Evaluation of the Road Transport Management System, a self-regulation initiative in heavy vehicle transport in South Africa

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Abstract

This paper describes the recent developments of an initiative to introduce meaningful self-regulation in the South African heavy vehicle transport sector using the Road Transport Management System (RTMS) standards. The RTMS standards require that companies responsibly manage their activities to ensure minimal risk to other road users, the road infrastructure and their own drivers, whilst promoting road safety and driver wellness. The successes achieved by RTMS implementation is to a large extent due to the fact that is driven by private sector with active support from industry bodies and government agencies.. The case studies show that significant benefits have accrued to road authorities and the transport industry since the implementation of the project. The increasing momentum of RTMS implementation confirms the value of RTMS as a mechanism to effectively and sustainably improve the safety, compliance and efficiency of road transport in South Africa.

Keywords: Self-regulation, heavy vehicle overloading, road safety, infrastructure protection

Résumé

Cet article décrit les récents développements de l'initiative d'introduire une véritable auto-régulation dans le secteur du transport de véhicules lourds d'Afrique du Sud à l'aide du système de gestion des transports routiers (RTMS) des normes. Les normes RTMS exigent que les entreprises gèrent leurs activités de manière responsable afin d'assurer un risque minimal pour les autres usagers de la route, l'infrastructure routière et de leurs propres pilotes, tout en favorisant la sécurité routière et le bien-être du conducteur. Les succès obtenus par la mise en œuvre RTMS est dans une large mesure due au fait qui est entraînée par le secteur privé avec le soutien actif des organismes de l'industrie et des organismes gouvernementaux .. Les études de cas montrent que des avantages importants se sont accumulés pour les administrations routières et l'industrie du transport depuis la mise en œuvre du projet. La dynamique croissante de la mise en œuvre RTMS en confirme la valeur de RTMS comme un mécanisme permettant d'améliorer efficacement et durablement la sécurité, la conformité et l'efficacité du transport routier en Afrique du Sud.

Mots-clé: L'autorégulation, véhicule lourd surcharge, la sécurité routière, la protection des infrastructures

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1. Introduction

The Road Transport Management System (RTMS) was initiated in 2003 as a project to promote the concept of self-regulation in South Africa's heavy vehicle transport sector. The project hoped to mitigate the consequences of heavy vehicle overloading and poor compliance to road safety. Heavy vehicle overloading and a culture of non-compliance continue to present a significant challenge to the country despite the concerted efforts of law enforcement. Overloading causes premature road deterioration and, together with inadequate vehicle maintenance, errant road users and driver fatigue contributes significantly to South Africa's poor road safety record. One of the tasks of the national Department of Transport's (DoT) National Overload Control Strategy (NOCS) (Steyn *et al*., 2004) was to investigate the possibility of implementing some form of self-regulation in the heavy vehicle transport industry to complement the enforcement efforts of the roads authorities to address the problem of overloading. The NOCS identified the Australian National Heavy Vehicle Accreditation Scheme (NHVAS) (NRTC, 1998) as one that had a number of components appropriate to the South African situation. The legislation enabling the control measures for consignors and consignees was drafted in 2003 and promulgated as part of the National Road Traffic Amendment Act, 64 of 2008 (DoT, 2008). The Act was implemented in November 2010 and the regulations stipulating the specific provisions applicable to consignors and consignees have been drafted and are in the process of being promulgated. This will effectively require that consignors and consignees play a critical role in ensuring that the impact of their activities do not contribute to road deterioration nor unduly compromise the safety of other road users. It is envisaged that operator certification to the RTMS standard will be used as a tool for these stakeholders to demonstrate compliance with these legal requirements.

Despite the fact that RTMS, was initially mooted as an overload control mechanism (then known as at Load Accreditation Programme), it has evolved to be currently recognised as an holistic system of managing a road transport operation. There has been growing adoption of RTMS by a wide range of stakeholders over the past five years with increasing momentum particularly evident since 2011. This increasing momentum is due to the fact that companies that have embraced RTMS have experienced significant improvements in compliance and safety performance. There have been numerous success stories of RTMS-certified companies achieving reduction in overloading, improved fleet availability (reduced down-time), reduction in crash/incident rates and improved compliance (fewer speed exceptions/traffic violations/driving hour violations). In view of these noteworthy results some major consignors in South Africa such as Exxaro Coal, Mondi, SAPPI, BHP Billiton, Anglo American and Eskom are actively promoting RTMS to their transport contractors. In some cases, RTMS certification is included as a component of procurement requirements. The KwaZulu-Natal Provincial Department of Transport (Abnormal Loads Department), in recognition of the improved safety record of RTMS-certified operators, selectively uses this as a criterion in the issue of abnormal load permits. More recently, the South Africa Bus Operator Association (SABOA) board of directors elected to actively promote RTMS in the bus passenger industry, with the stated aim of improving road safety. These success stories further emphasise self-regulation as an effective and sustainable mechanism to ensure compliance and road safety. Ultimately as more and more companies embrace RTMS, it is expected that this will contribute to safer roads and prevent the loss of life on our road networks (in addition to the other infrastructure and productivity benefits). RTMS is a tool that can contribute to achieving the primary outcome of the UN Decade of Action for Road Safety 2011-2020 echoed by the UN Secretary General: "Now we need to move this campaign into high gear and steer our world to safer roads ahead" (Mr Ban Ki Moon, United Nations Secretary General)

2. History of the RTMS

The RTMS was an initiative in the timber industry that commenced in 2003 aimed at reducing overloading in order to prevent accelerated road infrastructure deterioration, and to promote good corporate governance. In order to realise the full impact of protecting the road infrastructure it became important to obtain buy-in from other industries. The project in the timber industry therefore resulted in a national pilot project, which was initially funded by the Department of Trade and Industry (DTI) and Forestry South Africa (FSA) under the DTI's Sector Partnership Fund. Major consignees/consignors in the forestry sector were actively involved in the project and were represented on the project Steering Committee together with representatives of other stakeholders.

In its early form, RTMS was known as the Load Accreditation Programme (LAP) (CSIR, 2004) and focused predominantly on the reduction of overloads in the timber industry. The successful implementation of LAP in the forestry industry – the extent of overloading in terms of the number of heavy vehicles charged for overloading reduced by some 40 per cent over a two year period – led to various stakeholders identifying the need to establish a national LAP steering committee in order to expand the programme to other industries. A national LAP workshop was held in June 2004 during which issues such as the vision, mission, mandate, objectives, structure and terms of reference of the proposed committee were addressed. Stakeholder and organisations represented at the workshop included the DoT, the SA National Roads Agency Ltd., FSA, the Institute for Commercial Forestry Research (ICFR), SA Cane Growers (SACGA), Road Freight Association (RFA), NPI and the Council for Scientific and Industrial Research (CSIR). The first meeting of the national committee was held in July 2004 and one of the first tasks was to compile a national LAP strategy. During the next 12 months various industries were approached with a view to participating in the LAP initiative. By the end of 2005, a number of these industries had indicated a willingness to participate in LAP.

In November 2005, the national steering committee identified the need to revise the LAP strategy document and in particular consider the possibility of a name change, as it was felt that the name "Load Accreditation Programme" put too much emphasis on the aspect of vehicle overloading without recognising the other important aspects of vehicle maintenance, driver wellness, training and productivity. The committee decided to rename the initiative the Road Transport Management System (RTMS).

The RTMS five-year strategy (NPI, 2006) was officially launched in October 2006 (Transport Month) and in the foreword by the Minister of Transport, Mr Jeff Radebe states that "(The RTMS) is an industry driven process that complements Government programmes aimed at promoting efficient road based operations, road infrastructure protection and ensuring road safety. I therefore commend the pro-activity shown by the leadership of this initiative and have no doubt that it will lead to tremendous improvement in the performance of the logistics chain." The RTMS supports the DoT's National Freight Logistics Strategy (DoT, 2005) and more recently, self-regulation has been incorporated into one of the four pillars of the DoT's National Road Freight Strategy (DoT, 2012).

In recognising the national value of RTMS, the DoT sponsored eight RTMS workshops at various venues in South Africa during 2009 and 2010. With the additional support of various industry sponsors, in excess of 30 national RTMS workshops have been conducted to date with consistently positive feedback received from delegates. The South African Deputy Minister of Transport delivered the keynote address at the 2012 workshop held in Polokwane, Limpopo province, and once again emphasised the value of RTMS to the region by the following quote taken from her official address: "I encourage industry to build on the successes achieved in the implementation of the RTMS Standards in the broader transport sector. I also urge all industry stakeholders to embrace this visionary system that will not only improve efficiencies in the South African logistics value chain, but also enable best practice sharing with the Southern Africa Development Community" (Ms Sindisiwe Chikunga, SA Deputy Minister of Transport).

The number of organisations that became RTMS-certified during the period 2007 to 2012 is shown in Figure 1. As at the end of 2012, over 70 operators fleets, representing more than 3 000 heavy vehicles, were participating in the accreditation scheme. This number had increased to over 4 600 by September 2013.

3. 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 system (a set of standards) that demonstrates compliance with the Road Traffic Regulations and contributes to preserving road infrastructure, improving road safety and increasing productivity. RTMS therefore is a system that voluntarily regulates the heavy vehicle industry and has achieved significant results in:

- Reduction and minimisation of overloading;
- Preventing road damage and preserving our infrastructure;
- Enhancing the safety of heavy vehicles on our national roads;

- Taking care of truck drivers' health (driver wellness initiatives);
- Reduction of traffic violations (e.g. reducing speeding incidents);
- Improving efficiency in various industry supply chains;
- Actively promoting skills development within the transport sector; and
- Companies measuring their performance and taking responsibility for the impact of their activities.

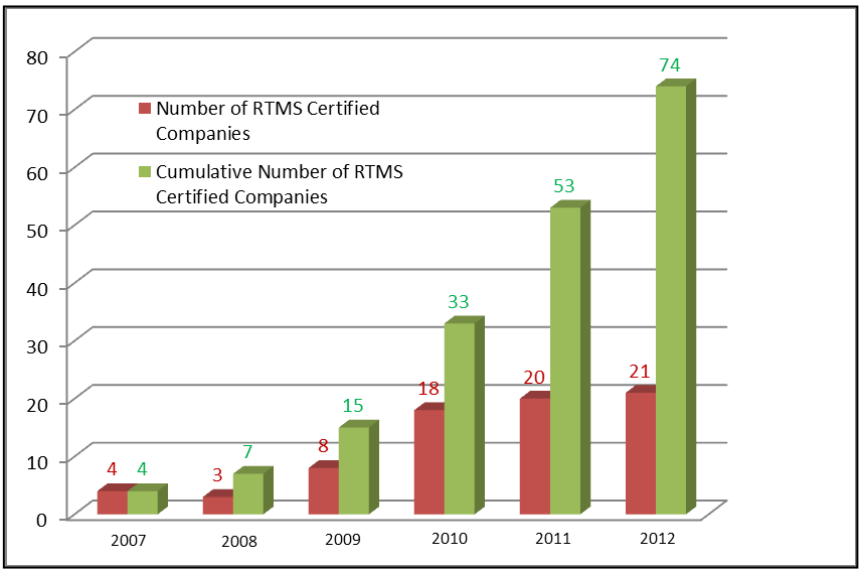

Fig. 1. Annual RTMS certifications, 2007 to 2012

The RTMS Standard comprises four main pillars as shown in Figure 2:

- Loading Control
- Safety & Compliance
- Driver Wellness
- Training & Development

RTMS STANDARD – SYNOPSIS			
Loading Control	**Safety & Compliance**	**Driver Wellness**	**Training & Development**
✓ Prevent Overloading ✓ Optimise payload ✓ Safe loading Practices ✓ Compliance with dimensional limits	✓ Systematic Vehicle Maintenance ✓ Minimise Vehicle Break downs ✓ Verify Daily Vehicle Inspections ✓ Prevent speed violations ✓ Avoid Crashes ✓ Minimise traffic violations ✓ Manage route risks ✓ Monitoring of safety indicators	✓ Medical Certificate of Fitness ✓ Management of Chronic Conditions e.g. Diabetes ✓ Fatigue Management ✓ Rest Day Allocation ✓ Monitoring of Driving Hours ✓ Provision of Resources	✓ Training Plan ✓ Driver Recruitment Process ✓ Competency Evaluation ✓ Structured Training Programme ✓ Driver Assessments ✓ Effective Communication on Safety/Compliance

Fig. 2. Key components of the RTMS standard

These pillars have been incorporated into the ten elements of the standard as follows:

1. Fleet Inventory
2. Load Assessment & Verification
3. Road Safety
4. Maintenance of Roadworthy Vehicles
5. Vehicle & Load Safety
6. Health & Wellness
7. Support (Training & HR Development)
8. Documents & Records
9. Performance Evaluation
10. Continual Improvement – Efficiency & Road Safety

In August 2006 the South African Bureau of Standards (SABS) was approached to develop the RTMS as a national standard. Through a consultative process, it was decided to first publish the standards as a "Recommended Practice" (ARP 067), Part 1 being the recommended practice for Operators. An SABS Technical Committee, STANSA TC181B: Road Transport Management Systems, was constituted in October 2006 and a Working Group appointed to transform the standards into a SABS Recommended Practice. The ARP 067-1:2007 Part 1: Operator Requirements – Goods (Standards South Africa, 2007) was published in February 2007 and has since evolved to the imminent publication of SANS 1395-1:2012 Road Transport Management Systems. In developing SANS 1395-1:2012 due consideration was given to incorporating relevant clauses of ISO 39001:2012 Road Traffic Safety (RTS) Management Systems (ISO, 2012). Hence companies that are certified to the RTMS standard would readily be able to align their processes with the ISO standard, should this be necessary.

4. Observed successes

Implementation of the RTMS standards has directly contributed to significant safety, compliance and efficiency improvements. A fundamental concept is the consistent implementation of the relevant procedures and the corresponding application of corrective actions where deviations or non-conformances are detected as a result of monitoring and measurement. In this structured manner, organisations have been able to monitor key performance indicators and implement appropriate measures to ensure continual improvement. Companies have reported successes and benefits that can be described quantitatively as well as qualitatively. The following notable achievements have greatly enhanced the value of RTMS and its increasing recognition by supply chain stakeholders.

4.1. Reduction in crashes

Various industries and individual companies have seen the direct benefit of reduced crashes and incidents as a result of RTMS implementation. This is perhaps the most encouraging and meaningful impact, especially due to the high crash rate in South Africa (with approximately 14 000 fatalities per annum).

The City of Cape Town, Electricity Support Services – Fleet Maintenance Division has seen a marked decrease in the incident rate in comparison with kilometres travelled. The number of road related incidents has decreased in spite of increased distance travelled as shown in Figure 3.

A number of individual transport companies/organisations have also reaped substantial benefit from reduction in crashes:

- Barloworld Logistics achieved a 66% reduction in the number of crashes in 2012 (owner driver fleet);
- Car Carrier (VDS) experienced a 42% reduction in serious accidents from 2011 to 2012;
- Timber Logistics Services reported a 50% reduction in accidents/incidents from 2009 to 2012;
- The City of Cape Town, Electricity Support Services realised a 44% reduction in the number of crashes;
- Unitrans Amatikulu reduced the cost of crashes from 5.0% of revenue to 1.3% of revenue (reduction in the frequency and severity of crashes) as indicated in Table 1.

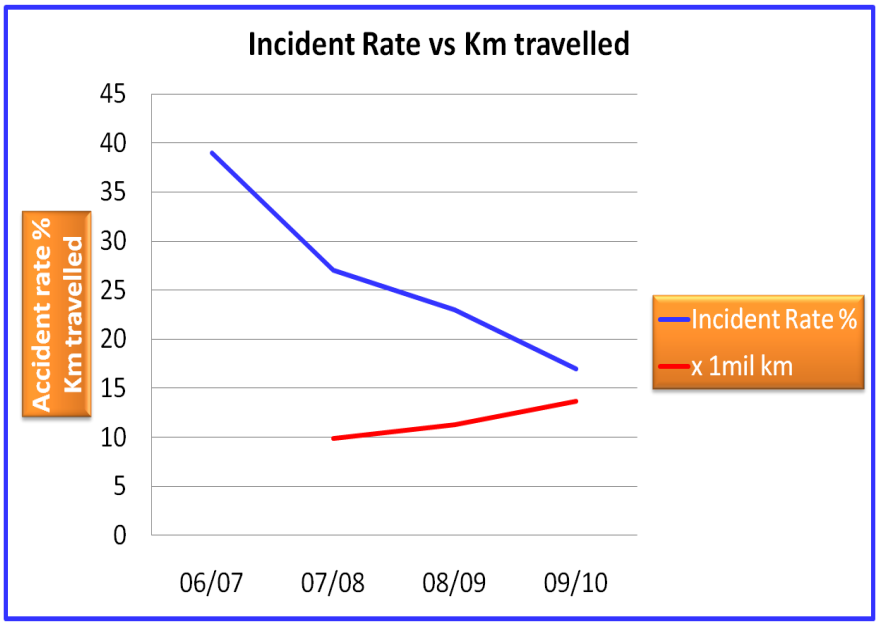

Fig. 3. Reduction of road related incidents – City of Cape Town, Electricity Support Services.

Table 1. Reduction in road crashes, Unitrans Amatikulu from 2006/07 to 2011/12

Year	No. of crashes	Annual cost (cpk)	Percentage of revenue
2006/07	20	67	5.0
2007/08	9	76	5.4
2008/09	3	103	6.4
2009/10	4	40	2.0
2010/11	3	27	1.3
2011/12	5	29	1.3

4.2. Reduction in overloading

There has been significant reduction in overloading in a number of sectors, notably in the forestry, sugar and coal industries. The percentage overloads in the timber industry has seen a steady decline, with the current overloading percentage of less than 4%. This is a commendable achievement when compared to the pre-RTMS overloading percentage in excess of 20% (see Figure 4).

The sugar industry has seen a reduction in the extent of overloading from in excess of 30% to approximately 7%, which is an admirable achievement as shown in Figure 5. The sugar RTMS committee continues to work with the sugar mills to regulate transporters in a continual effort to curb overloading.

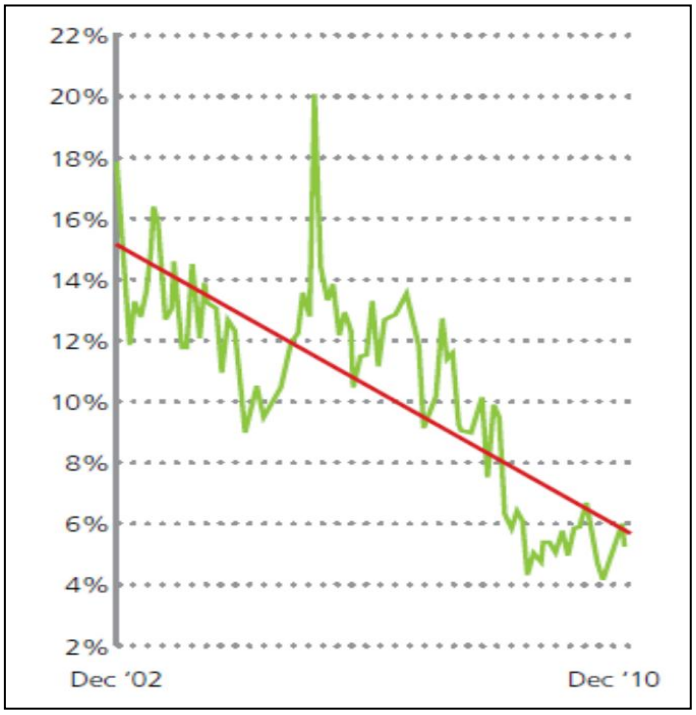

Fig. 4. Reduction in overloading in the forestry sector.

Fig. 5. Reduction in extent of overloading in the sugar sector.

4.3. Reduction in speeding incidents

Speeding is one of the leading contributors to crashes; RTMS compliance requires diligent monitoring of speeding and the implementation of corrective actions in order to prevent habitual recurrences. The reduced crash rates of RTMS certified companies are no doubt due, in part, to effective control of drivers to minimise habitual over-speeding. A car-carrier transport operator, Vehicle Delivery Services, achieved a 30% reduction in speed violations (detected from satellite tracking). Two other transport operators, Barloworld Logistics and Tanker Services, achieved 100% compliance in terms of speeding controls required by the RTMS standard (Element 3.5: Vehicle & Load Safety). Speeding incidents in a segment of the coal industry have been reduced from more than 40 incidents per day to less than 15 incidents per day (see Figure 6). Whilst this is situation is not ideal, efforts are ongoing to promote RTMS in this sector dominated largely by smaller fleets.

Fig. 6. Reduction in speeding (speeding incidences/vehicle/day) in the coal sector, Oct. 2007 to April 2011.

4.4. Efficiency improvements

Various companies have reported gains in efficiency specifically with respect to improved fuel consumption, tyre wear and fleet utilisation (reduced down time). Such improvements are most likely due to improved driver skills as a result of training and development. For example training drivers on green band driving (optimal range), combined with the minimisation of excessive idling and harsh acceleration plays a critical role in the improved fuel efficiencies observed. Training, in conjunction with monitoring of driving habits, has also been reported to yield direct benefits e.g. training on tyre management together with monitoring of harsh braking (and corresponding actions) improved tyre and brake life. Figure 7 shows the improvement in fuel consumption measured by the City of Cape Town Electricity Fleet Support Services.

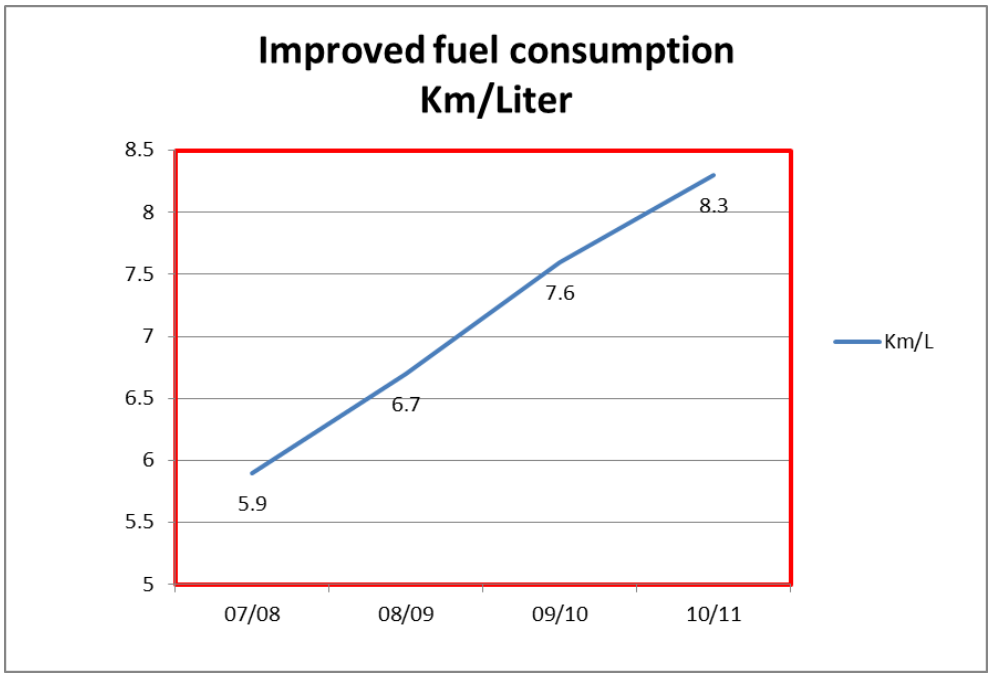

Fig. 7. Improved fuel consumption – City of Cape Town, Electricity Support Services.

4.5. Qualitative benefits

A range of qualitative benefits that RTMS-certified companies have experienced include the following:

- 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 down time);
- 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

5. Conclusions

The RTMS standard has a meaningful role to play in promoting self-regulation in the broader road transport sector in South Africa. It is evident that RTMS certification adds significant value to an operator's compliance, safety performance and efficiency. It is envisaged that a greater awareness of the standard and the accrued benefits will yield even better results as more companies embrace the standard. A critical aspect is the adoption of RTMS by consignors and consignees either to become certified themselves or to promote compliance amongst their transport operators. Exxaro Resources (Coal Division) is currently the first and only consignor/consignee certified to the RTMS standard for consignors. This achievement has had a significantly positive knock on effect on all transport operators involved in this particular supply chain, whereby these operators' safety and compliance is verified by Exxaro's RTMS processes. It will be through similar adoption of RTMS by other major consignors/consignees that the next quantum leap in RTMS implementation will be achieved. Continued support by government and government agencies will further enhance the efforts to promote RTMS as an effective and sustainable mechanism to achieve a safe, compliant, and efficient transport network in South Africa.

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