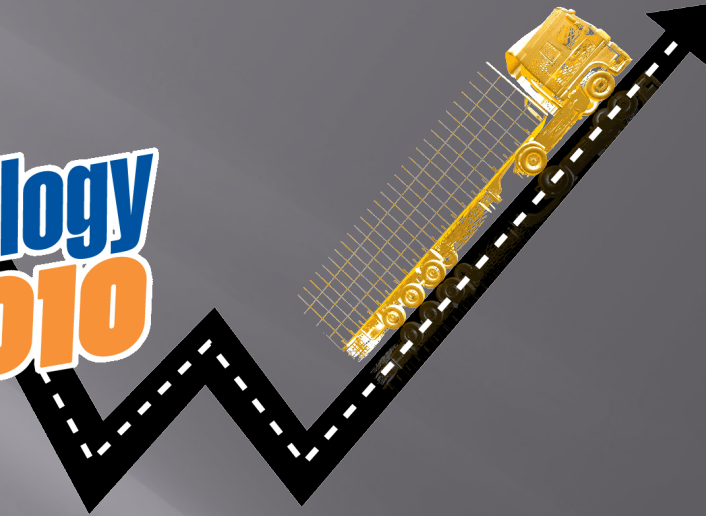


The logo for IRTENZ features the word "IRTENZ" in a bold, black, sans-serif font. Above the text is a blue trapezoidal shape, and below it is an orange trapezoidal shape, both pointing towards the right.

IRTENZ

**Transport Technology
& Productivity 2010**



Freight Issues in Developing Regions

Paul Nordengen, CSIR, South Africa



Contents

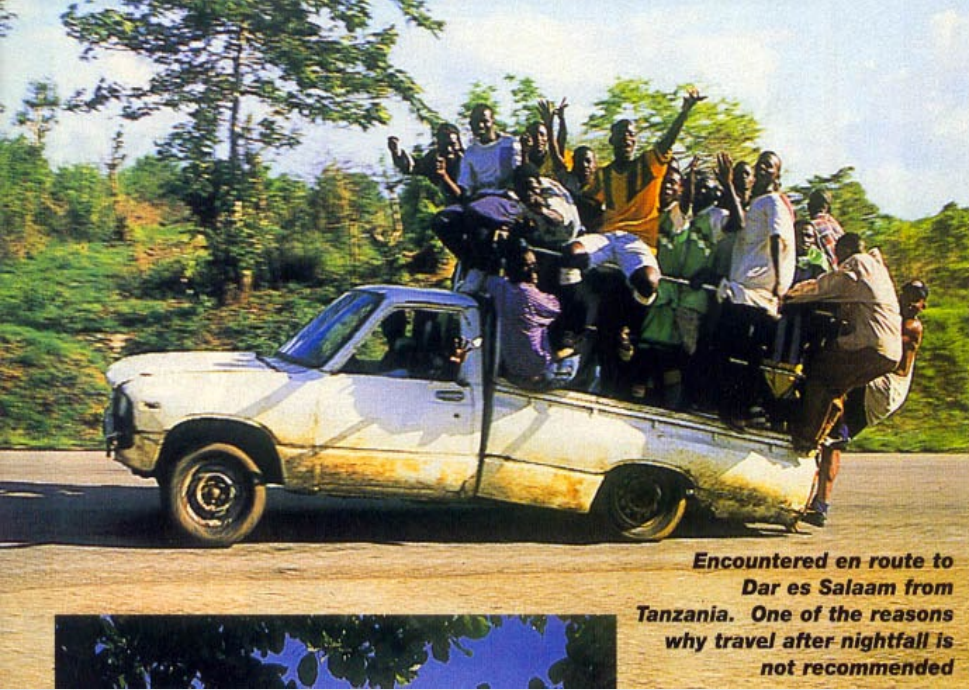
- ▣ Background
- ▣ Freight issues in Developing Countries:
 - Focus on the African continent
 - Transport infrastructure
 - Vehicle standards
 - Road freight operations
- ▣ Leapfrog approach

Background

- ▣ “Competing Needs” in Developing Nations:
 - Education, health, housing, security, provision of basic social services
- ▣ Role of transport – difficulty in attracting adequate investment
- ▣ Lack of political will
- ▣ Corruption together with lack of service delivery
- ▣ Diverse rates of development: difficult to generalise
- ▣ Duality of economies in Developing Nations: the rich and the poor







Encountered en route to Dar es Salaam from Tanzania. One of the reasons why travel after nightfall is not recommended





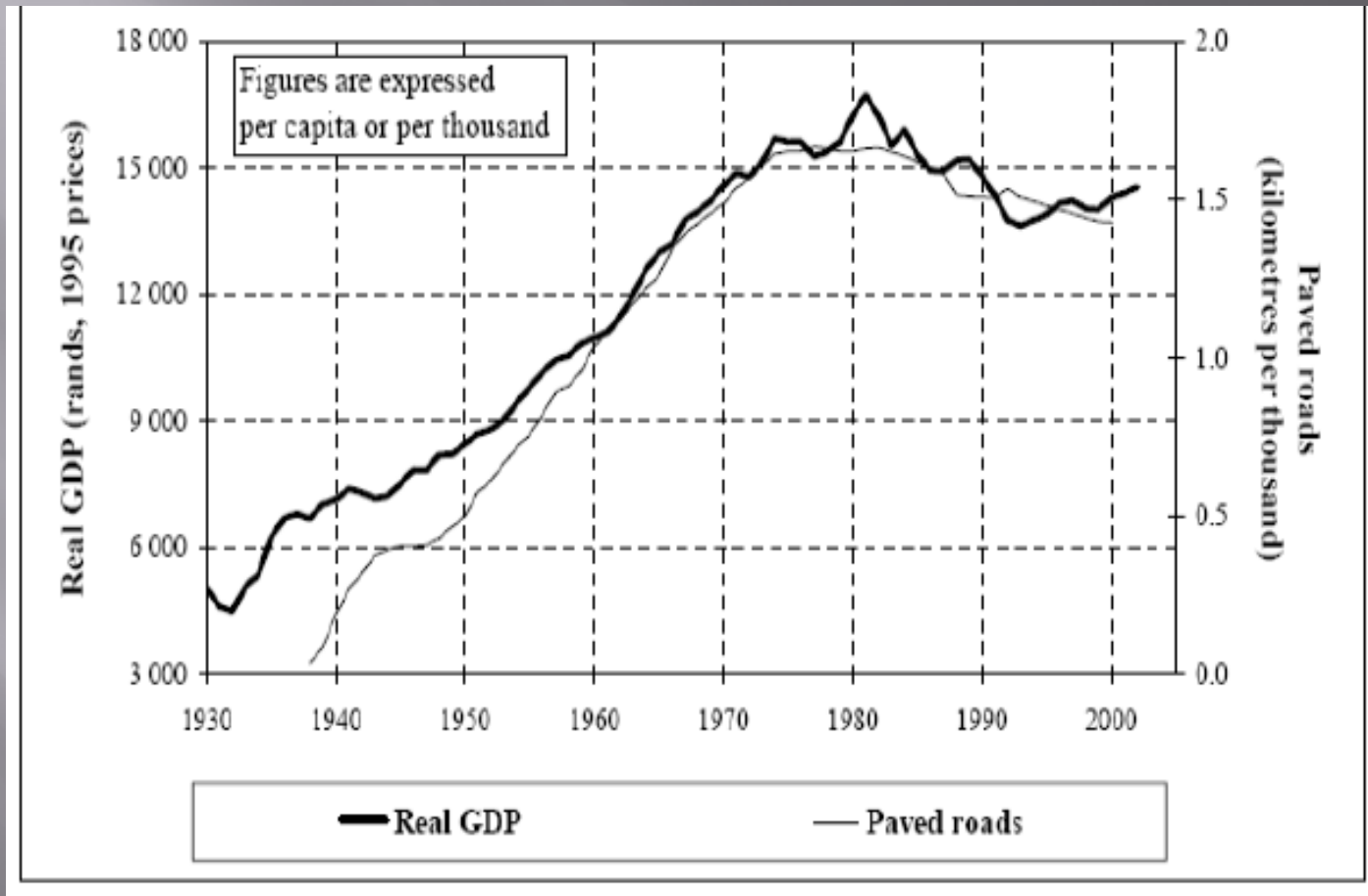




Freight Issues

- ▣ Transport Infrastructure
 - Declining rail infrastructure and rolling stock
 - Modal shift: both high and low value commodities
 - Declining road infrastructure
 - Inadequate road maintenance
 - Heavy vehicle overloading
 - Lack of management systems, data
 - Lack of capacity and skills

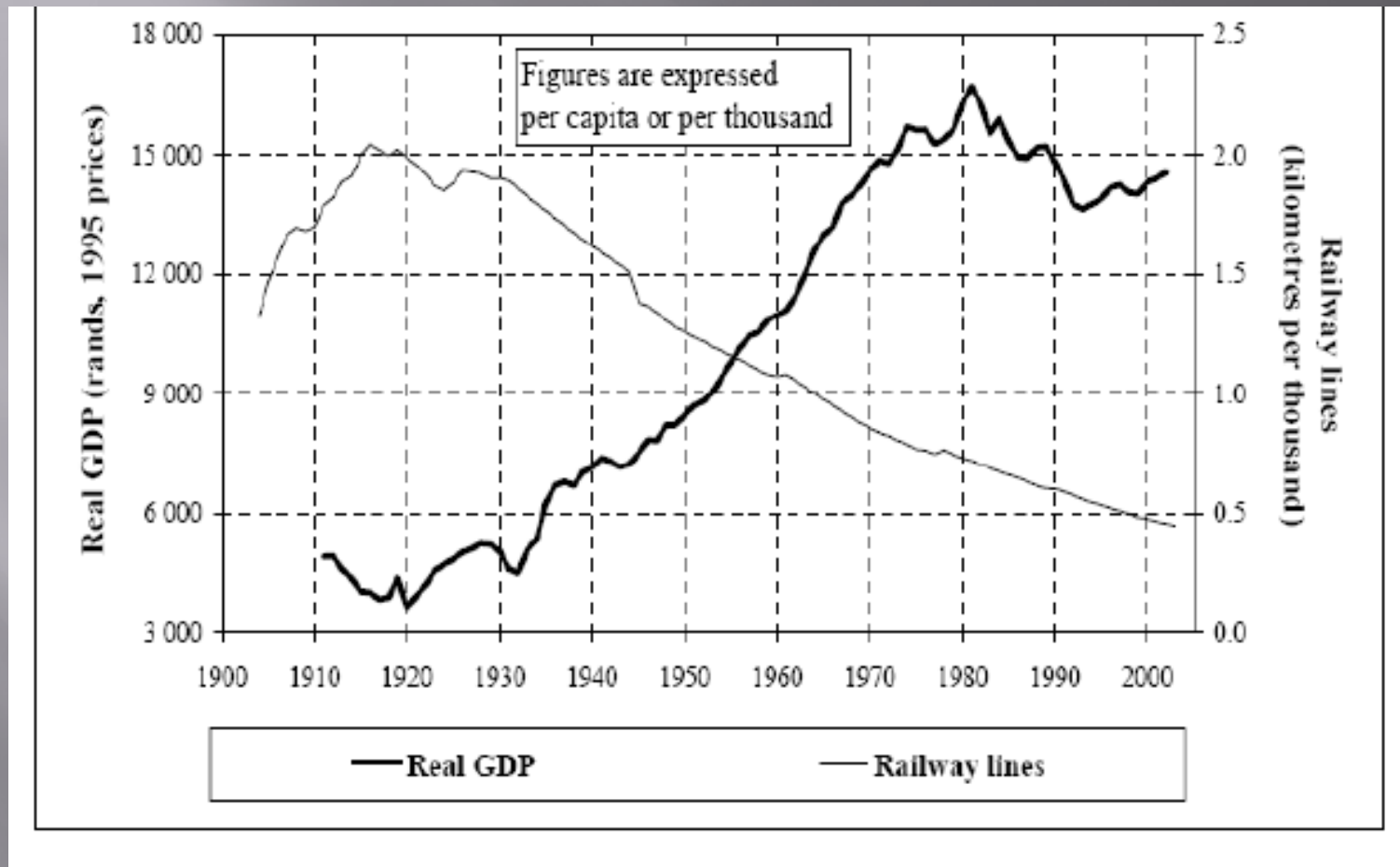
GDP vs Paved roads in South Africa



Paved Road Development versus GDP Development, South Africa, 1940 – 2003

Source: National Transport Master Plan, South Africa, 2010

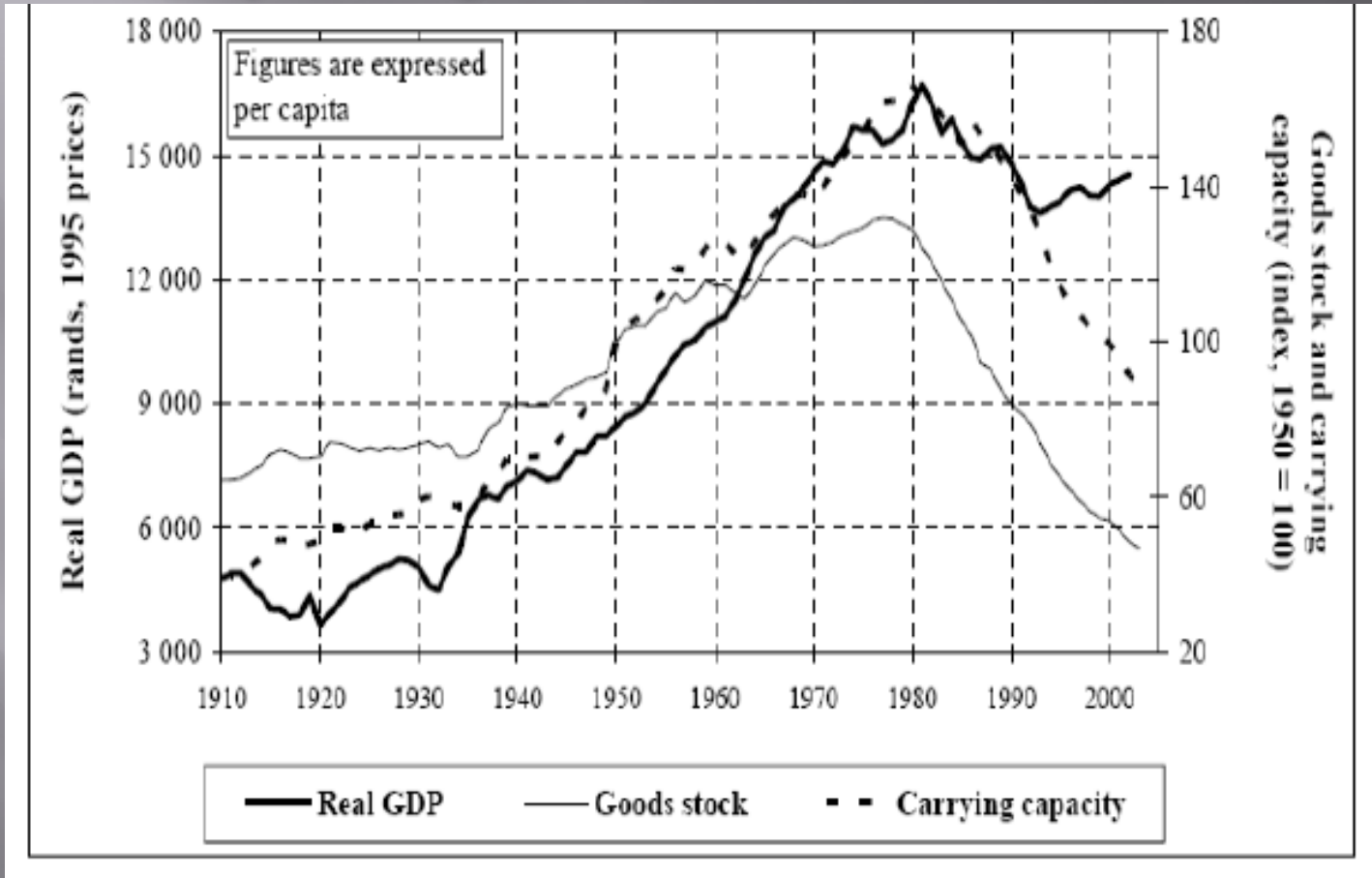
GDP vs Railway lines in South Africa



Rail Line Route Kilometres versus GDP, South Africa, 1900 – 2003

Source: National Transport Master Plan, South Africa, 2010

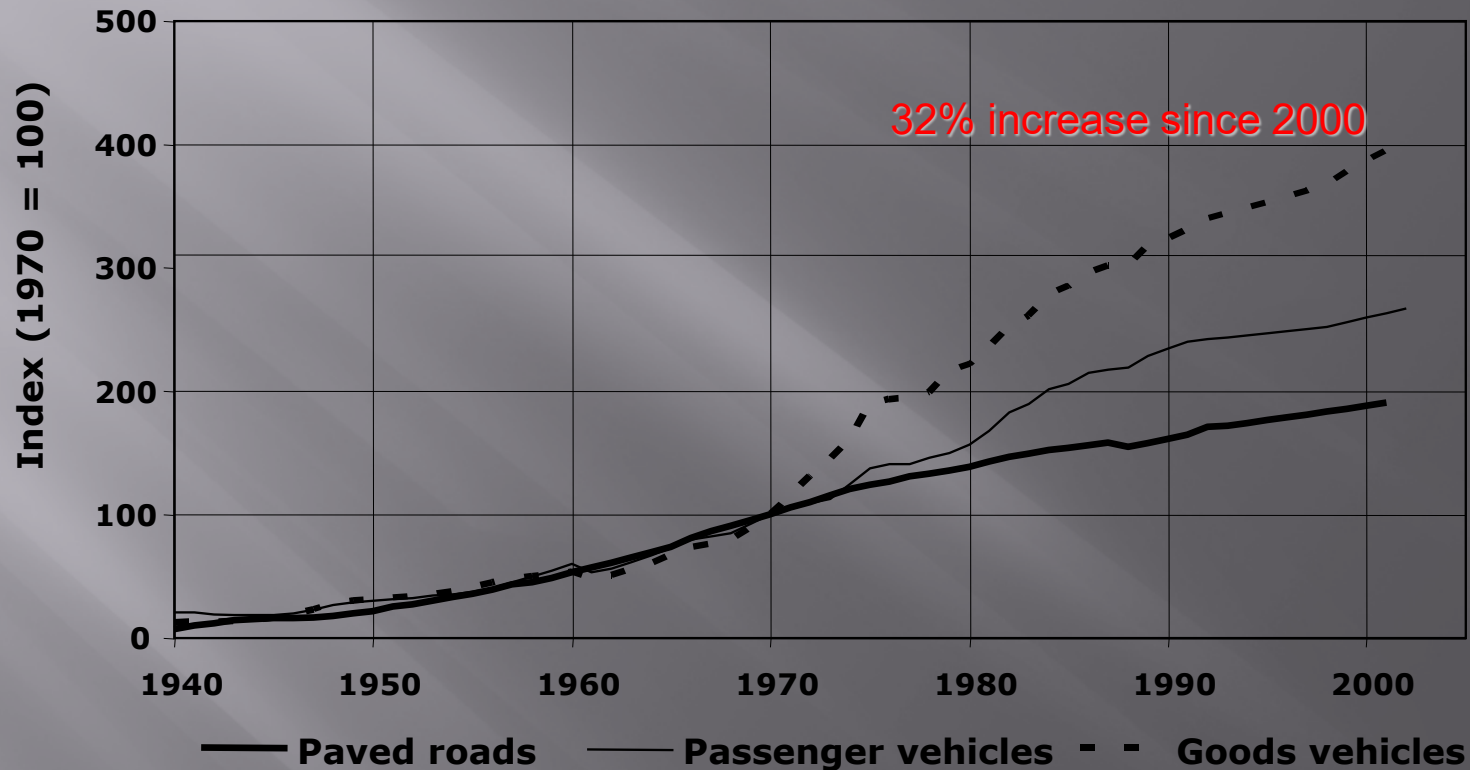
GDP vs Rail Goods Stock and Carrying Capacity in South Africa



Rail Goods Stock and Carrying Capacity versus GDP, South Africa, 1900 – 2003

Source: National Transport Master Plan, South Africa, 2010

Road freight vs Paved roads in South Africa



Paved National & Provincial roads and Passenger and Goods vehicles, South Africa, 1940 – 2003

Source: CSIR



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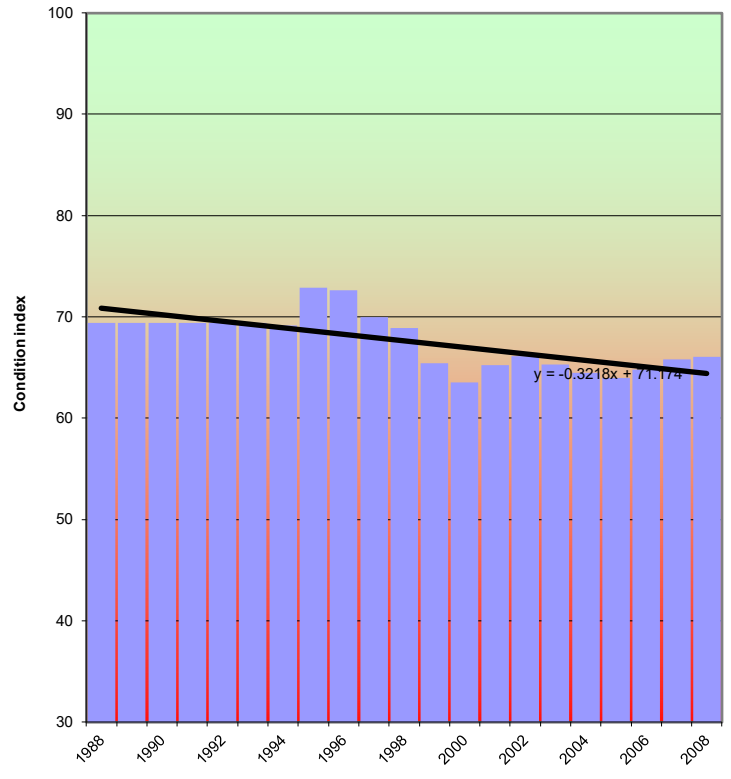
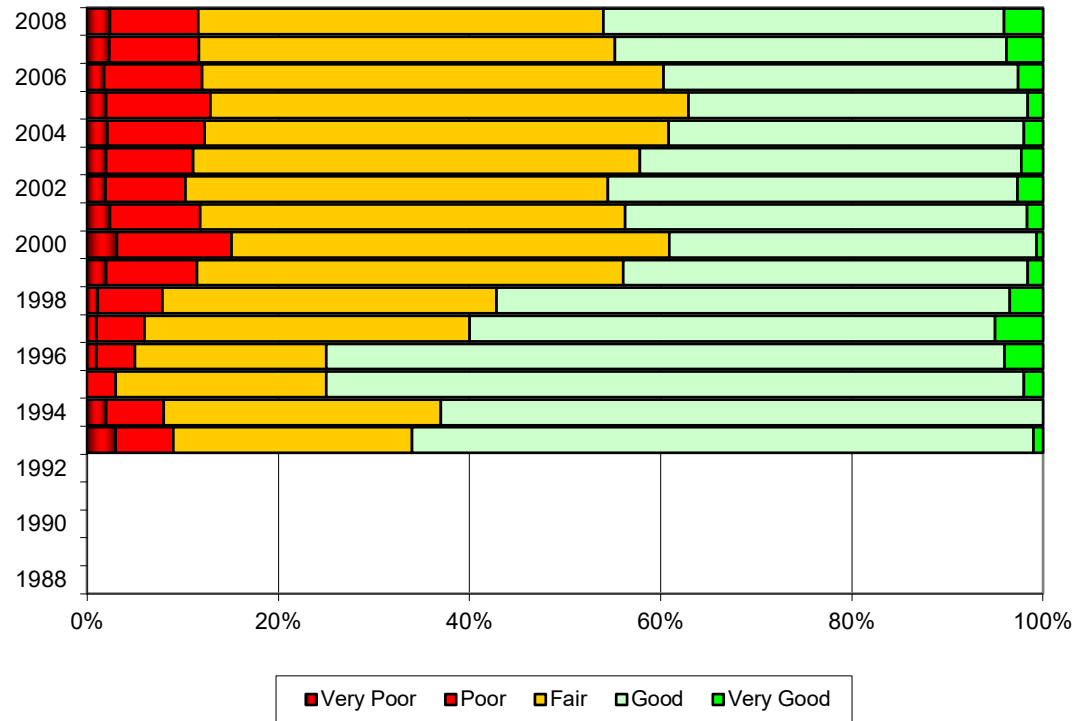


A. COOPER

Road deterioration - long-term trends

National roads in South Africa

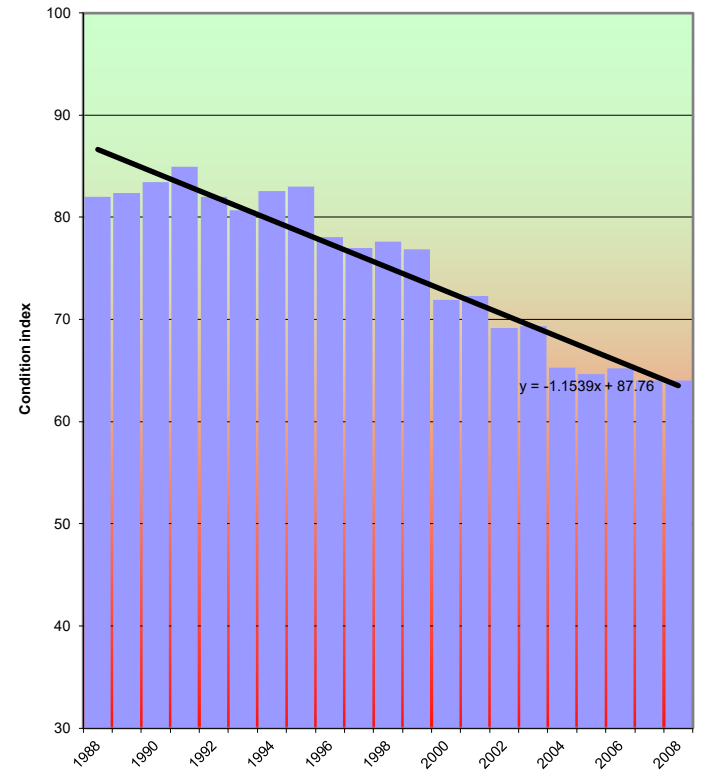
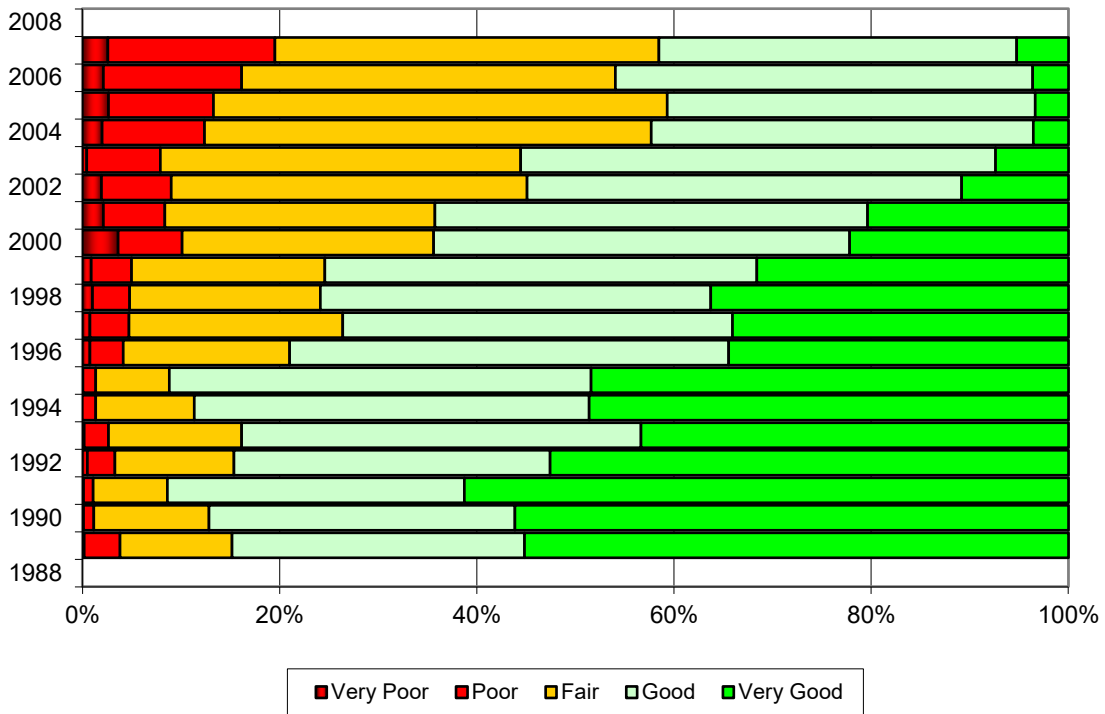
Condition of surfaced roads



Road deterioration - long-term trends

Provincial roads in South Africa

Condition of surfaced roads



Freight Issues

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VOLVO

VOLVO

460

H12

MKN101 GP

Person standing near the truck

North West Province, South Africa, 5 Nov 2004, 23h00



Six trucks carrying cobalt concentrate from DRC to Johannesburg (3 500 km) Overloads ranged from 30 780kg to 37 640kg (65%)



Value of payload estimated at between US\$ 1.5 and 3 million per vehicle



Freight Issues

▣ Transport Infrastructure

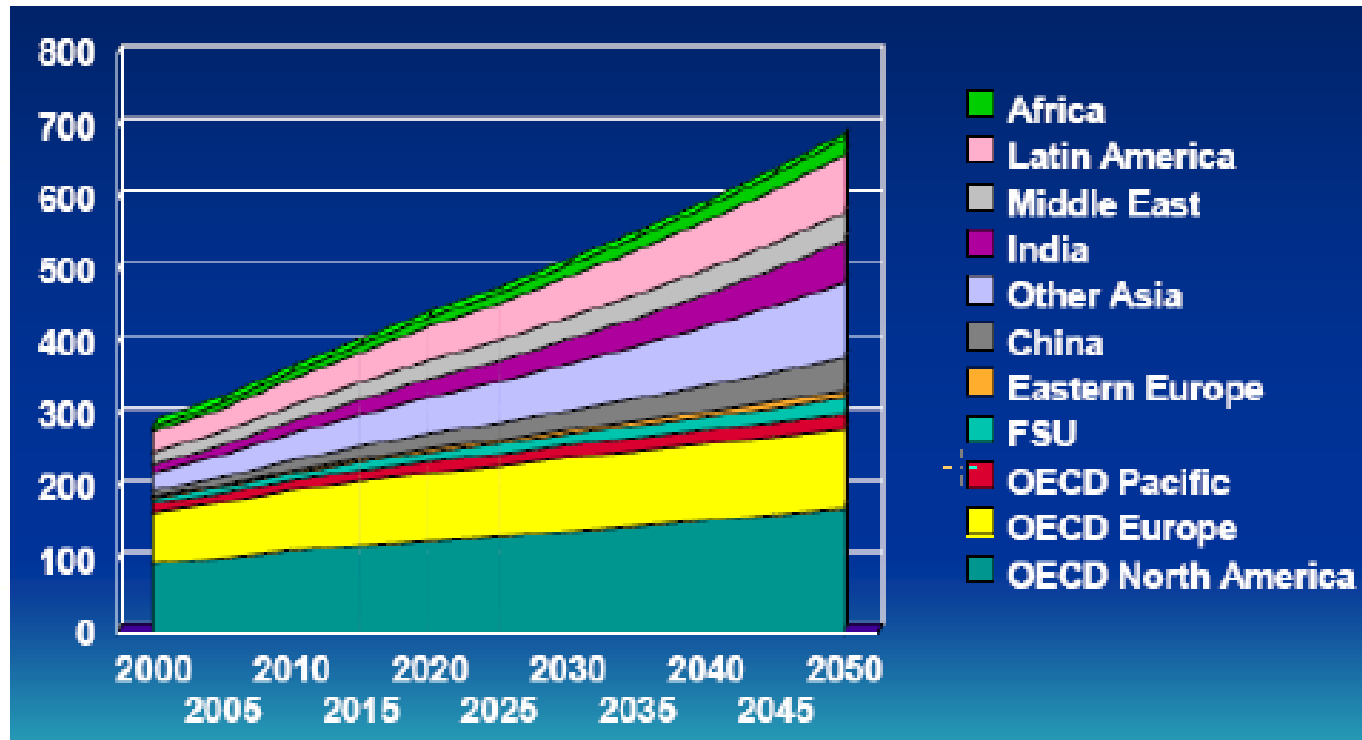
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Freight Issues

- ▣ Vehicle standards
 - Euro V vs. Euro II vs. Euro 0
 - Availability of quality fuels
 - Importation of used trucks
 - Inadequate vehicle maintenance
 - Green Supply Chains

Truck Energy Consumption

Evolution of lorry energy consumption in millions of toe.



Source: WBCSD

Freight Issues

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09.07.2010



Barloworld
Logistics

Our contribution counts.
Does yours?



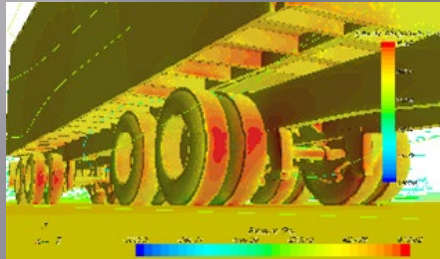
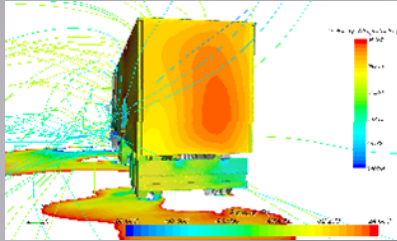
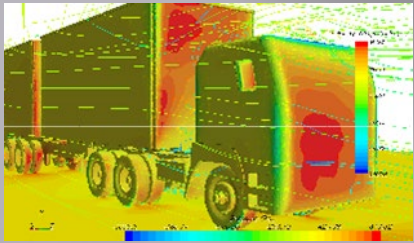
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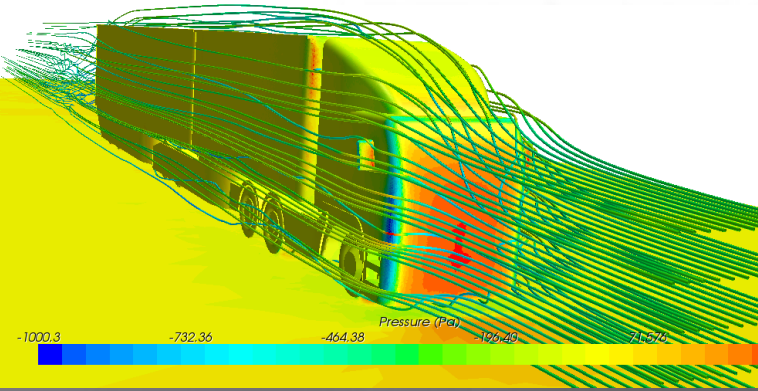
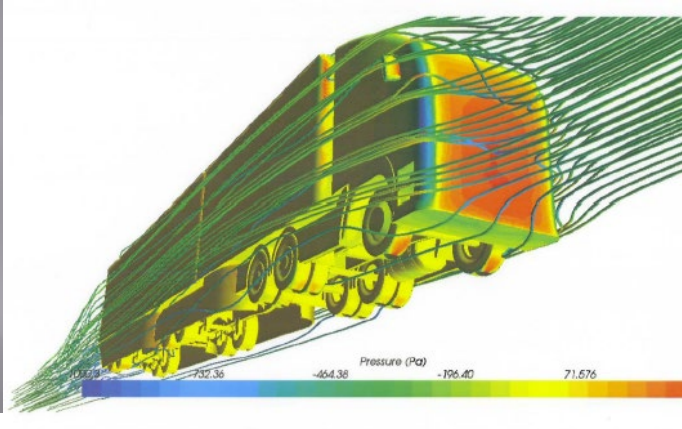
09.07.2010

Innovation - Green

Before



After



Barloworld Logistics in market-leading green transport initiative.



Barloworld Logistics has become one of the first supply chain and logistics service providers in South Africa to voluntarily adopt the new RTMS Management System with basic design vehicle by Barloworld Logistics represents a mindset change from traditional vehicle design to an approach where the focus is on optimisation of vehicle design to maximise productivity at enhanced safety levels. Barloworld Logistics' compliance with the requirements of the RTMS standard will

standard 36 tons. The volumetric space of the trailer changes from 128,1m³ to 162,8m³.

In our road freight transport system, we recognise the significant effort and commitment Barloworld is becoming the first national freight operator to achieve RTMS accreditation in the country."

~ 35% reduction in drag

and fuel consumption, thus aiding the achievement of carbon reduction targets for Barloworld Logistics' clients. Coupled with the environmental benefits would be the potential to reduce the fleet capacity due to its extra load capabilities – a major cost benefit to clients in these tough times.

Paul Nordengen, RTMS national chairman, earlier this year. This notable achievement subsequently enabled the building and testing of the new aerodynamic 'green' trailer to go ahead. Says Nordengen, "The whole RTMS team was very impressed with the Barloworld Logistics operation, as well as the company's commitment to innovation and efficiency improvements."

Heath Dornier, General Manager at Barloworld Logistics, "We put considerable effort, innovation and investment into these initiatives, which not only benefit us as a company by making us more efficient, but benefit our clients by passing on cost savings and efficiencies to them. Ultimately, the recognition from RTMS is also acknowledgement that we

~ 6% – 8% reduction in fuel consumption

National RTMS committee, headed by Paul Nordengen of the Council for Scientific and Industrial Research (CSIR).

This accolade was given top priority by the Barloworld team.

Barloworld Logistics Go Green.

Barloworld Logistics' participation in the independently-audited RTMS accreditation programme was necessitated due to plans to design and build an abnormally long, aerodynamic trailer. At 27m long, as opposed to the standard permissible maximum vehicle combination length of 22m, the Barloworld Logistics vehicle has a payload of 45 tons, compared to a

The RTMS accreditation award was made by Paul Nordengen, RTMS national chairman, earlier this year. This notable achievement subsequently enabled the building and testing of the new aerodynamic 'green' trailer to go ahead. Says Nordengen, "The whole RTMS team was very impressed with the Barloworld Logistics operation, as well as the company's commitment to innovation and efficiency improvements."

Barloworld Logistics is continually developing innovative solutions and products through original thinking. It is this kind of thinking that helps our clients sustainably reduce their carbon footprint. We go to extraordinary lengths to make green business good business. Visit www.barloworldlogistics.co.za for more information.



Freight Issues

- ▣ Road Freight Operations
 - Overloading and load securement
 - Speeding
 - Inadequate law enforcement
 - Bribery and corruption
 - Cross-border delays and facilities
 - Safety performance
 - Inadequate data



SMASH: Many long-haul drivers try to cram in as many trips as possible, often driving for long distances without breaks. This can lead to exhaustion and accidents.

Dying ... because of no sleep

MYOLISI GOPHE

Tired long-distance drivers who fall asleep at the wheel are the cause of

Drivers go too fast or for too long

Although the

“The problem

the following year,” he said yesterday.

William Mtule, vice-chairman of the Cata Long Distance Taxi Association, said there was no uniform



MANGLED WRECK



THIS is all that remains of the bakkie in which the Rajmohan family were travelling. It collided with a truck on the N3 near Pietermaritzburg, claiming the life of Subitha Rajmohan PICTURE: MBONGENI ZONDI

Man sees pregnant wife burn to death

MBONGENI ZONDI

TRAFFIC authorities are to launch an investigation into a horror collision in which a man watched his wife burn to death. The driver of the other vehicle also died.

Charges of culpable homicide are being investigated. In the horrific accident, a Durban man watched helplessly as his pregnant wife burnt to

death only moments after he and his son escaped the wreckage of their bakkie, which had collided with a truck on the N3 near Pietermaritzburg on Saturday evening. The cabin of their Ford Bantam was completely shorn off by the impact, immediately before the vehicle went up in a blaze.

The driver of the truck, which was delivering aluminium coils to

Durban, was airlifted to St Anne's Hospital, where he later died of his injuries.

Both Jay Rajmohan and his son, Aidan, were reported today to be in a stable condition. The two managed to escape before the bakkie went up in flames. Subitha Rajmohan, who was trapped, burned to death.

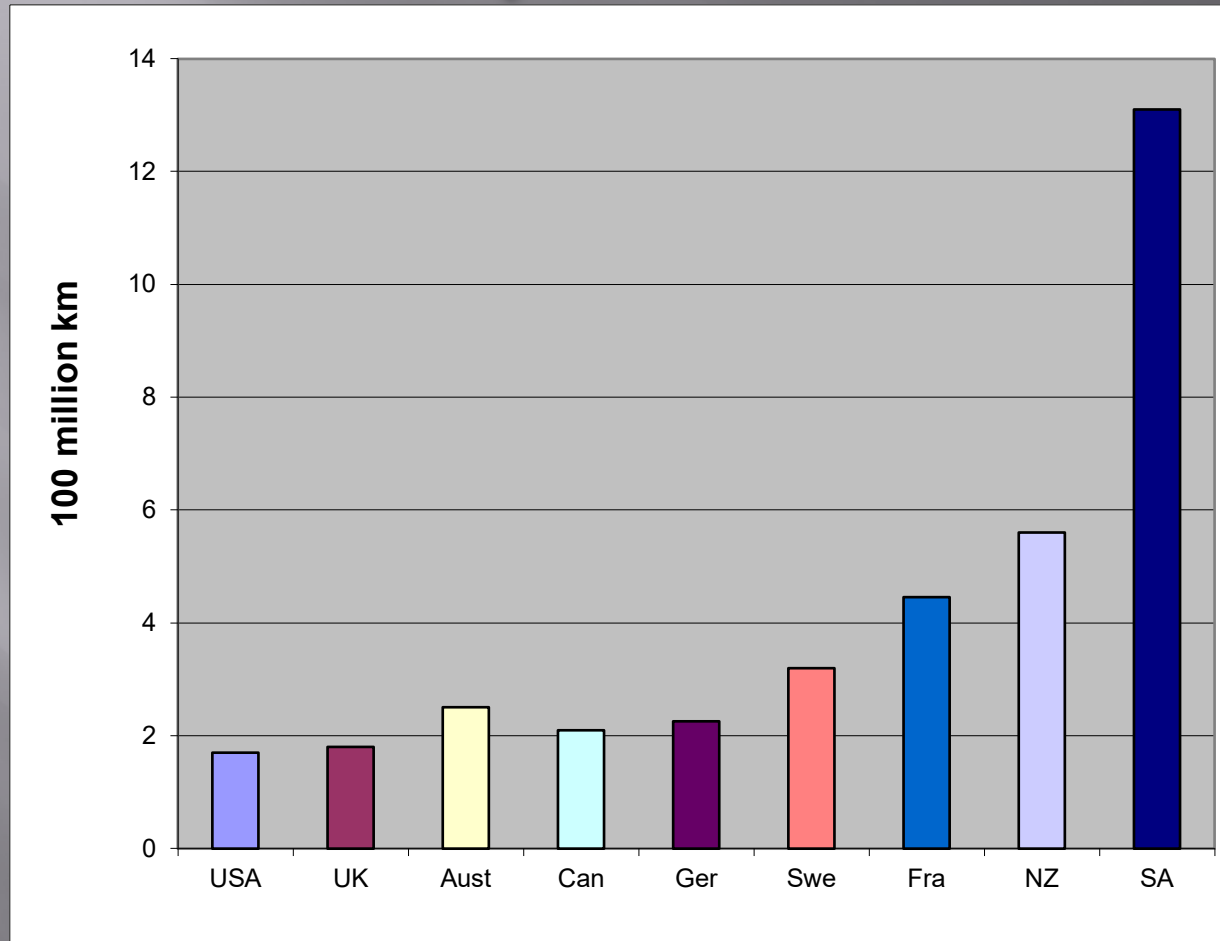
Colin Govender of the Road Traffic Inspectorate said the impact of the

collision was so severe that the horse pulling the trailer broke into two parts. The truck's cabin, containing the driver, was thrown clear of the main wreckage. The trailer also went up in flames.

Govender said it had not yet been established how the accident had occurred. "We hope that the man and his son will recover so that we can establish what happened."



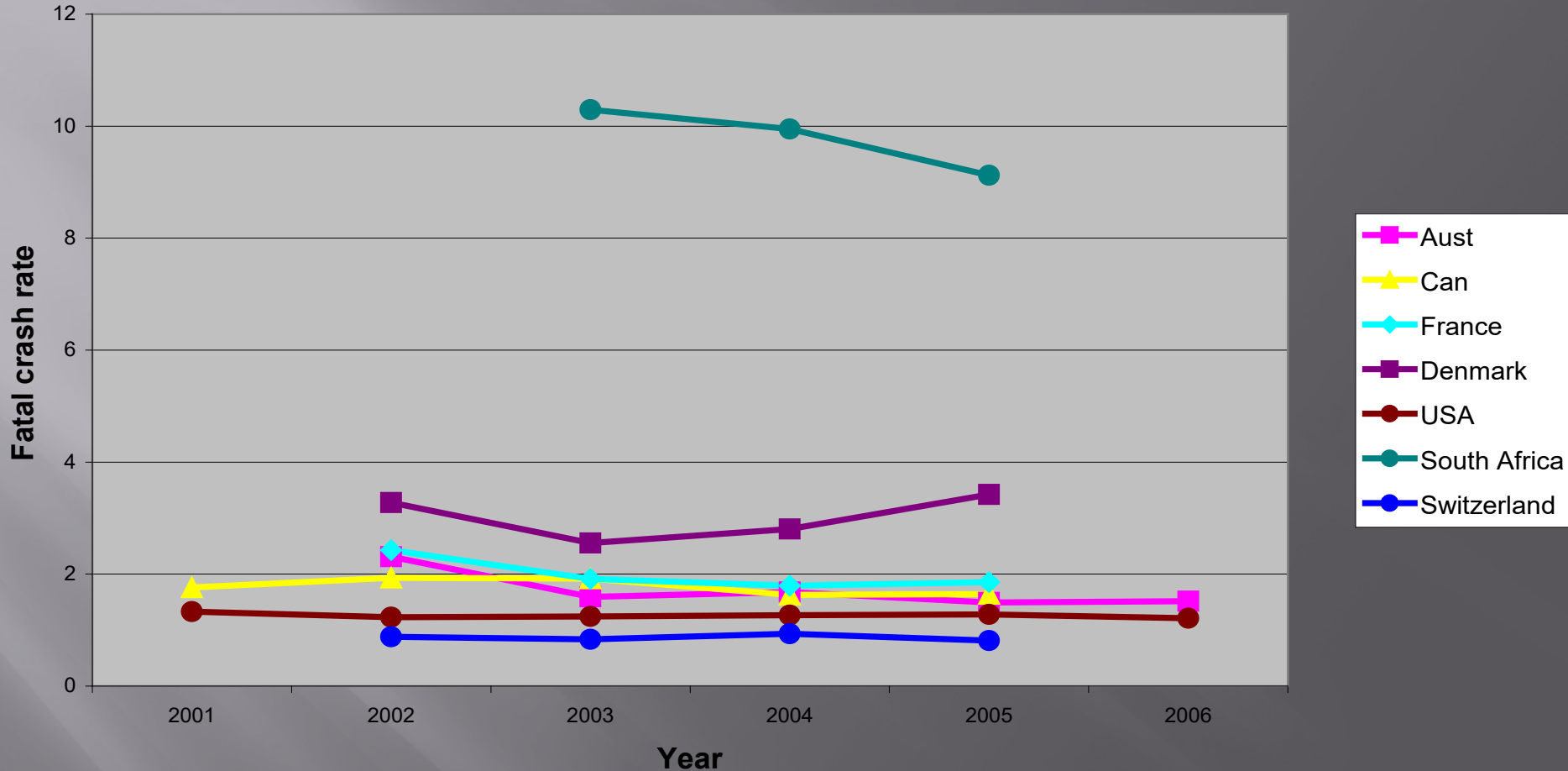
Benchmarking Heavy Vehicle Safety Report 2002



Heavy vehicle fatalities per 100 million km

Source: PIARC WRM 2007: Moore

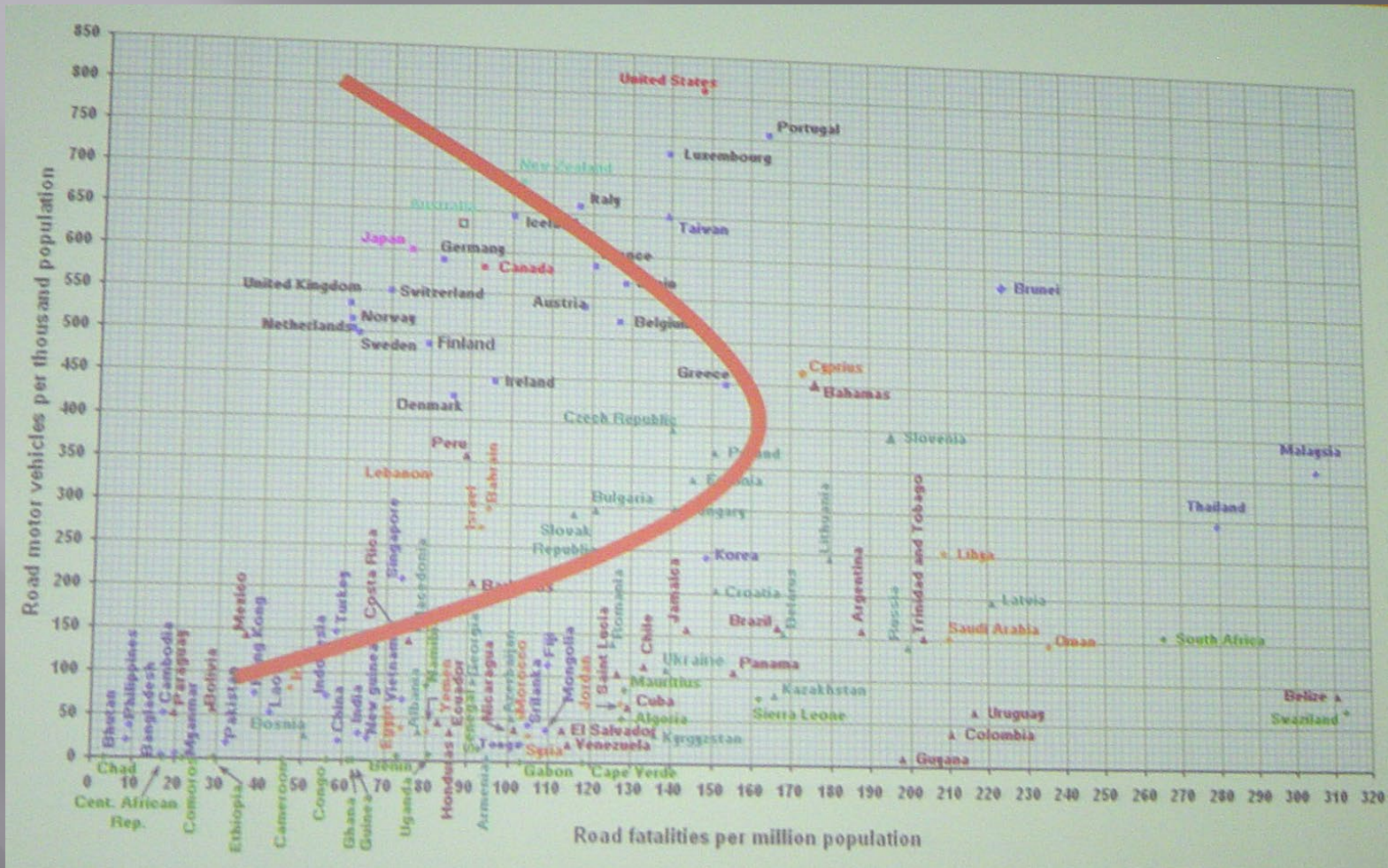
Heavy Vehicle Fatal Cash Rates



Fatal truck crash per 100 million vehicle kilometres travelled

Source: OECD report, Moving Freight with Better Trucks, 2010

International Road Fatality Statistics



Source: TRA 2008, Ljubljana, Slovenia



Leapfrog Approach

Finding Solutions

- ▣ Traditional approach
- ▣ Leapfrog approach
 - Example: Mobile phone technology
 - Utilise innovative technologies, policies and regulations to address long-standing freight issues

Leapfrog Approach (cont)

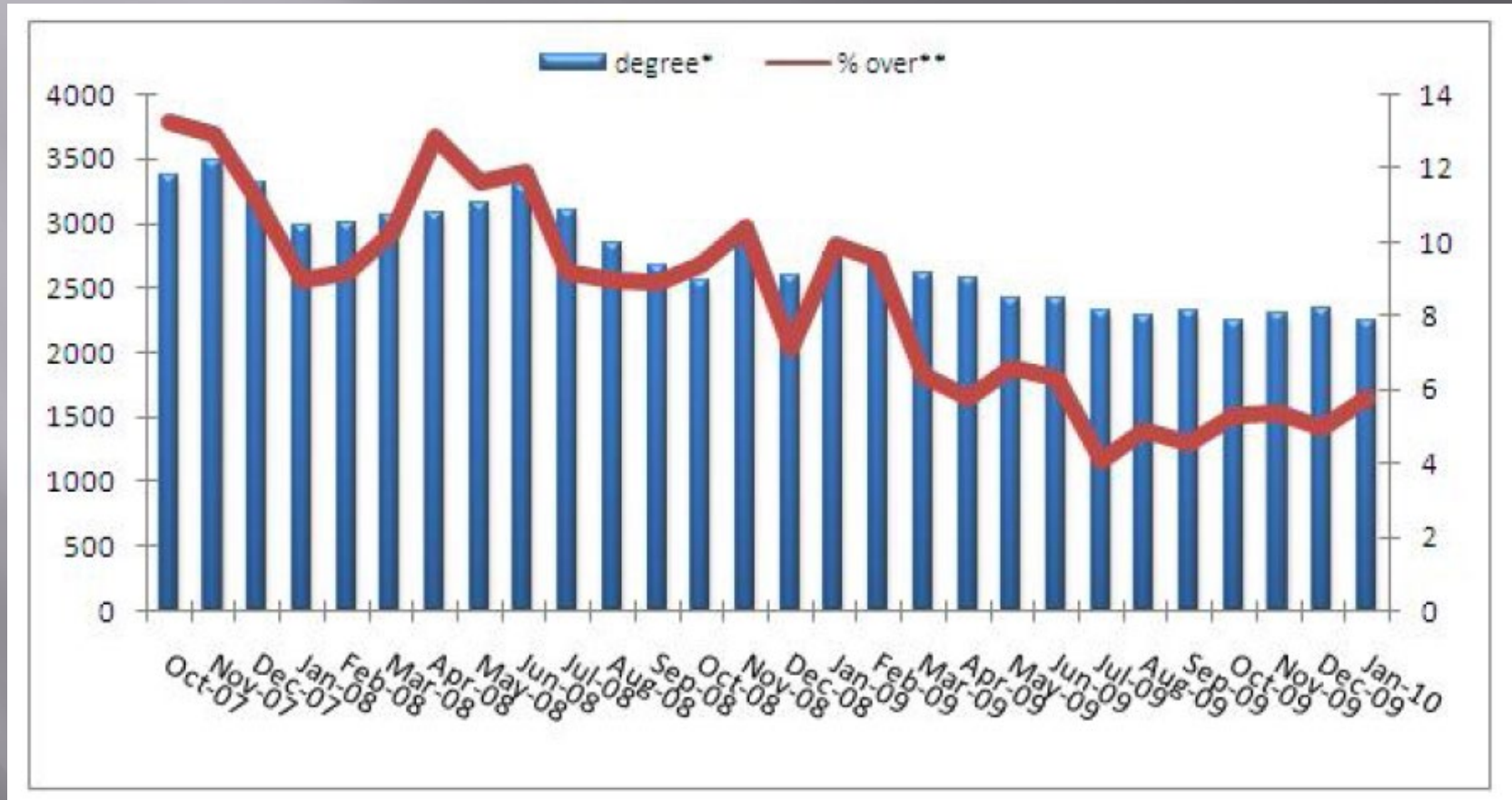
- ▣ Addressing road freight issues in Developing Nations
 - Public-Private Partnerships for financing, maintaining and operating roads e.g. Brazil
 - Outsourcing road maintenance activities
 - Vehicle tracking, weigh-in-motion, camera technology monitoring compliance – minimise human intervention
 - Chain of Responsibility: involve consignors and consignees
 - Accreditation systems for improving standards and tangible benefits
 - Performance-based standards for improving the performance of heavy vehicles



Leapfrog Approach (cont)

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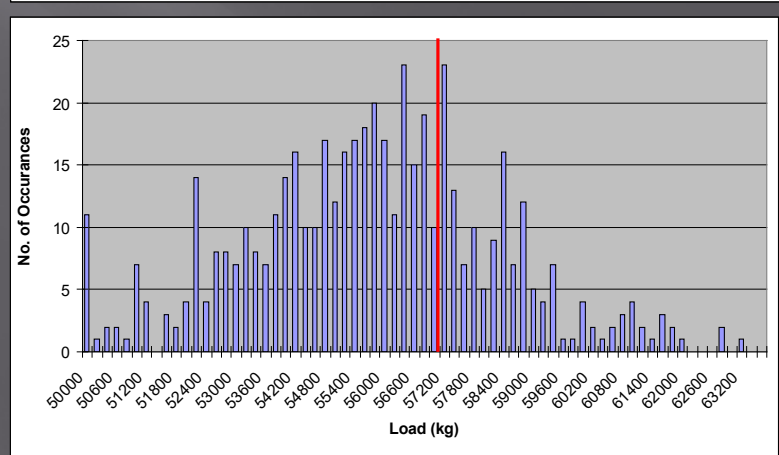
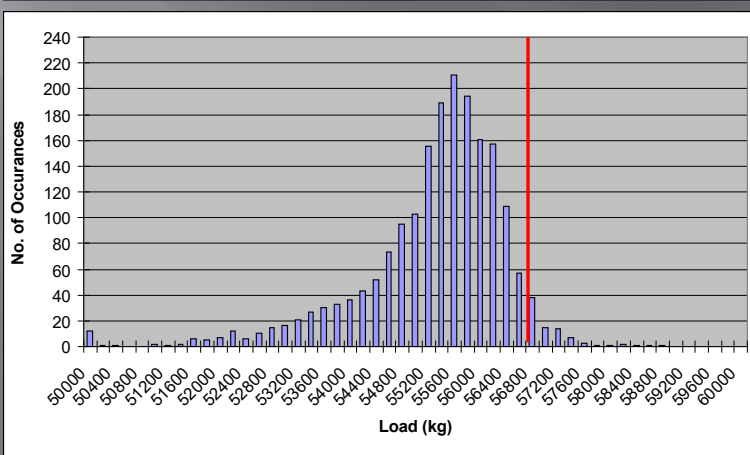
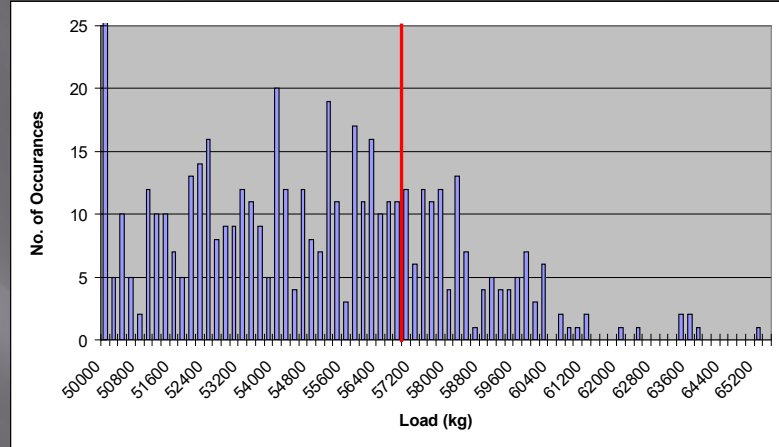
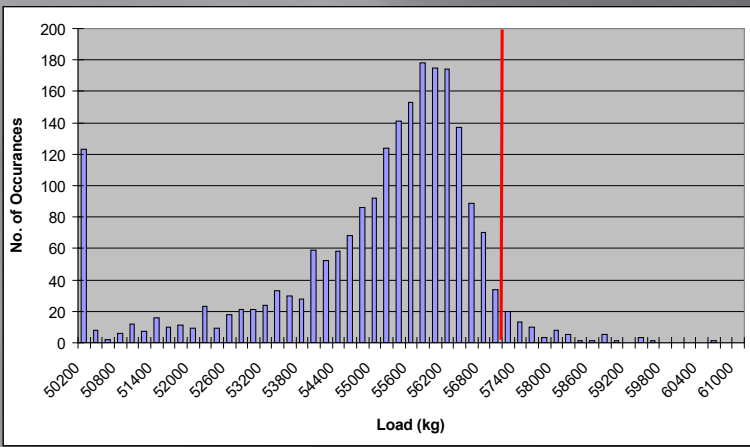
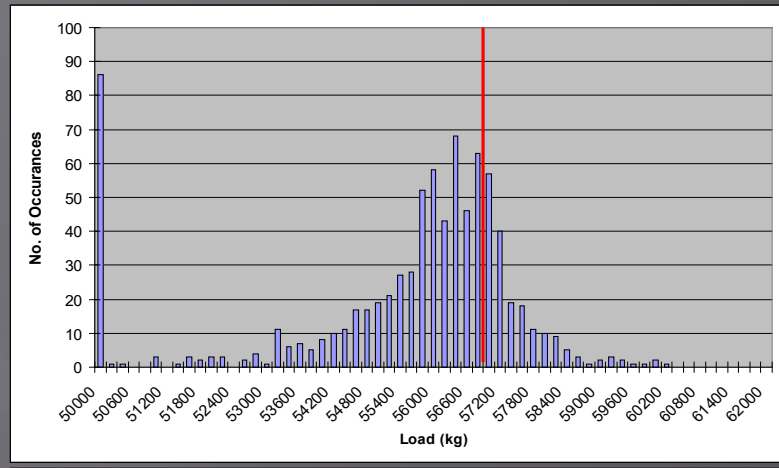
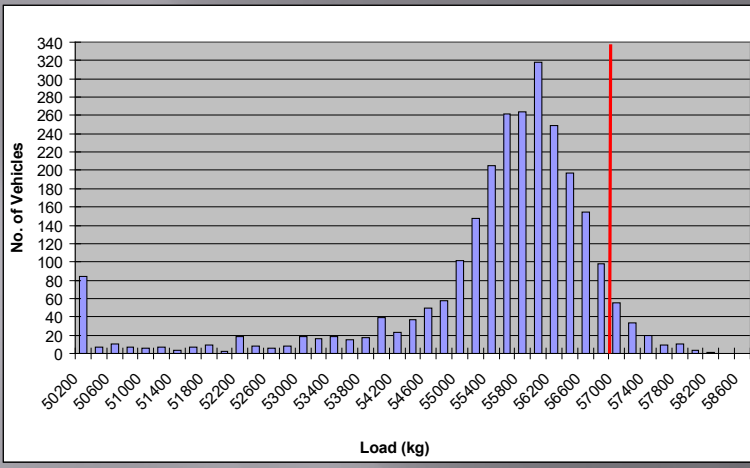
RTMS Accreditation in South Africa: Forestry



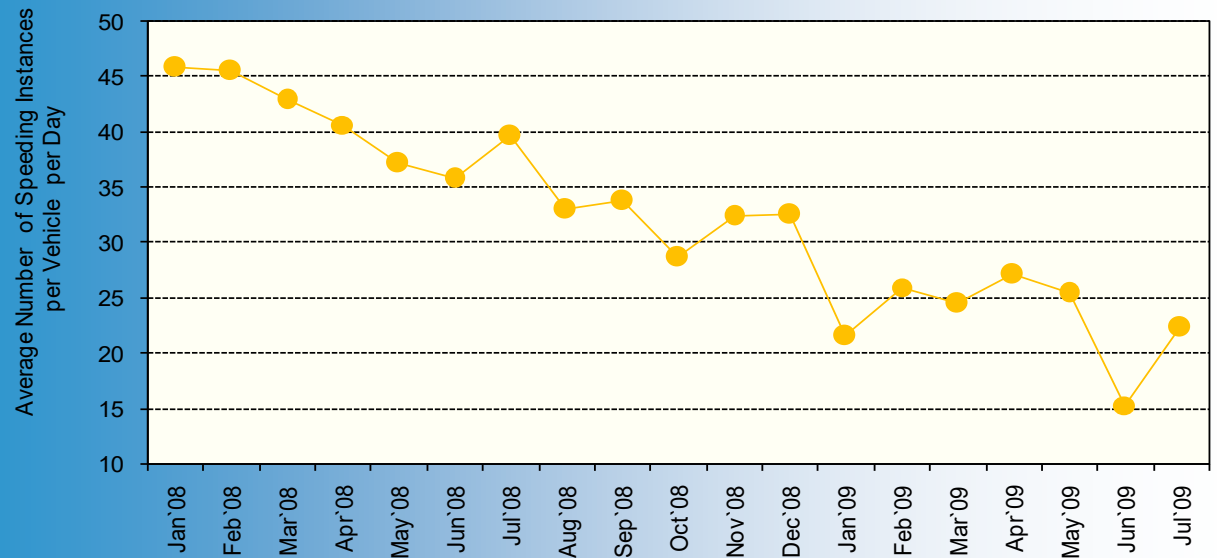
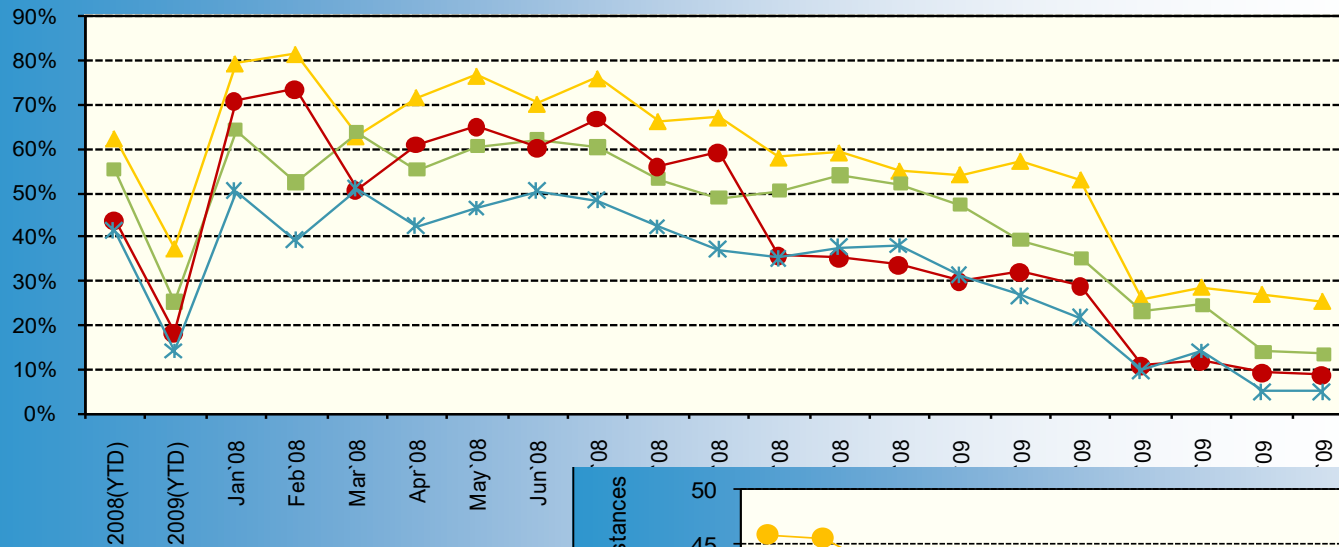
Heavy Vehicle Overloading trends in the forestry industry in South Africa

Source: Forestry RTMS monthly report, Jan 2010

RTMS in South Africa: Payload distribution in forestry



RTMS Accreditation in South Africa: Coal



Heavy Vehicle overloading and speeding trends in the coal industry in South Africa

Source: Coal RTMS monthly report, Aug 2009

Leapfrog Approach (cont)

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Thank you for your attention

