Environment Conservation Act, Act 73 of 1989.

Environmental Impact Assessment (EIA) regulations

Emergency Response Handbook, SABS.

Environmental Laws Rationalisation Act, No 51 of 1997

Finishing Industries in the Ethekewini Municipality

General Information of Dangerous Goods.

General Information on Transportation of Dangerous Goods Industry June 2002

Guidelines For the Prevention of Hearing Impairment Due to Otitis at Clinical Level

Guidelines For the Promotion of Active Ageing In Older Adults

Guidelines: Hypertension National Programme for Control and Management

Hazardous Substances Act

Health AND Welfare Maters Amendment Act No 118 of 1993.

Health Financing and Expenditure in South Africa South African National Guidelines  
HI/AIDS Campaign in the Transport Sector, August 1999

Implementation of Hybrid Pollution Control Techniques To Regulate The Metal  
International Health Regulations Act

Johannesburg +2. Sustainable Development Conference, Themes of Conference (Energy,

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Climate Change and Air Pollution/Industrial Technology)

Programme Areas 4. Conservation and Sustainable Use of Coastal, Marine and Freshwater Resources.

Joint Implementation Strategy for the Control of Exhaust Emissions For Road Going Vehicles in the Republic of South Africa, Government Notice 3324 of 2003 No 25771

Marine Pollution (Control and Civil Liability (Act 6 of 1981)  
Mental Health Care Act

Moving South Africa September 1998

National Road Traffic Regulations

National Commercial Ports Policy \_August 2002

National Environment at The Sea Control Act. No 723/1980

National Environment Management: Air Quality Act, 2004.

National Noise Control Regulations (NCR) GN R55 of January 14 1994.

National Policy For Health Act, No 116 of 1990

National Policy on Airports and Airspace Management

National Road Traffic Act, No 93 of 1996,

National Transport Planning Guidelines and Requirements for Implementation of the National Transport Transition Act

National Vehicle Emissions Strategy

Noise Industry Hearing Loss Regulation No 24967 March 7 2003.

Occupational Health and Safety Act Noise Inducing Hearing Loss Regulations, No. 24967, 307 of 7 March 2003.

Occupations Health and Safety Act, Pressure Equipment

Occupations Health and Safety Act; Regulations On Lift, Escalator an Passenger Conveyors

Policy Document on HI/AIDS and other STDs In The Workplace

Policy Guidelines for Youth and Adolescent Health, South Africa 2001.

Policy of The South African Roads Board in Respect of Unsolicited Bids

Public Access To Information Act

Public Health Act No 36 as amended

Regulation Gazette No 26181, No 7915 dated 2 April 2004.

Rural Transport Strategy for South Africa

The Patients' Rights Charter

The Road To Safety 2001-2005 November 2001

Transport Sector Strategic HI/AIDS Plan November 2001

Transportation of Dangerous Goods and Other Substances By Road.

White Paper on National Transport Policy

World Summit on Sustainable Development, 20/11 Transport, Chemicals, Waste Management, Mining: A Ten Year Framework on Sustainable Consumption of Productive Patterns

## **8.4 Conclusion**

Using the Policy Guidelines of Chapter Seven and the instruments and the pieces of legislation un Chapter Eight, including other policy guidelines in the Base document, Chapter 1 to Six, the following Charter (Chapter Nine) is proposed for the three Ministries/Departments.

## CHAPTER NINE: THE TRANSPORT, ENVIRONMENT AND HEALTH (TEH) CHARTER

### 1. PREAMBULAR SECTION

1.1 We, as the three Ministers of Transport, Health, and the Environment in the Third Democratic Republic of South Africa;

1.2 Cognizant of our constitutional obligations to serve all our people irrespective of their colour, race or creed

1.3 Aware that transport is an integral part of all South Africans' daily social, educational and economic lives

1.4 Aware of the costs to the State of avoidable transport, health and environmental impacts.

1.5 Having recognized the role that transport plays in increasing the individuals' and population's mobility and access to crucial amenities and services;

1.6 Conceding that while the democratic state has evolved environmentally friendly legislation since 1994 challenges in redressing the inequalities of the past still exist;

1.7 Appreciating the divisions of the past and recognizing the need to demystify environmental debates and debates for all South Africans rather the elite.

1.8 Now acknowledge that within the context of this crucial role there are negative knock-on effects on health and environmental well being of citizens, and

1.9 Henceforth undertake to ensure the sustainability of the environment and the well being of our citizens in evolving transport infrastructure policies and strategies.

1.10 Are cognizant of the work still to be done, or work in progress which will add further imports to our undertaking as being as follows:

1.10.1 Reliance on motorized transport as one of the quickest ways of ensuring access is growing apace, and in the process the environmental and health impacts are also growing

1.10.2 The need to prioritize the safety of our transport and thus reduce the health consequences of road accidents still consumes our collective efforts;

1.10.3 The synergic approach of policies on transport, health and the environment with a view of an eventual integration of policy approaches is

being fine-tuned;

1.10.4 The need for the three Ministries and departments to play an active role in integrating the public, private, agencies and entities and sectors strategies across all three spheres of government and across all transport modes continues;

1.10.5 The cumulative effects of transport on health and the environment have not been fully appreciated in our quest for economic development and the three ministries and departments are working together towards full appreciation;

1.10.6 The urgent need to consider health and environmental effects during the land use planning, impact assessments, cost benefit analyses, infrastructure investments and projects;

1.10.7 Transport externalities, especially for air and road transport users have not been fully integrated into the environmental and health related costs;

1.10.8 Communication to the general public about the health and environmental effects of transport still needs to be improved;

1.11 Adopt this Charter as a reflection of our thoughts on the three integrated matters, and in the spirit of the Charter, now set principles, strategies and a plan of action to guide our policies towards the achievement of a transport field that is sustainable for health and environment of all our citizens.

## **2. EVIDENCE IN OUR POSSESSION LEADS THE THREE MINISTRIES TO BE CONCERNED THAT:**

2.1 Throughout the country, but mostly pronounced during certain seasons of the year, and in particular traffic accidents such as serious injuries and deaths, are a major drain to the resources of the Departments of Transport, Health and the Environment.. In transport in particular, the Satchwell Report and the problems experienced in the Road Accident Fund indicate this drain.

2.2 Traffic Noise, from all modes and in its three dimensions of frequency, intensity and duration, causes annoyance, sleep loss, affects performance, increases aggression and accelerates hearing disturbances and thus limit communication, leads to road rage among other things among many of our people. The growing traffic volumes increase the exposure of citizens to the hazards related to transport noise, and these can be traced to high ambience noise levels, heart diseases and hypertension.

2.3 Noise includes noise inside the car, vibrations, open car windows, train noise, bridge noise, screeching brakes and tyres, tyre to surface noise, road construction all contribute to a total effect of noise from transport an transport related activities

2.4 Diseases not directly emanating from transport but spread through transportation such as HIV and AIDs

2.5 Air pollution to which many of our people are exposed to has a number of adverse health impacts such as cardiovascular problems, respiratory disease in adults and children and reduce life expectancy. Some particulates in the atmosphere such as benzene and other particulates increases risks of cancer.

2.6 Non-motorised transport, such as cycling and walking, can lead to physical and health benefits, but these modes of transport still require to be marketed by and across the three Ministries and departments.

2.7 Communities are still being divided by uncoordinated road and infrastructure planning. This decreases social interactions needed to reverse the polarization of communities of the past order and limits the contact between different social classes.

2.8 Dangerous goods transported on our roads, seas and air transportation can contaminate soil and water and air during spillages or accidents.

2.9 Hallucinating and mind-altering circumstances, such as drugs which cause further health problems are conveyed through the means of transport at a growing rate.

2.10 The problems explained affect all our people equally, but the wherewithal to redress from these effects disproportionately fall on the poor and the vulnerable, the children, the elderly, the rural and the physically disabled who have little or no choice about where they work and live.

### **3. IN RECOGNITION OF THE EVIDENCE INDICATED ABOVE:**

3.1 The Ministries have adopted a cluster approach to the recognition of and solutions to the problems that affect government across one department.

3.2 The Ministries will support Departmental approaches that will minimize the divisions between the rich and the poor, the rural and the urban, and the men and women, young and old, the infirm and physically disabled.

3.3 The Ministries have committed itself to a multilateral approach to international relations and is thus exploring ways and means to finalize its accession to those international protocols and conventions in road, atmosphere, climate change, maritime, road, rail health environment, its has not acceded to.

3.4 The Ministries see the accession of one department to an international, regional and continental agreement as binding on the other departments who are not lead departments in the signing of those protocols and conventions.

3.5 The Ministries have developed policies that conform with international requirements and stipulations.

3.6 Collection of data and statistics to inform transport, environment and health-friendly policies is improving.

3.7 The Constitution of the Republic gives environmental, health protection and access to transport to all its citizens

3.8 Ministries and Departments are evolving policies which have an impact on the Charter such as the

3.8.1 The White Paper on Energy;

3.8.2 The White Paper on Integrated Pollution;

3.8.3 The Hazardous Substances Act;

3.8.4 The National Environmental Management Act;

3.8.5 The National Land Transportation Transitional Act;

3.8.6 Air Quality Management Act;

3.8.7 Petroleum Product Act.

3.9 The other complications on health and the environment arising from transport, such as HIV/AIDs are being aggressively addressed through roadside clinics.

3.10 In spite of these positive steps we as Ministers recognize:

3.10.1 further need to integrate policies and strategies with more vigour across all other departments.

3.10.2 more dedication to persuade our people to use public transport more than they currently do.

3.10.3 increase awareness about the benefits of the non-motorized transport.

3.10.4 the need to continue to enforce current regulations in traffic and transport in a manner that is beneficial to health and the environment.

3.10.5 the need bring to the attention of our regional and continental counterparts of an all embracing charter.

3.10.6 further need to bring on board health and environmental authorities in the formulation of transport policies and vice versa.

#### **4. PRINCIPLES**

4.1 In order to achieve the aims of sustainability, the Ministries will apply the following principles:

4.1.1 The principle of sustainability

- 4.1.2 The principle of precautionarity
- 4.1.3 The principle of prevention
- 4.1.4 The principle of the protection and promotion of healthy lifestyles
- 4.1.5 The principle of safety and security
- 4.1.6 The principle of the polluter pays
- 4.1.7 The principle of the user pays
- 4.1.8 The principle of equity
- 4.1.9 The principle of efficiency
- 4.1.10 The principle of subsidiarity
- 4.1.11 The principle of cluster integration in decision-making
- 4.1.12 The principle of equal public participation and information
- 4.1.13 The principle of co-operative governance across all spheres
- 4.1.14 The principles of multilateralism
- 4.1.15 The principle of cooperation between public and private sectors
- 4.1.16 The principle of three bottom line reporting by agencies and public entities.

## **5. GUIDED BY THE ABOVE PRINCIPLES, WE WILL ADOPT THE FOLLOWING STRATEGIES**

5.1 The principles elucidated above, singly or in combination, lead us to adopt strategies that will lead to:

5.1.1 Reduction of the need for motorized transport through synergistic land use policies for local, provincial and national policy planning.

5.1.2 Shifting transport to the modes that promote health and environmentally sound modes.

5.1.3 Sourcing the best technologies in the Intelligent Transport Systems (ITS) in order to reduce environmental impacts and health effects of transport.

5.1.4 Forming partnerships with organs of civil society, regional and international organisation who are pursuing the same objectives of environmentally and healthy transport strategies and policies.

5.1.5 Using appropriate health and environmental indicators to evolve policies.

5.1.6 Internalization of health and environmental costs in transport.

5.1.7 Provision of public information that will engender informed decision-making.

5.1.8 Promotion of research that will promote healthy and environmentally friendly strategies, including independent investigations of sea, land and air accidents and incidents.

5.1.9 Acquisition, use and storage of data that will assist the three departments to formulate informed policy decisions and strategies.

## **6: PLAN OF ACTION**

**6.1 As it relates to integrated integration of health and environment requirements and targets to transport and land use policies and plans we will do the following:**

6.1.1 Create a multi-sectoral and cluster forum across the three spheres of government so that land planning, infrastructure planning and policy decisions as they relate to the three ministries/departments are fully integrated.

6.1.2 Analyze all synthesized information and data on all three departments as they related to the sustainable transport, health and environment.

6.1.3 Incorporate all World Health Organization, International Maritime Organization, International Civil Aviation Association, and multilateral road conventions to all extents that will promote integrated transport, environment and health approaches.

6.1.4 As a result of this incorporation, we will seek to develop policies that will help us to:

6.1.4.1 Reduce mortality rates, cardiovascular, cancer and respiratory problems as they are caused by transport air pollution;

6.1.4.2 Reduce mortality and morbidity from transport accidents;

6.1.4.3 Reduce risks of cardiovascular and other diseases of lack of physical exercise;

6.1.4.4 Reduce exposure to noise.

6.1.5 Devise measurements and data collection methodologies that will help us achieve the targets set by the Millennium Development Goals (MDGs) as they relate to transport, environment and health.

6.1.6 Work under the guidance and direction of the Department of Health to devise and further develop National Health Action Plans across government spheres and across all departments.

6.1.7 Assist the departments in encouraging the population to avoid sedentary lifestyles.

6.1.8 Conduct further research on the effects of exhaust fumes on the health of children.

6.1.9 Work in collaboration in the celebration and popularising of World Health Day,

6.1.10 Making regulations and legislation that will protect pedestrians and cyclists

6.1.11 Passing legislation that will enforce the use of ear muffling and inhalation protection to prevent noise and fuel inhalations on workers.

6.1.12 Assist one another's departments' authorities to take full accounts of how the three elements of transport, environment and health have an impact on one another.

6.1.13 Introduce co-ordinated policies that will reduce air, water, social and land pollution, reduce accidents, reduce noise levels and protect the environment against infrastructure creep such as unplanned roads, airports and unsustainable motorways.

6.1.14 In line with the Kyoto Protocol, reduce gas emissions and other air pollutants from vehicles.

6.1.15 Continue to work with our international partners to achieve these goals and objectives.

**6.2 As it relates to the promotion of modes of transport and land use planning which have the best public health impacts we will continue to:**

6.2.1 Implement and further refine policies that promotes healthy and environmentally friendly modes of transport such as public transport, cycling and walking, and that this modes will be supported by appropriate infrastructure planning and provision.

6.2.2 Encourage the use of the cycling and walking among learners in schools;

6.2.3 Support all traffic congestion strategies and efforts by the department of transport authorities.

6.2.3 Implement and promote the Charter for Physical Activity and Sports.

6.2.4 Discourage policies that allow easier access between places of work and amenities and places of work so that long motorised distances are reduced, and that the non-motorized modes such as walking and cycling are encouraged between these settlements and amenities

6.2.5 Work towards the attainment of fuel-efficient energies that will arrest the proliferation of air pollutants, noise and other hazards related to transport.

6.2.6 Work with our international partners in accessing their knowledge and making available our experiences in the attainment of these objectives.

**6.3 As it relates to health and environmental impact assessments, the three Ministries/Departments will**

6.3.1 Assess all existing transport, health and environmental impacts of policies, strategies, discussion documents, pilot projects and legislation the affect the sustainability of the three areas.

6.3.2 Support institutions to implement these strategies and solicit the assistance of international bodies to assist in this implementation.

6.3.3 Work with our international partners to develop mutually accepted assessment standards and the ring fencing of environmental and health assessments on all future projects of international co-operation.

**6.4 As it relates to costs analysis, the three Ministries/Departments will work together to**

6.4.1 Consider the health and environmental costs implications of infrastructure investments and land use planning and how these further impact on mobility and access.

6.4.2 Develop, implement and continuously review internalisation methods for health and environmental costs previously not considered.

6.4.3 Ensure that transport policies are cost-effective and that they take all costs into account.

6.4.4 Gradually decrease subsidies to transport modes that endanger the health and environmental well-being of citizens.

6.4.5 Work together with our international partners to develop methods of estimating costs of transportation provision to the environment and health;

**6.5 As it relates to the protection of assistance to vulnerable groups, the three Ministries/Departments will:**

6.5.1 Use the criteria proposed by the WHO to monitor health impacts of transport on children, the elderly, the sick and the poor.

6.5.2 Identify the areas of high vulnerability to transport noise, emissions and congestions; and areas where the traffic can be changed and re-directed.

6.5.3 Work with security organs to protect the vulnerable, the physically disabled and the elderly, the socially marginalized, the pedestrians, the obese,

women and rural people in all modes of transport.

6.5.4 Assist the transport planners and designers in the development of facilities that will allow access to the physically disabled and the elderly

6.5.5 Develop and enforce legislation that will force road construction workers to wear earplugs during construction.

6.5.6 Develop and enforce legislation that will; enforce petrol attendants to wear nose masks during their operations.

**6.6 As it relates to the public health effects that have not yet been identified and quantified, the three Ministries will work under the guidance of the Ministry of Health:**

6.6.1 To promote international collaboration in finding acceptable measurements and cost effective policies on noise pollution measurement, pollutants measurements and gas emissions, particularly the extra fine particles that invade our respiratory systems,

6.6.2 To engage in studies based on international benchmarks on the effects of transport and the environment on the psychosocial effects of traffic congestion.

6.6.3 Increase awareness about the effects of HIV and AIDS as these are manifested through the medium of transport

**6.7 As it relates to the setting of indicators and impact monitoring, the three Ministries/Departments will:**

6.7.1 Work with international organizations to develop impact-monitoring systems for the effects of transport policies on health and the environment as they affect the South African population.

**6.8 As it relates to further research, the three Ministries/Departments will**

6.8.1 Synergize their research and pilot programmes as they relate to the exposures to transport, health and the environmental practices.

6.8.2 Engage in further pollutant sequestration exercises beyond lead.

6.8.3 Start and/or follow through with pilot research which will indicate the levels of pollution, contamination etc. as they relate to transport, environment and health

6.8.4 Measure the differences in transport environment and health impacts in both rural and urban areas.

6.8.5 Develop indicators and guidelines for measuring and monitoring health impacts

6.8.6 Develop interventions to reverse these effects.

6.8.7 Continue research on the effects of catalytic converters and their benefits to health and environment.

6.8.8 Evaluate previous pilot projects that were that related to the use of non-motorized transport in rural areas.

6.8.9 Engage in new studies on the reasons for aggressive behaviour such as road rage.

6.8.10 Commission studies that will investigate the psychological effects of traffic accidents.

**6.9 As it relates to public participation and involvement, awareness and information, the three Ministries/Departments will:**

6.9.1 In line with the transparency of the South African constitution, invite inputs, engage communities and interested parties and stakeholders in the formulation and the reformulation all policies as they relate to the Transport, environment and health;

6.9.2 Distribute information, advertise campaigns and engage in continuous communication with citizens about;

6.9.3 Engage the citizens and manufacturers on the merits of vehicle ergonomics.

6.9.4 Educate all citizens about benefits of physical activities and the benefits of non-motorized transport;

6.9.5 Balance the need for the co-existence of motorized and non-motorized as integral rather than competitive modes.

6.9.6 Assist the communication strategies of the internal organizations as they assist South African achieves the objectives spelled out in this Charter.

**6.10 As it relates to our international partners, neighbouring and regional states, the three Ministries/Departments will**

6.10.1 Liaise with states that are not yet engaging with these issues within the areas of multilateral engagement.

6.10.2 Assist those states with whatever knowledge and experience that would

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help them evolve their own responses as they relate to transport, environment and health.

6.10.3 Learn the experiences of the states that have or are currently engaging with these issues.

6.10.4 Evaluate and implement all international best practices in order to achieve the objectives of this Charter.

## **SIGNATORIES**

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**JEFF RADEBE, MP**  
**MINISTER OF TRANSPORT**  
**DATE:**

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**MARTHINUS VAN SCHALWYK, MP**  
**MINISTER OF ENVIRONMENTAL AFFAIRS AND TOURISM**  
**DATE:**

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**MANTO TSHABALALA MSIMANG, MP**  
**MINISTER OF HEALTH**  
**DATE:**