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**ASIAN RETREAD
CONFERENCE (ARC)
2018 CONCLUDES
ON UPBEAT NOTE**



FOCUS
**RUBBER
CHEMICALS**
IT'S BOOM TIME FOR RUBBER CHEMICALS

**CB: CAPACITY
LAGS BEHIND
DEMAND
TOON HOWE TAN**



**PCBL TO MEET
RISING CARBON
BLACK DEMAND
KAUSHIK ROY**



**IRM 2018: NR PRICES TO
TURN AROUND IN
NEXT DECADE-EXPERTS**

**MRB
THE DRIVING FORCE OF
MALAYSIAN NR INDUSTRY**

Sankara N Nair, Chairman, Malaysian Rubber Board



Adam Gosling

VISION IN TYRE OPERATIONS: **BADLY NEEDED, BUT AWFULLY SCARCE**

Outcomes of a lack of vision in tyre operations are both numerous and of magnitudes that cost us dearly. When we consider why tyre monitoring systems are not used by all transporting companies, we can only conclude that lack of vision is yet another human frailty

When looking at a situation, it is imperative that appropriate vision is contemplated. Whilst short-term gains may be appealing, if the lack of vision diminishes the long-term returns, then a loss is all but certain.

There are many issues where a lack of vision produces outcomes that are detrimental. Climate change is one at the forefront of global thinking and it demonstrates how short-term gains can have long-term consequences. Fires, storms and floods are the immediate pictures of this phenomenon. Vast areas in the US have been totally burnt out as a vehicle, operating with a flat tyre, caused sparks which ignited tinder dry roadside bush. Now consider the subsequent outcomes of erosion and even disease. If I'd been told that my energy consumption was going to result in erosion and disease, I'd be asking how was this so? The lack of vision applied in examining long-term outcomes can be seriously expensive.

So how does this apply to tyres and safety?

A tyre is simply a container for air. Without air a pneumatic tyre cannot perform the work we, the vehicle operators, ask of the humble tyre. There are few people who don't know that a flat tyre doesn't support any load. So when we consider why we need to check tyre pressures, shouldn't we consider the potential outcomes of not doing so?

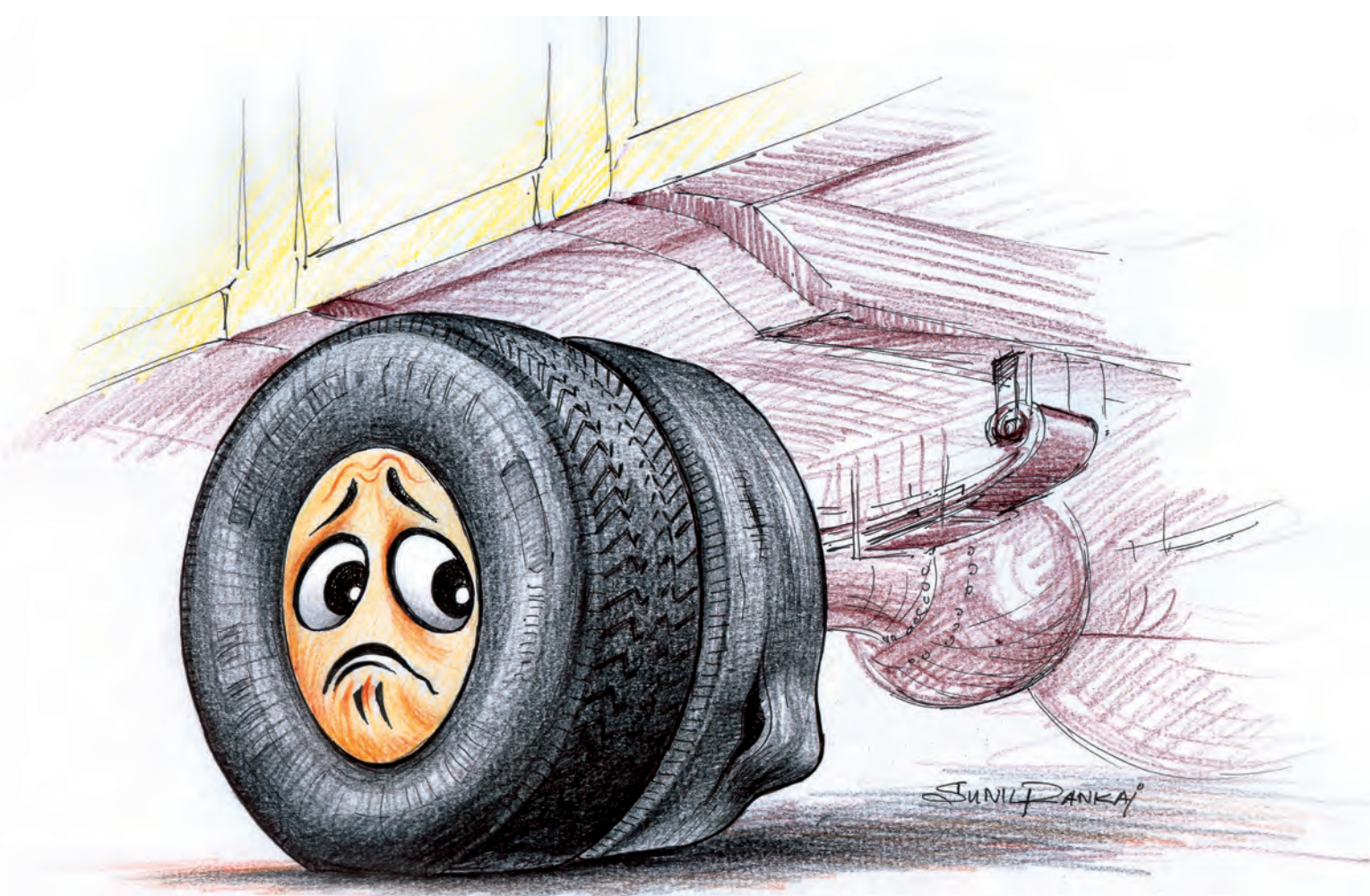
In the late 90's, a close focus on short-term outcomes resulted in many deaths and injuries. The events resulted in the use of tyre pressure monitoring (TPMS) for passenger

vehicles mandatory in the US. All vehicles under 4.5t sold were to be fitted with TPMS. In 2008, the mandate was applied in totality. The European auto manufacturers took a slightly different approach (known as the indirect method) where wheel speed was used to determine tyre pressures. As a result of a comprehensive investigation reported by the TNO organisation (TNO 2013, R10986), the decision to use the direct method of sensing tyre pressures was made mandatory in the EU for all light passenger vehicles.

While researching legislation in Australia, I found a report from a Federal Parliament Road Safety Committee on Tyre Safety, dated 1980. The vision of this committee was astounding! The committee discussed the criticality of inflation pressures versus tread depth and how monitoring inflation pressures in real time was of high value. This was done well before the advent of electronics that would be capable of sensing pressures and then transmitting them had been made available. The desktop computer had not yet reached the market; yet the people on this committee had the vision to examine what the desirable outcomes would be. It is disappointing to report that even 38 years later TPMS has still not been mandated in Australia, despite the systems being used as OEM in many countries. A distinct lack of vision is the only conclusion I have been able to reach.

Even with enhanced vision in place, if action is not implemented then the potential gains will be lost. So when we consider the modern motor vehicle, the humble tyre is indeed the

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foundation of the vehicle. A truck can operate without brakes, although this is short-sighted as the ramifications of doing so really do not need to be stated. A car can be operated without suspension and yes I agree it would be seriously uncomfortable and would not handle very well. The steering system is subservient to the tyres; it simply directs the tyres. So, like a railway locomotive, steering is not a prime requirement. Try operating a modern vehicle without tyres!

I was recently engaged in an interesting discussion with a vehicle regulator. It was stated that his department was engaged in the review of heavy vehicle braking systems, as there had been an up-tick in "brake failures". I consider the tyre to be an integral part of the braking system on the modern vehicle. What does actually transfer the kinetic forces generated by the braking system to the pavement? Yes, the humble tyre! Without the tyre, the brakes cannot perform their duty!

I would like to ask truck owners when did they last ask a driver to stop the truck, open the engine compartment, remove the radiator cap and dip a thermometer into the coolant to check the operating temperature. There is usually loud laughter at this thought until I ask them how do they check tyres.

So when we stop and actually look at the tyre, we need to do so with a long-term vision.

A European axle manufacturer conducted a study on the influence of tyres on their product. The results proved to be highly interesting reading. A difference of just 5 psi in inflation pressure between a pair of dualled

tyres (i.e. bolted together to act as a single unit) resulted in the wheel bearings suffering a life reduction of 10%. A 10 psi difference resulted in 20% life reduction. The industry traditionally sets tyres when the tyres are cold. The tyres are in a "standardised" state. Having studied many tyre pressure logs, we find that a 5 psi difference between dualled tyres is very common when the tyres are operating, especially when they are working at highway speeds. So when the tyres are cold, that is not working, the wheel bearings are not being worked, so are not wearing out. When the tyres are working hard and are at different pressures, the wheel bearings are being worn at a rapid rate. So the lack of vision, as to what tyres are doing when they are operating, costs the vehicle owner a life reduction of upwards of 10%!

This consideration is just one facet of tyre operations. Consider the actual tyre life performance, fuel consumption that is increased (what generates the heat in tyres? Yes, that energy comes from the fuel tank), add the squirming that unequal tyre pressures send back through the drive-line and the detrimental outcomes are numerous.

The returns from a lack of vision are both numerous and of magnitudes that cost us dearly. The TNO report details the emissions that contribute to climate change that originate from our lack of vision in checking and maintaining tyre pressures closely. Why are tyre monitoring systems not used by all transporting companies is beyond me; I can only conclude that the lack of vision is yet another human frailty. ■