Road Freight Issues in South Africa and the RTMS initiative

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Past President: SA Road Federation
Research Group Leader, CSIR Built Environment
CONTENTS

- Challenges in road freight transport
- The concept of self-regulation
- Progress with SANS 1395 (Road Transport Management System)
- Some observed successes
Road Transport Efficiency

- High standard of infrastructure (capacity, road surface, road markings, road signs, stopping facilities, road reserve)
- Minimum incidents/crashes including breakdowns
- Compliance with traffic regulations
- Safety & security (effective law enforcement)
- Efficient emergency response
- Seamless cross-border transit
Key Elements in Road Freight Transport

• Road infrastructure: roads, bridges, roadside furniture, signs, road markings, eToll gantries 😊
• Vehicles: design, maintenance & operation
• Drivers: training, health, fatigue
Reality Check
Reality Check
Reality Check
Good roads lead to prosperity

Motto of the SA Road Federation

Road infrastructure
Road infrastructure

“It’s not our strong economy that gave us good roads, it’s our good roads that gave us a strong economy”

J.F. KENNEDY, US President
## Excess heavy vehicle maintenance and repair costs

<table>
<thead>
<tr>
<th>Road condition</th>
<th>Average maintenance and repair cost (R/km)</th>
<th>Average percentage increase in the truck maintenance and repair cost</th>
<th>Average percentage increase in company logistics cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>R 0.96</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fair</td>
<td>R 1.24</td>
<td>30%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Bad</td>
<td>R 2.11</td>
<td>121%</td>
<td>10.4%</td>
</tr>
</tbody>
</table>
Six trucks carrying cobalt concentrate from DRC to Johannesburg (3,500 km). Overloads ranged from 30,780 kg to 37,640 kg (65%)
Overloading in Mozambique

**Weighed / Overloaded**

<table>
<thead>
<tr>
<th>Month</th>
<th>Max Axle O/L (t)</th>
<th>% Overloaded</th>
<th>Max GVM O/L (t)</th>
<th>% Overloads / Extra E80's</th>
</tr>
</thead>
<tbody>
<tr>
<td>May-15</td>
<td>19.80</td>
<td>220%</td>
<td>44.92</td>
<td>134%</td>
</tr>
<tr>
<td>Jun-15</td>
<td>20.76</td>
<td>231%</td>
<td>44.96</td>
<td>130%</td>
</tr>
<tr>
<td>Jul-15</td>
<td>25.12</td>
<td>279%</td>
<td>52.91</td>
<td>125%</td>
</tr>
<tr>
<td>Aug-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

% Overloads / Extra E80's
Overloading in Mozambique

<table>
<thead>
<tr>
<th>Nº. Do Registro.</th>
<th>AEY575MC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marca do Veículo</td>
<td>HOWO</td>
</tr>
<tr>
<td>Tipo de Veículo</td>
<td>Veículo de Mercadoria: Rígido com/sem reboque(s)</td>
</tr>
<tr>
<td>Reboque 1 Nº de Reg.</td>
<td>-</td>
</tr>
<tr>
<td>Reboque 2 Nº de Reg.</td>
<td>-</td>
</tr>
<tr>
<td>Configuração</td>
<td>22 : ss.dd</td>
</tr>
<tr>
<td>Hora e Data de Pesagem</td>
<td>2016/07/12 11:44</td>
</tr>
<tr>
<td>Nome da Companhia</td>
<td>MOZ PROGRESS</td>
</tr>
<tr>
<td>Carga</td>
<td>AREIA</td>
</tr>
<tr>
<td>Rota</td>
<td>N4 Ressano - Maputo</td>
</tr>
<tr>
<td>Origem</td>
<td>MOAMBA</td>
</tr>
<tr>
<td>Destino</td>
<td>BOANE</td>
</tr>
<tr>
<td>GVM</td>
<td>34 000</td>
</tr>
<tr>
<td>GCM</td>
<td>34 000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eixo /Unidade</th>
<th>Pneus (Único /Dual)</th>
<th>Danos da Estrada (kg)</th>
<th>Peso Perm. (kg)</th>
<th>Peso +gr% Perm. (kg)</th>
<th>Peso Actual (kg)</th>
<th>Sobrecarga (kg)</th>
<th>Sobrecarga %</th>
<th>Estado</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SS</td>
<td>15 400</td>
<td>15 400</td>
<td>16 170 (5%)</td>
<td>17 720</td>
<td>2 320</td>
<td>15.06</td>
<td>Sobrecarga</td>
</tr>
<tr>
<td>2</td>
<td>DD</td>
<td>18 000</td>
<td>18 000</td>
<td>18 900 (5%)</td>
<td>46 560</td>
<td>28 560</td>
<td>158.67</td>
<td>Sobrecarga</td>
</tr>
</tbody>
</table>

Máximo permissível de Veículo / Combinación de Peso

| | | | | | | | | |
| | | | | | | | | |

Peso permissível de Reboque

| | | |
| | | |

Resultado de Pesagem:

<table>
<thead>
<tr>
<th>Sobrecarga</th>
</tr>
</thead>
</table>

![CSIR Logo]

our future through science
Congo truck with a record overload of 115 tonnes held

BY NATION REPORTER

A trailer with a record weight of 117.3 tonnes was on Sunday intercepted in Westlands, Nairobi. The trailer was on its way to the Democratic Republic of Congo. Kenya National Highways Authority Maitha Ngata said it was supposed to have a maximum gross weight of 54 tonnes. It was overloaded by 115.3 tonnes.

Mr Ngata said many trucks drivers were avoiding major weighbridges by using other routes. He said anybody involved in the deal would be taken to court.

The maximum gross weight of a seven-axle lorry is 171.3 tonnes. The one intercepted on Sunday was 171.3 tonnes.

"These are almost four trucks in one," he said. He said the trailer, which was carrying plastic basins and other items, had passed the Molo bridge with the required load.

"Our officers and the police tracked it down to Westlands where we ordered it to return to Molonglo," Mr Ngata said.
Encountered on route to Dar es Salaam from Tanzania. One of the reasons why travel after nightfall is not recommended.
Heavy Vehicle Fatal Crash Rates

Fatal truck crash per 100 million vehicle kilometres travelled

Source: OECD report, Moving Freight with Better Trucks, 2010
Fatalities per 100,000 population
Road Freight Challenges
The Reality: A Culture of Non-compliance

• Inputs
  – Overloading
  – Poor vehicle fitness (servicing & maintenance)
  – Poor driver fitness (fatigue, health, training)
  – Reckless driver behaviour
  – Border post delays
  – Bribery & corruption – impact on compliant and non-compliant operators
  – Inadequate periodic maintenance (roads)

• Outputs
  – Poor road safety
  – High cost of road transport/logistics
  – Deterioration of infrastructure
  – High levels of emissions
Regional Road Transport Issues

QUALITY OF LIFE

- Road safety
- Congestion
- Cost of logistics
- Road condition

GLOBAL COMPETETIVENESS

- Transport efficiency
- Cost of logistics
- Congestion
- Cross-border delays
- Optimum road maintenance

HEAVY VEHICLE TRANSPORT

- "maintaining and preserving natural systems"

SUSTAINABLE ENVIRONMENT

- Transport efficiency
- Road crashes
- Road condition
- Congestion
- Energy consumption
- Emissions
OVERLOAD CONTROL
National Overload Control Strategy
Implemented by National, Provincial and Local Authorities

Infrastructure & Equipment
- Main routes (major facilities)
- Alternative routes (minor facilities/screening)
- Monitoring (HS-WIM)
- Alternative weighing equipment
- Private weighbridges

Self-regulation
- Road Transport Management System (RTMS)
- Performance-Based Standards (PBS)

Legislation
- Consignors/Consignees
- 5% Tolerance
- User charges
- Habitual Overloaders
- Public Prosecutors
- Alternative weighing equipment
- AARTO

Information sharing & Public Awareness
- Overload website
- Overload information booklet

Operations
- Human Resources
- PPP
- Training
- Guideline document for law enforcement

Co-operation
- Provinces
- Local authorities
- Department of Justice
- Private sector
SOUTH AFRICAN NATIONAL STANDARD

Road transport management systems
Part 1: Operator requirements — Goods
The Road Transport Management System

• RTMS is an industry-led, government-supported, voluntary, self-regulation scheme that encourages consignees, consignors and road transport operators to implement a management systems standard with outcomes that contribute to preserving road infrastructure, improving road safety and increasing productivity.

• Key focus areas are:
  - load optimisation (minimise over- and under-loading)
  - driver wellness
  - vehicle maintenance
  - productivity
# Requirements of the RTMS

## RTMS STANDARD SANS 1395-1 – MAJOR CRITERIA

<table>
<thead>
<tr>
<th>LOADING CONTROL</th>
<th>SAFETY &amp; COMPLIANCE</th>
<th>DRIVER WELLNESS</th>
<th>TRAINING &amp; DEVELOPMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Payload Optimisation with minimisation of overloading</td>
<td>✓ Daily Roadworthy verification</td>
<td>✓ Medical Fitness verification</td>
<td>✓ Annual Training Plan</td>
</tr>
<tr>
<td>✓ Compliance with dimensional limits</td>
<td>✓ Preventive Maintenance Process</td>
<td>✓ Management of Chronic Conditions</td>
<td>✓ Focus on defensive driving, legal loading, fatigue management, with emphasis on the promotion of safe driving behaviour</td>
</tr>
<tr>
<td>✓ Safe Loading to prevent incidents</td>
<td>✓ Tyre Management</td>
<td>✓ Driver Resting Period monitoring</td>
<td>✓ Mentoring, monitoring, counselling, awareness and education</td>
</tr>
<tr>
<td>✓ Compliance with legal loading limits and/or applicable permit</td>
<td>✓ Prevent habitual speed exceedances</td>
<td>✓ Driving Hours Monitoring</td>
<td>✓ Training Records</td>
</tr>
<tr>
<td></td>
<td>✓ Prevent excessive driving hours</td>
<td>✓ Risk Awareness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ React to Accidents/Incident</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Monitor Traffic Offences</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Route Risk Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Active Promotion of Road Safety</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Effective implementation requires defined processes/procedures, with historical record of consistent compliance.

**SAFE**

- Roads
- Loads/Passengers
- Vehicles
- Drivers
Key Elements in Road Freight Transport

- Road infrastructure: roads, bridges, roadside furniture, signs, road markings, eToll gantries 😊
- Vehicles: design, maintenance & operation
- Drivers: training, health, fatigue
Strategic thrusts & programmes

Road Freight Strategy

1. Strategic thrusts
   - Integrated transport mechanisms
     - Integrated Transport Commission
     - Alignment of Transnet’s mandate
     - Rail linkages with other modes /IMT
     - Minimum targets for rail at ports
     - Efficient border posts

2. Strategic programmes
   - Road infrastructure management & funding
     - Change authority over roads
     - Establish road maintenance fund
     - Introduce heavy vehicle user-pay principles

3. Strategic programmes
   - Overload control management system
     - Overload control inspectorate
     - Optimisation of existing weighbridges
     - Credible penalties
     - Infringement system and training
     - Weigh-in-motion technology
     - Overload control database
     - Resolve non-physical barriers

4. Strategic programmes
   - Self-regulation & road safety
     - Promotion of self-regulation amongst operators
     - Improve road safety
     - Optimise transport of dangerous goods and abnormal goods

Operational issues: Driver and vehicle fitness; system and systems integration; performance
Vehicle & Load Safety

1. Probable Causes
   - Insufficient sleep
   - Poor nutrition
   - Drugs
   - Alcohol

2. What may go wrong?
   - Accident
   - Death
   - Injury
   - Financial Loss
   - Environment
   - Frequency (High)

3. Potential Hazards
   - Check load before departure
   - Proper Nutrition
   - Drug/Alcohol Test
   - Medical Test
   - 9 hour rest interval

4. Risk assessed if hazard occurs
   - High

5. Risk can be
   - Minimized
   - Controller/Phone check
   - Sleep on route
<table>
<thead>
<tr>
<th>Module Two</th>
<th>NUTRITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probable Causes</td>
<td>1. Education Culture</td>
</tr>
<tr>
<td>What May Go Wrong</td>
<td>2. Fall Asleep</td>
</tr>
<tr>
<td>Potential Hazards</td>
<td>3. Death Injury</td>
</tr>
<tr>
<td>How can we achieve Minimal Risk?</td>
<td>4. 1 Nutrition from part of training</td>
</tr>
<tr>
<td></td>
<td>2 Canteen on depot</td>
</tr>
<tr>
<td></td>
<td>3 Subsidised Meals</td>
</tr>
<tr>
<td></td>
<td>4 Medical Tests</td>
</tr>
<tr>
<td></td>
<td>Financial Loss</td>
</tr>
<tr>
<td></td>
<td>Environmental Illness</td>
</tr>
<tr>
<td></td>
<td>5 Water Compulsory</td>
</tr>
<tr>
<td></td>
<td>4 Frequency</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>5 Risk - if hazard happens</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>6 Risk Can Be</td>
</tr>
<tr>
<td></td>
<td>Minimized</td>
</tr>
<tr>
<td></td>
<td>6 Vitamins</td>
</tr>
<tr>
<td></td>
<td>7 Prohibit Stops</td>
</tr>
</tbody>
</table>
Effect of RTMS on compliance

Compliant

Non-Compliant

Heavy vehicles > 25 tons
(approx. 150 - 200 000)
Effect of RTMS on compliance

Law Enforcement

Compliant

Non-Compliant

Heavy vehicles > 25 tons
(approx. 150 - 200 000)
Effect of RTMS on compliance

RTMS

Law Enforcement

Compliant

Non-Compliant

Heavy vehicles > 25 tons
(approx. 150 - 200 000)

RTMS-certified vehicles
(approx. 10 000)
RTMS: Overloading trend in forestry
RTMS: Overloading trend in sugar

% Loads over 2% tolerance year on year improvement

% Loads over 2% Tolerance

Average Payload (tonnes)

Linear (% Loads over 2% Tolerance)
Case Study 1: City of Cape Town

Government Fleet Case Study
Electricity Fleet Management and Maintenance Services

Willem Janse Van Rensburg

July 2016

Making progress possible. Together.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>33 Years</td>
<td>8-15 Years</td>
</tr>
<tr>
<td></td>
<td>-&gt; Above Industry Standards</td>
<td>-&gt; Based on asset type and condition assessment</td>
</tr>
<tr>
<td>Functional alignment</td>
<td>40%</td>
<td>85%</td>
</tr>
<tr>
<td></td>
<td>-&gt; High misalignment between vehicle specifications and operational requirements</td>
<td>-&gt; Vehicles purchased as per specific operational needs</td>
</tr>
<tr>
<td>Fleet Availability</td>
<td>65%</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>-&gt; Work Orders open for months</td>
<td>-&gt; Work Orders closed within 14 days</td>
</tr>
<tr>
<td>Service Schedule Attainment</td>
<td>47%</td>
<td>98%</td>
</tr>
<tr>
<td></td>
<td>-&gt; Vehicles not maintained on time</td>
<td>-&gt; Vehicles serviced as per monthly plan -&gt; 100% Statutory compliance</td>
</tr>
</tbody>
</table>

- **Historical (2005)**: 33 Years -> Above Industry Standards
- **Current (2016)**: 8-15 Years -> Based on asset type and condition assessment
- **Stock Replacement Cycle**: Whole life cycle costing model implemented
- **Functional alignment**: Implementation of EAM, Right-sizing of fleet vehicles
- **Fleet Availability**: Daily management system implemented
- **Service Schedule Attainment**: Contractor KPI’s instituted, Effective Communication
Benefits: Efficiency Improvements

- Fuel Consumption Improved from 17L/100km to 13L/100km
- Carbon footprint improved by 24%
- Cost savings on fuel = R5.7 Million
- Cost savings on repairs and maintenance = R4.2 Million (2016FY)
Benefits: Reduction in Traffic Violations and Accidents

**Total Traffic Violations: Electricity**

<table>
<thead>
<tr>
<th>Month</th>
<th>Violations</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUN '15</td>
<td>27</td>
</tr>
<tr>
<td>JUL '15</td>
<td>25</td>
</tr>
<tr>
<td>AUG '15</td>
<td>42</td>
</tr>
<tr>
<td>SEP '15</td>
<td>33</td>
</tr>
<tr>
<td>OCT '15</td>
<td>28</td>
</tr>
<tr>
<td>NOV '15</td>
<td>27</td>
</tr>
<tr>
<td>DEC '15</td>
<td>13</td>
</tr>
<tr>
<td>JAN '16</td>
<td>26</td>
</tr>
<tr>
<td>FEB '16</td>
<td>20</td>
</tr>
<tr>
<td>MAR '16</td>
<td>12</td>
</tr>
<tr>
<td>APR '16</td>
<td>12</td>
</tr>
<tr>
<td>MAY '16</td>
<td>12</td>
</tr>
</tbody>
</table>

**Global Statistics**

- Traffic violations measured and monitored monthly
- Monthly reporting to management
- Driver training according to requirements

**Fleet Incident Rate per Million Kilometres**

- Accident Rate
- Benchmark (7.5%)

- Financial Years:
  - 08/09
  - 09/10
  - 10/11
  - 11/12
  - 12/13
  - 13/14
  - 14/15
  - 15/16

- Accident Rates:
  - 27%
  - 15%
  - 5%
  - 9%
  - 7%
  - 4%
  - 8%
  - 6%
Case Study 2: Dawn Logistics

Embracing the RTMS challenge

If ever you’re looking for an example of the vast improvements that can accrue in all areas of a transport company’s operations via the implementation of the Road Transport Management System (RTMS), look no further than Dawn Logistics writes Patrick O’Leary.
POSITIVE RESULTS AND OUTCOME AFTER IMPLEMENTING RTMS

Weighbridges or weigh mats at all depots:
All trucks are weighed before exiting and any defaults are fixed before trucks leave the yard
• 2013 and before = unknown
• 2014 = 3
• 2015 = 0

Risk of breakdowns/crashes/fines:
Strict daily routine inspections and regular tyre surveys, maintenance checks have improved our downtime, and any issues are repaired before trucks leave.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>FINES</th>
<th>CRASHES</th>
<th>DRIVER ERROR</th>
<th>BREAKDOWNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>218</td>
<td>37</td>
<td>19</td>
<td>57</td>
</tr>
<tr>
<td>2014</td>
<td>232</td>
<td>26</td>
<td>11</td>
<td>46</td>
</tr>
<tr>
<td>2015</td>
<td>56</td>
<td>17</td>
<td>5</td>
<td>33</td>
</tr>
</tbody>
</table>
Fuel consumption:
Consistent improvement. Fuel monitored on a daily basis and we are running above industry average. Since implementation, fuel consumption has improved by 20%
Primarily as a result of improved driver behaviour – defensive and economical driving, reduction in harsh braking and speeding.
RTMS benefits: Crash reductions

- Barloworld Logistics: 66% reduction in the number of crashes in 2012 (owner driver fleet);
- Vehicle Delivery Services: 42% reduction in serious crashes from 2011 to 2012;
- Timber Logistics Services: 50% reduction in crashes and incidents from 2009 to 2012;
- The City of Cape Town, Electricity Support Services: 44% reduction in the number of crashes;
- Unitrans Amatikulu: cost of crashes reduced from 5.0% of revenue to 1.3% of revenue (reduction in the frequency and severity of crashes)
- Reduced turnover of drivers due to HIV-related issues;
- Improved standard of living of drivers;
- Improvement in driver wellness, resulting in a consequent decrease in absenteeism;
- Reduction in breakdowns and drivers reporting breakdowns;
- Improved fleet utilisation (reduced downtime);
- Improved driver behaviour;
- More control and confidence in the company;
- Reassurance that drivers are medically fit to drive a heavy vehicle; and
- Improved motivation of employees
Growth of the RTMS in SA

200 fleets representing almost 10 000 trucks & buses (In 2007 their were 74 certified vehicles)

Four bus operators:
• Buscor 404 buses
• Intercape 152 coaches
• GABS Over 1000 buses
• Intestate (Bloem)

24 abnormal load operators:
• 258 vehicles
• Plant hire, construction, engineering, mobile cranes
• 2 commercial A/L operators (108 vehicles)
10 000 heavy vehicle milestone achieved by RTMS

posted by Tristan on July 25, 2016 in News, Road freight

The Road Transport Management System (RTMS) confirmed that the number of heavy vehicles that are RTMS certified has surpassed the 10 000 mark.

This increase demonstrates the commitment road transport operators are putting in place in order to implement standards and comply with South Africa’s road traffic regulations to improve road safety, preserve road infrastructure and increase productivity.

According to Adrian van Tonder, chairman of the RTMS national steering committee, transport operators have seen the long-term benefits that RTMS compliance offers. "Over the last few years, we have seen a massive leap in the number of trucks and buses becoming RTMS compliant. In 2007, we had 74 RTMS certified heavy vehicles on the road. With our ongoing commitment to road safety, we hope to reach 11 000 before the end of the year.

"Businesses tend to take a quantum leap forward in terms of road safety and productivity once they implement the basics of the RTMS management system. That’s why more and more transport companies are joining the initiative – they see tangible results," he said.

The RTMS certification has grown to become an official SABS standard in the South African heavy vehicle transport sector. The success of the self-regulation scheme can be attributed to