Taking the stress out of South Africa’s rail
You do not have to be the biggest to be THE BEST...
I guess we were warned too often. In fact, so often in recent months that South Africans forgot the threat and didn’t take it seriously. So often that nobody was ready when the lights went out suddenly on 5 March.

So there we were, stuck with load shedding again and unconvinced by the ‘people upstairs’ who told us ‘it’s not a crisis - just a temporary setback’.

A crisis would probably imply disrupted trains. However, Eskom did manage to keep them running, even during those dreaded shedding days in 2008. But does anybody remember the February two years before that?

Two weeks in that month experienced massive supply shutdowns that stalled Cape Town’s suburban trains, following the total failure of the Koeberg nuclear power station.

On 19 February 2006, no trains ran in the Peninsula the entire day - fortunately it was a Sunday. But the sudden morning peak outage on 28 February came on a busy Tuesday, leaving commuters helpless in stranded trains.

In the days before Metrorail was created, Spoornet used to draft in diesels when power problems disrupted the suburban railways. Obviously these diesel loco resources were insufficient to handle the whole timetable, but at least a skeleton service could be maintained.

Today, Metrorail has no diesels and hiring them - supposing Transnet Freight has any to spare - is a complicated and costly business. Such is the penalty for fragmenting overall management structure. PRASA has diesels. Yes indeed, but show me one based nearer Cape Town than Bloemfontein.

So, sterkte, kêrels! as they say in Afrikaans. Try to shed your load before Eskom does it for you. And moenie worry - van der Merwe says the cars move faster when the traffic lights go out.

But, oh please, Eskom, keep the trains running. We don’t mind not having cooked breakfast, but we’ve got to get to work on time.

BARBARA SHEAT
Publisher / Railways Africa
CONNECTING THE TRACKS FOR A FIRST-WORLD SOUTH AFRICA
GIBB Technical Executive: Dewald Potgieter warns of severe consequences if South Africa’s drive to shift more freight from road to rail is not successful.

LOCO REBUILDS FOR ANGOLA
AR&TS completes the rebuild of two GE U20Cs.

BIGGEST LOCO ORDER EVER
Transnet places order for 1064 new locos.
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RAIL STRESS

TAking the Stress Out of South Africa’s Rail
by Andrew Lanham

Stimulating papers at the recent Fleming Gulf African Railway summit included a joint presentation by L B Foster-Salient Systems President James P Aten, and Saryx Information Systems Director Ingrid Osborne.

With the advent of continuously welded rail, longitudinal stress became a crucially important factor in constructing and operating a railway. A recent technological development jointly implemented by Saryx and Salient could see a dramatic decline in the rate of rail buckling (and breaks) in South Africa.

RAIL NEUTRAL TEMPERATURE (RNT)

Aten explained that ambient temperature fluctuations could range from well below freezing to the high 40s °C, depending on the location. To illustrate the effect of this on longitudinal expansion, he explained that the expansion and contraction zone in a 161km length of continuously welded rail exceeds 183 metres in length. He introduced delegates to the concept of rail neutral temperature (RNT) – the temperature at which there is zero stress in the rail. When working with rail (laying new track, repairing track, changing sleepers etc), this RNT can be induced – even if the ambient temperature is different - by adding stress to the rail.

The act of stressing rail induces a level of RNT at which fracturing or buckling at the temperature extremes will be minimised. Since environmental extremes vary, there can be no universal RNT. To complicate matters, RNT does not remain constant. Over time, the stress level alters, due for instance to maintenance procedures such as the welding of rail joints - or simply trains using the line.

RAIL BREAK PROBLEM IN THE USA

“Currently, in the US, rail breaks are the number one problem that rail operators deal with every day. Annually, the industry has to deal with some 50,000 rail break-related incidents,” Aten elaborated. These usually result in derailments, which can have colossal direct and indirect costs.

Osborne explained that 50 to 60% of all rail delays are because of stress-related rail failures.

In a breakthrough for South Africa’s rail industry, Salient and Saryx have piloted an IT-based rail stress monitoring system in cooperation with Transnet. It consists of a battery-powered rail stress monitor (RSM). Attached to the rail, it measures stress and temperature, relaying this to a wayside reader or hand-held device. Using L B Foster’s IntelliTrack® Navigator software, a RSM user can effect exception-based management of large areas of track. Digital information is transmitted to a control room where technical staff can monitor track stress around the clock. At the same time it is relayed to the desktops of management.

Being able to predict potentially damaging stress conditions and having the opportunity to carry out corrective maintenance - to pre-empt breaks or buckling - has the potential to save a railway operator such as Transnet substantial sums. At the same time, the minimising of delays to traffic flow avoids the undermining of customers’ confidence in the reliability of the service.

The use of stress monitoring is an important aid in improving efficiency. At present when the weather is hot, many rail operators issue “slow orders”, applicable to many lines. “With predictive rail stress management,” Aken pointed out, “many of these slow orders will not be needed.”

PILOT PROJECT

In May 2013, Saryx and Transnet launched a pilot project to test the monitoring system, setting up RSMs at a number of places - five on the coal line, two on the Natcor (Johannesburg/Durban) main-line, one on the line to Lichtenberg and one between Pienaars River and Polokwane. At each site, two RSMs were attached to the rail.

Modern IT technology is of great assistance when it comes to collecting and interpreting data. With the use of “cloud-based” technology, users of this monitoring system are able to use the web-based application, which is accessible anywhere in the world. In a South African context, the monitoring system would be installed within a dedicated Transnet domain.
With practice, the installation process is relatively simple. To avoid frequent maintenance, the Salient RSMs have been designed with a ten-year life cycle, while the wayside readers’ batteries need to be replaced every three years. All the equipment is designed to be vandal-resistant and theft-proof.

Readings from the track equipment are very accurate. The intervals at which these are taken can be set to suit particular track conditions. Initially, when rail stress exceeds safe levels, a warning will be relayed. Should the severity of this increase, a critical alarm signals the need for swift response. Should the severity of the stress continue increasing, the equipment automatically takes more frequent readings.

Results from the monitoring system have been most promising to date. The next step, Osborne explains, is to have the system approved for use on Transnet’s rail network. For example, the micro-weld used to attach the RSM module to the rail is an aspect of the technology yet to be approved by Transnet. In the meantime, she and her team will continue to monitor the system’s performance.

South Africa has about 15,000km of route in daily use. Without monitoring, its stress condition is largely unknown. “It is important to realise that stress failures happen on new track as well as old. So, maintenance and monitoring doesn’t come 10 years later, it starts when you are laying your track down,” Osborne emphasises.
RAIL STRATEGY

CONNECTING THE TRACKS FOR A FIRST-WORLD SOUTH AFRICA

“Rail freight volumes in South Africa have remained virtually static for the past 20 years, while road volumes have increased steadily. This is not a sustainable trend. If a meaningful shift from road to rail does not take place, the cost of transport will continue to rise at greater levels than inflation,”

Says GIBB Technical Executive: Dewald Potgieter.

South Africa has about 21,000km of railway, he says - around 13th in terms of the greatest route lengths in countries around the world. Of this, about 5,000km is out of use.

As the road network has expanded over the years, it has brought about a reduction in rail freight transport and long-distance passenger rail usage,” says Potgieter.

Because the volume of goods carried by rail has remained low, South Africa’s position as a significant carrier of rail freight worldwide has declined. “South Africa has been transporting considerably less than 200 million tons of freight by rail a year for most of the past two decades.

The situation is currently improving, but very slowly. Transnet Freight Rail (TFR) reportedly moved 207.7 million tons in the year to 31 March 2013.

While other countries have increased their rail freight volumes – Russia, for example, railing about 65% of all its freight – South Africa currently transports less than 13%. (More than half of that, it should be noted, is not general goods traffic but “heavy-haul” coal and iron-ore, which accounts for a third of TFR’s income.)

“By way of comparison, 20 years ago, about 600 million tons of freight was being carried by road in South Africa. This has increased remarkably and today close to 1,400 million tons of freight is transported by road annually,” says Potgieter.

Admittedly, it is difficult for rail to compete with trucks. “Truck operators/owners do not pay directly for maintenance of roads. Their contribution is through tax, the fuel levy and tolls. Rail operators, on the other hand, own the railway infrastructure and have to maintain it, making it more difficult for them to offer competitive tariffs.”

The answer, says Potgieter, lies in policy. “It’s a debate that dates back to the days of Spoornet. There’s also a school of thought that suggests the fuel levy and taxes road users pay are more than what’s required to maintain the roads. Even if that’s the case, the largest contributors to those levies are private car users, not freight transport companies.”

The predominant form of passenger rail in South Africa consists of short-distance commuter trips. “In relation to the rest of the world, we have a fairly high number of commuter trips a year (about 500 million passenger trips annually) - which places us about 10th globally. As soon as distance is brought into the equation, South Africa lags behind. The level of service required to attract people to long-distance rail travel is simply not in place. However, PRASA is looking at ways to improve this. A new R123.5 billion rolling stock procurement process forms part of this strategy and involves the introduction of more than 7,200 new passenger coaches – both for commuter and intercity use - over the next 20 years.”

Potgieter says the infrastructure will be upgraded to accommodate the new coaches. “Capital projects include modernising priority passenger corridors in Gauteng, Cape Town and KwaZulu-Natal (KZN). This will involve upgrading the permanent way, 20 of the busiest stations and the signalling systems at a total cost of about R14.5 billion. GIBB is currently involved in the Gauteng and KZN projects.”

“On the freight side, Transnet is conducting similar projects and will be spending R200 billion over the next seven years on creating additional capacity and achieving greater operational efficiency. Transnet’s capital expenditure planning has identified projects that will respond to market demand for freight transport, including partnering with clients to ensure that long-term projects are sustainable. An example is the Transnet and Eskom collaboration for transporting coal to the Majuba power station,” Potgieter points out.

It is important, he emphasises, that proper feasibility investigations be conducted for all projects. “In addition, predictability needs to become a priority. If a freight customer puts his consignment on a train, this person wants to know that it will arrive on time. Turning to passengers he remarks: “Less than 2% of Japan’s passenger trains arrive late. And they make in excess of 20 billion people-trips per year.”

Dewald Potgieter
Besides the obvious reduction of congestion on the roads, a shift from road to rail makes equal sense from an environmental and safety perspective.

GIBB is involved in numerous rail projects throughout South Africa. “We’re conducting feasibility studies for a number of new railway lines and are involved in basic planning, railway route alignment and economic evaluation for the Baralink line in Johannesburg and the Motherwell Corridor in Port Elizabeth. We are also on the design, construction and monitoring team for the new Bridge City Link north of Durban.

“We support infrastructure-spend being weighted towards rail and are positioned to assist government and parastatals in a professional partnership capacity. As a company of professional engineers who subscribe to a professional code of conduct, we are obliged to act on behalf of the public. It is in everyone’s long-term interest that a better balance between road and rail usage be achieved.

South Africa’s position as a significant carrier of rail freight worldwide has declined.

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ANGOLA
DRC & ZAMBIAN MINERALS TO USE CFB
Rehabilitation of Caminhos de ferro de Benguela (CFB) is very nearly complete. The 67 stations, including a number of fine structures built by the Chinese contractors, serve the 1,344km railway from the port of Lobito to Angola’s border with the Democratic Republic of Congo (DRC). Speaking prior to an end-of-November visit to Luau, the station nearest to the DRC border, Angolan Transport Minister Augusto da Silva Tomás said the line will facilitate the flow of minerals and other goods within the Southern Africa Development Community (SADC). “Zambia, the DRC and other countries of the region,” he said “are interested in the rail connection with Angola, for transport of export copper, cobalt and manganese along the Lobito corridor”. This will avoid the need for minerals to be conveyed much longer distances to South Africa, Tanzania or Mozambique.

ANGOLAN OFFICIAL TRAIN AT LUAU
An official train from Luena operated by Angola’s Caminhos de ferro de Benguela (CFB), arrived at Luau, 1,324km from the Atlantic coast, on 26 November. It was the first seen in the area in nearly thirty years, due to damage caused during the lengthy civil war. The train conveyed Angolan Transport Minister Augusto da Silva Tomás, minister of geology and mining Francisco Queirós, Zambian minister of natural resources Christopher Yaluma, the provincial governors of Angola’s Malanje, Lunda Sul and Moxico, and other officials. During the journey of 334km, seven newly-built stations were inaugurated, including that at Luau – the last before the DRC border.

CONGO-BRAZZAVILLE
CHINA TO REVAMP CONGO-OCEAN
On 21 December, Republic of Congo (Brazzaville) minister of transport and civil aviation Rodolphe Adada signed an agreement with China Railway Construction Corporation (CRCCI) Director General for African French-speaking countries Chang Xuehui, in terms of which the Congo-Océan Railway (CFCO) is to be rehabilitated. Both the Pointe-Noire to Brazzaville main-line and the Mbinda-Mont-Belo branch are to be overhauled. CRCCI is to carry out technical and financial feasibility studies and then arrange the necessary funding. CFCO Director-General Jean-François Cotin acknowledges that “significant investment” is needed.

GHANA
RAILWAY REVAMP
The Africa Transport Policy Programme held its annual stakeholders’ meeting in Dakar, Senegal from 10-12 December 2013. A joint initiative of the World Bank and the United Nations Economic Commission for Africa (ECA), the main objective is to assist states and donors “to address important issues related to transport policies and build up ad-hoc capacities in the continent.” Financed through a multi-donor trust fund administered by the World Bank, and located in the bank’s Washington DC offices, the programme is autonomous, having its own governance structure. Appointed and guided by a consultative assembly composed of contributing donors, regional economic communities (RECs) and private sector representatives, board members represent most stakeholder constituencies, including the African Union (AU) Commission.
Reconstruction of Ghana’s virtually moribund railway will begin this year, President John Dramani Mahama announced during a press conference at Flagstaff House, to mark the end of his first year in office. Currently, between 90 and 95% of all freight traffic in the country goes by road. Explaining the difficulty of enforcing load limits on the roads, Mahama was quoted saying: “... if you have to convey containers and there is a machine in the container that is heavier than the load limit, are you going to cut the machine in half and put half aside? You cannot do that. And so when these cargoes are carried on the roads, they destroy the roads.”

Railway reconstruction will focus mainly on the lines serving the eastern and western corridors. The eastern line is to tie in with the Boankra Inland Port, to serve the middle and northern parts of the country, as well as landlocked Burkina Faso, Niger and Mali.

“It is my hope that this year we cut sod for the beginning of the reconstruction of the railways in this country”, Mahama said.

On 14 May 2003, the Accra Mail reported the then minister of ports, harbours and railways (Professor Christopher Ameyaw-Akumfi) announcing that “major rehabilitation work on the country’s railway lines will soon begin”.

KENYA
STANDARD GAUGE LAUNCHED

At a function in Mombasa on 28 November, President Uhuru Kenyatta formally launched the project to build a new 1,435mm gauge railway to Nairobi. He said the scheme “will define my legacy as president of Kenya”, adding that the cost of transporting goods would drop by 60%. It is hoped to complete the 500km line by 2017.

It is said to be the country’s biggest infrastructure project since independence 50 years ago. Reportedly China has advanced a loan of $US3.7 billion to “jumpstart” the project. President Kenyatta signed a deal with his Chinese counterpart Xi Jinping in August in Beijing. There have been complaints in Kenya about the construction contract being awarded to the China Road and Bridge Corporation (CRBC - state-owned) without going to tender in Kenya.

Extensions to the new line are planned for implementation after 2017. Studies are in progress on these:

- Nairobi-Malaba (Uganda border)
- Nakuru-Kisumu (on Lake Victoria)
- Malaba-Kampala-Kisangani (in the DRC)
- Kasese-Kigali (in Rwanda)-Bujumbura (in Burundi)
- Tororo-Gulu-Juba (in South Sudan).

Passenger trains will travel at up to 120km/h, Freight at a maximum of 80km/h.Capital Radio in Nairobi quoted the president saying that the existing metre gauge railway is to be retained as it will provide additional capacity and “offer the business community greater choice in transport, and create the competition required to keep the sector vibrant”.

In Africa, governments privatise their railroads only as a last resort, when the operation has been run into the ground and the track is returning to the earth.

“In Africa, governments privatise their railroads only as a last resort, when the operation has been run into the ground and the track is returning to the earth. “ - Paul Ash

www.railwaysafrica.com
**AFRICA UPDATE**

**CONTROVERSY OVER STD GAUGE PROJECT**
Members of parliament in Kenya have objected to the way the standard gauge railway construction contract was awarded, suggesting it was done without following legally prescribed tender processes. Alfred Keter MP claimed the procedure was flawed and that the total cost was “inflated”. Hezron Awiti MP called for the project to be suspended until “graft claims” had been fully investigated. He was quoted saying: “I request the Speaker to follow parliamentary law and if there is a fault, Kenyans must know”.

**HALT TO STD GAUGE PROJECT WANTED**
In the last week of January, prominent Kenyan anti-corruption speakers pleaded with the government to halt construction on the new standard gauge line until investigations by parliament’s public investments committee and the departmental committee on transport are completed. Among issues being probed are the feasibility study for the project, the tendering process and the insurance component of the loan extended by China to Kenya.

John Githongo was quoted saying that “the many rumours, stories and perceptions” circulating entitle Kenyans to know for certain that the project is “something that we actually do need”. Former ethics and anti-corruption director Dr Plo Lumumba agreed, saying there must be complete transparency.

The attorney-general and the director of public procurement had said they were not involved. They should be, Lumumba argued, as “custodians of the Kenyan constitution”.

**PRESIDENT SAYS RAILWAY MUST PROCEED**
Addressing a news conference in Nairobi on 28 January, Kenyan President Uhuru Kenyatta said the standard gauge railway project “must and will go ahead to achieve the government’s developmental objective.” Anyone who has problems with this should take their complaints to the committee investigating the matter. The tendering process had been above board, Uhuru told the press, with all due diligence followed before the Sh 327 billion project was awarded to the China Road and Bridge Corporation. Earlier in January, Attorney General Githu Muigai was quoted saying “the entire procurement process was conducted unconstitutionally and warranted being halted”.

At the press briefing on 28 January he said he was quoted out of context and “distanced himself from any allegations of opposition to the railway tendering”.

**RVR TO DOUBLE FLEET CAPACITY**
Rift Valley Railways (RVR), concessionaire operator of the Kenya and Uganda railways, plans to double its fleet capacity by June 2014. A “first batch” of 20 new locomotives is expected by then, RVR Chief Executive Darlan De David says. To improve and speed track maintenance, two high-capacity machines are to be commissioned shortly. GPS technology is to be used to help control-room operators to pinpoint the location of trains, and a simulator is to be introduced for driver training. The company’s door-to-door goods delivery service is to be “optimised”, De David says, “widening our ability to carry more diverse cargo.”

**RIFT VALLEY READY FOR COMPETITION**
Rift Valley Railways (RVR), the concessionaire running the metre-gauge system in Kenya and Uganda, recently placed 20 new General Electric locomotives in service and is rehabilitating 40 wagons each month. The company says it is unperturbed by the construction of a parallel new standard-gauge line, due for completion in 2017, and believes RVR will retain its market share. RVR’s concession, which began in 2005, runs for 25 years.

Officials point out that many countries including Australia, Japan, New Zealand and South Africa operate both narrow and standard gauge systems.

**LIBERIA**

**LIBERIAN TRANSPORT IMPORT DUTY SUSPENDED**
According to an executive order signed by Liberian President Sirleaf on 20 December, import duty and goods service tax (GST) was suspended with immediate effect on all vehicles and spare parts used for public commercial transport purposes. Specifically, import tariff on goods and services tax on spare parts for the National Transit Authority’s (NTA) operations has been lifted. Importers now pay only the Customs User Fee (CUF) of 1.5% and the Ecowas Trade Levy (ETL) of 0.5% where applicable. Public transport infrastructure has been declared a key priority of the government in terms of its Agenda for Transformation.

**MOZAMBIQUE**

**SENA LINE REVAMPED**
According to the Maputo daily Noticias, rehabilitation work is complete on “critical” sections of the Sena line from Moatize to the port of Beira. Caminhos de ferro do Moçambique (CFM – the state railway & harbours) wanted to ensure that flood damage which occurred following heavy rain in February 2013 would not be repeated this year. At the time, movement of coal along the line was badly disrupted, with the 12 daily trains unable to run.

New drainage pipes have been provided at three especially vulnerable places, to carry stormwater clear of the track. The track foundations have been strengthened, and channels running beside the line, cleaned. CFM has assigned special teams to monitor the Sena line continuously, with special attention to the section from the Zambezi crossing to Moatize.

Meanwhile work is progressing on increasing capacity of the Sena
line from the current 6.5 million tonnes a year to 20mta by 2015. At present, coal trains are restricted to 42-wagon consists hauled by two locomotives. CFM aims to introduce trains of 100 wagons, headed by six locomotives. A contract to strengthen the line to carry the increased traffic was awarded to two Portuguese companies – Mota Engil and the Visabeira group - which plan to spend 162.7 million Euros.

**ADDITIONAL RAILWAYS IN MOZAMBIQUE**

The early objective of coal mining companies at Moatize in Mozambique is to increase export traffic to 100 million tonnes a year. As there is no possibility of raising throughput on the only existing railway to this level, the building of new alternative lines is unavoidable. The Brazilian Vale group is planning to construct a connecting line from Moatize, into Malawi, and to strengthen the existing route from there to the port of Nacala in northern Mozambique.

A second scheme envisages building a new port at Macuse in Mozambique’s Zambezi province and connecting this to Moatize by a new railway (see separate item below).

There is also the envisaged new standard gauge line from Moatize to Nacala (see article in Railways Africa 4-2012, page 12).

**NEW RAILWAY TO A NEW PORT AT MACUSE**

A new port is to be constructed from scratch at Macuse in Mozambique’s Zambezi province, about 340km north of Beira. A coal export throughput of 25 million tons per annum is envisaged. A $US3 billion price-tag has been mentioned for the project, including the rail connection. It is said that a new line is to be built from Macuse to the coal mines at Moatize. It is not clear whether the existing line running south from Moatize is to be doubled, or whether an entirely new line over the entire distance of 525km is envisaged. Initially it would make sense to construct a link from Macuse to a point on the existing Moatize railway north of Mutarara (on the north bank of the Zambezi River – see map).

It is understood that some 21 firms bid for the port and rail project. Reportedly Italian-Thai Development Pcl of Bangkok in Thailand is the preferred bidder.

**ROLLING STOCK FOR BEACON HILL**

The new $US6 million railway coal loading facility at Mozambique’s Tete serviced its first test train with 2,600 tons late in November. A joint venture between Beacon Hill Resources and Jindal Steel and Power (JPSL), the stockpile area covers some seven hectares with two rail sidings. It is hoped to have full operation in place by the end of March 2014. RRL Grindrod is supplying Beacon Hill with five 2,240kW diesel-electric locomotives and has trained drivers together with other crew and support personnel. Ninety heavy-duty wagons were ordered from Transnet Engineering.

**NAMIBIA**

**TRANSNAMIB & SA’S RAIL SAFETY REGULATOR**

While launching a safety campaign at Walvis Bay on 26 November, TransNamib Chairman Festus Lameck announced that an agreement was to be signed shortly with South Africa’s Railway Safety Regulator (RSR). This organisation, he explained, being “rich in experience” would provide invaluable advice on ensuring safety on the railway. “They have learned invaluable lessons throughout the years which can serve as tools for us to strengthen our approach in regulating safety in the railway sector,” he was quoted saying.

Speaking at the function, RSR Chief Executive Nkululeko Poya explained that although the primary mandate is to oversee and enforce safety performance by rail operators, they are themselves responsible and accountable for ensuring safety of their operations. “The RSR promotes and ensures safety by issuing and managing safety permits, conducting inspections and audits and investigating railway occurrences. We also develop regulations and safety standards, as well as impose penalties.”

TransNamib CEO Saara Naanda said “at least” five of the company’s employees were involved in accidents during 2013, one fatally. In one tragic incident, a 15-year-old girl lost both legs and an arm while crossing the line at Walvis Bay, apparently while talking on her cellphone.

**NIGERIA**

**RECRUITING IRREGULARITIES**

Alleged irregularities in a Nigerian Railway Corporation (NRC) recruiting exercise in Zaria (in the north-west of the country) were taken up by commissioner Alhaji Muhammad Bello Maude, who wrote to the NRC managing director requesting details of the people appointed. Apparently it was alleged that the exercise “created an imbalance to the disadvantage of the north-west zone, made up of Kaduna, Kano, Katsina, Zamfara, Yobe and Jigawa States.”

On receipt of a number of complaints, both by telephone and by individuals personally visiting his office, the commissioner contacted the Zaria District Office, learning from the Railway District Manager that the matter had been handled from Lagos.

**RWANDA**

**KIGALI-MOMBASA STANDARD GAUGE RAILWAY**

The China Road and Bridge Construction company is constructing a new standard-gauge railway to Kigali in Rwanda from the port of Mombasa via Nairobi in Kenya and Kampala in Uganda. The contractor agreed to help facilitate a government-to-government arrangement, supported by concessional loans from the China Exim Bank. The bank agreed to fund 85% of the Sh1.2 trillion project. In Kenya, a fuel levy of 1.5% on cost of all imports into the country is expected to raise Sh15 billion in 2013-14.

The contractor, who is to build stations and workshops, will be
required to supply and commission some 56 locomotives, 1,620 wagons and 40 passenger coaches, as well as signalling and communication. It will undertake employee training and supply electricity and water to each station.

**SWAZILAND**

**NEW RAIL LINK TO SOUTH AFRICA WAS FORMED**

The main objective of a new railway 196km in length from South Africa through Swaziland is to provide an alternative route for general freight traffic that currently uses the “coal line” to Richards Bay. The 96km of new line in Swaziland is to be built by Swaziland Railways (SR) at a cost of some R5 billion. Transnet Freight Rail (TFR) is to construct the rest, starting at Lothair in Mpumalanga. This is the current terminus of a 60km branch from Ermelo, originally constructed in 1925. The new line will connect with the existing Swazi system at Sidvokodvo, to the south-east of Manzini.

Phases 1 and 2 of the project covered a concept and probability study, during which four route options were examined. Phase 3 is currently in progress – economic viability studies and detail design – and the next phase will be the actual construction. SR Chief Executive Stephenson Ngubane expects the line to be operational by 2017. TFR Chief Executive Siyabonga Gama told the press at a briefing in Mbabane that construction would create jobs for 2,700 Swazis and 3,400 South Africans.

**TAZARA**

**NEW WORKERS’ UNION**

The formation of the new Tazara Workers’ Union - Tanzania (Tawuta) means that the 2,800 employees of the Tanzania-Zambia Railway Authority (Tazara) now have four unions to represent their interests, two in Tanzania and two in Zambia. Tazara acting Managing Director Ronald Phiri recently signed an official recognition agreement with Tawuta Chairman Johansen Lwekamwa. Phiri was quoted explaining that local labour laws permit the existence of multiple unions in an industry and as a consequence he was duty-bound to accept and welcome Tawuta.

Initially, all Tanzanian workers were represented by the Tanzania Railway Workers Union (Trawu), while those in Zambia were represented by the Workers Union of Tazara, Zambia (Wutaz). Trawu represents the interests of workers in Tazara as well as Tanzania Railways Limited.

In Zambia, the Crews and Allied Workers Union of Zambia (Crawuz) awas formed in 2012 after breaking away from Wutaz.

**TANZANIA**

**DAR ES SALAAM COMMUTER TRAINS**

Tanzanian port city Dar es Salaam (population 4 million) has chronic transport problems. As in many cities in Africa, most residents rely on an informal fleet of minibuses, largely individually owned and operated. Only two trains for commuters run at present. Tanzania Railways Limited (TRL), runs northwards from the metre-gauge station in the CBD to Ubungo Maziwa (12km), also serving some eastern areas along its meandering route. However, journeys take 45 minutes, compared with as much as two hours or more by bus. The locomotives and rolling stock, unfortunately, are showing their age and breakdowns frequently occur.

Infrastructure is badly lacking along the line, notably in respect of platforms and shelters. Plans to provide these exist, but TRL’s responsibilities only cover train operations. Infrastructure falls under the Reli Assets Holding Company (Rahco) but the necessary government funding has not been forthcoming.

In the future, a network of additional routes is foreseen – from the city centre to Pugu, Bagamoyo via Mwenge through Bunju, Mbezi Luguruni via Ubungo, Chamazichana via Kurasini through Mbagala, and others. TRL would like to acquire diesel multiple unit sets to serve the proposed lines.

The other commuter service, running westwards to Makanga (about 20km), is provided by the Tanzania-Zambia Railway Authority (Tazara), using that company’s 1,067mm-gauge line.
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LoCo REBUILDS FOR ANGOLA

Motive power for Caminhos de ferro de Luanda (CFL), part of the Angolan state railway system, is currently being refurbished by African Rail and Traction Services (AR&TS). Anyone passing their Pretoria workshops this year could not have helped notice two brightly painted locos, smartly liveried in the national colours of Angola.

These, director Tony Wood explains, were the first of two pairs of completely refurbished locomotives that AR&TS has supplied to Angola, “although over the years, we have supplied the Angolans with large quantities of spare parts.”

CFL operates a single-track, 1,067mm gauge line providing both passenger and freight services from Luanda to Malanje (424km), in the north east of the country. Rehabilitation of the railway, inoperable following severe damage during the civil war, was completed in 2007 by a Chinese construction company.

The order to refurbish four locos was placed in late 2012. They were shipped from Luanda via the port of Durban and hauled through Swaziland to AR&TS’ workshops in Pretoria West by Transnet Freight Rail.

After several decades of tough service, all four diesel-electrics needed a complete strip and rebuild. Only two of those delivered to AR&TS were in running order. The refurbishment contract was split in two phases. During Phase 1, a runner and a non-runner were refurbished. AR&TS has recently started rebuilding the remaining two in Phase 2. All are ex-Brazilian General Electric type U20C, a locomotive operated by several railways in Africa including Transnet Freight Rail which knows it as class 33.

The refurbishment consists of a complete engine rebuild and rewiring. “We strip and rebuild the entire locomotive and at the end of an AR&TS refurbishment, the client takes delivery of a unit good for another 15 years of trouble-free service,” Wood explains.

AR&TS has considerable experience on the GE U20C. They recently completed 12 full refurbishments of former South African class 33 locomotives for TransNamib – the national railway of Namibia – and have just received an additional two into the workshops. Both involved in major accidents, they require full repair and refurbishment.

Fortunately, Wood says, spares for these locomotives are still readily available. He adds “As AR&TS not only rebuilds rolling stock, but also operates 42 of its own locomotives in sub-Saharan Africa, it fully understands the needs of railway operators for reliable traction.”

In terms of training, skills transfer for CFL personnel will take place in Pretoria at the fitment stage of repair in Phase 2 of the last two locomotives in the contract.

“To date, the African market has been most exciting, supplying our rail neighbours in Namibia, Angola and Mozambique in particular,” Wood concludes.
SA RAIL NEWS

DURBAN’S BRIDGE CITY START-UP

Metrorail at Durban introduced public passenger service on the new line to Bridge City, 17km north of Durban, on Sunday 2 February, with trains running hourly to and from the city until 20:00. A full service was introduced the following day, with 20-minute peak-hour service frequency.

The project is the largest rail infrastructure development project in the Durban area. The new station is underground, located beneath the Bridge City Shopping Mall. A bus and taxi interchange is also provided.

EXPORT COAL RAILING RECORD

The Richards Bay Coal Terminal (RBCT) received 70.42 million metric tons of coal by rail in 2013, almost 3% more than in 2012. Altogether the facility shipped 70.2 million metric tons during the year, compared with 68.3 million tons in 2012, and the first time over 70 million was handled in 12 months. RBCT is said to be the largest single coal exporting terminal in the world and South Africa (quoting the World Coal Association’s website), holds seventh position globally as an exporter of coal. The commodity is shipped to China, Europe and India. Internally in the country, Eskom meets about 85% of its power generation needs from coal.

CT JHG MAIN-LINE CLOSURES

Train operations on the busy Cape Town-Gauteng main-line were halted intermittently for entire days at a time from the last week in January for sleeper replacement between Boskult (294km from Johannesburg) and Drie Ruiters (301km). It is believed that one or two wagons in a freight train derailed and were dragged a considerable distance before the driver was aware that something was amiss. By then, “hundreds” of concrete sleepers had been smashed. A speed limit of 15km/h was imposed throughout the section. Work had to be suspended for some time because of heavy rain.

BURGERS TO BE KING AT PARK STATION

The Passenger Rail Agency of South Africa (PRASA) is hosting the first Burger King outlet in the country at Park Station, Johannesburg. It joins a number of national brands already been introduced at Park.
SA RAIL NEWS

Station, in line – as the utility explains - with its “new real estate strategy that entails increasing the revenue contribution from its vast property assets while at the same time improving customer experience.”

In the words of the official press release: “The new and modern foodcourt at Park Station was one of PRASA’s key projects completed in October 2013. The facility boasts exciting tenants and now serves as a seamless link between Park and Gautrain Station. The completion of this project symbolised a significant milestone towards PRASA’s programme to upgrade the entire Park Station precinct. The company has committed R500 million over the next three years to upgrade Park Station’s infrastructure and expand its retail offering in line with increasing demand for the station.”

Burger King is to be found at the Park Station North foodcourt.
Other exciting brands at the foodcourt will include Wandies, Old Fashion Fish and Chips, Chisanyama, Uniwors, Anat, Debonairs, King Pie and Snax Shack.

AMBITIOUS PRASA STATIONS UPGRADE

According to a statement by the Passenger Rail Agency of South Africa (PRASA), “A total of 134 stations countrywide have been identified for refurbishment and, in some instances, a complete overhaul. These selected stations also fall within the rail priority corridors where the new rolling stock will be launched.” The new Burger King outlet at Johannesburg’s Park Station “is part of a significant drive by PRASA to modernise its stations country-wide in preparation for its fleet of new rolling stock to be launched in 2015. "The role and function of many PRASA’s stations will change in future, as the agency works to improve the overall passenger experience by revamping and modernising stations, creating intermodal transport hubs and introducing retail and other services. These add-on services will attract even more people to the station and thereby help PRASA to increase the income generated by its extensive property portfolio.

"Major stations such as Cape Town, Germiston, Mabopane, Durban, Berea Road, Park Station Johannesburg, Pretoria and others will become significant intermodal facilities and offer significant retail and other services.”

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Durban's imposing main station.
VERSATILE EXPERTISE AND EXPERIENCE
by Andrew Lanham

The global engineering consultancy, SMEC, made headlines in South Africa when it acquired the local consulting engineering firm Vela VKE in June 2012. Though some may not be aware, SMEC South Africa has had more than 30 years experience in the rail industry, explains Johan Stander, SMEC’s Functional Head: Rail Engineering.

The range of capabilities that the Australian based firm possesses is impressive. Essentially, it has the ability to take a bare one-sentence concept and develop that into an operating railway. SMEC offers the full range of services from planning which includes feasibility studies, through to managing the design and construction phase and, if the client wants, SMEC will assist with the procurement rolling stock and will take on the operations planning as well.

At present, the most significant rail project in South Africa is PRASA’s Rolling Stock Renewal Programme. Stander explains that the new rolling stock will have a direct bearing on stations, which now need to be upgraded to accommodate the new fleet and enhance the overall passenger experience.

“Under the current appointment, we are fortunate in the sense that the majority of our work is strategic advice to PRASA so the ultimate cost of a new depot is defined by the technicalities involved in the design of that facility, explains Stander. At this stage, SMEC is not involved in design itself, however it does have a design review function.

When asked about the delivery pressures involved, Stander explains: “One thing PRASA can’t afford is a delay in delivery of the project. The phrase ‘on time’ places considerable responsibility on the shoulders of SMEC management.” However, SMEC is fortunate in that it has a strong core of rail engineering specialists, which has considerable experience in railway infrastructure provision.

The list of major rail projects completed by SMEC is extensive. To take one example, during the 80s, SMEC South Africa completed a 21km double track railway tunnel that has set the Transnet design standard for tunnels in South Africa. Stander explains that completion of this project required engineering expertise of the
highest level. “Some of the engineers who were juniors at that time are still with the company and now form the senior management echelon,” he continues.

SMEC took a strategic decision to expand its rail capacity, this taking place over the past three years. However, in the past year, this growth has been particularly significant. To do this, SMEC embarked on a process of identifying skills it had in-house that were relevant to the rail industry. “We now have 65 employees spread through our regional offices in South Africa that have expertise at various levels in the various disciplines required by the rail industry.”

However, SMEC’s rail team is one of the truly multidisciplinary sections in SMEC South Africa, as the field of rail involves the construction of buildings, geotechnical, track electrical/electronic engineering, and communications. On the structural side, SMEC designed the Gautrain elevated stations and most of the viaducts in use today.

These capabilities allow SMEC to supply a turnkey package tailored to suit the particular needs of the client concerned. As the South African company forms part of the much larger global organisation, it has a knowledge bank available to it as and when required.

A further strength of SMEC is that it constantly keeps abreast of the latest technological development in the field of rail. For example, in the area of managing stress in continuously welded rail, SMEC has developed a course on this - a subject which it presents every year at the University of Pretoria (UP).

In South Africa today, there is still a need to broaden participation in industry to those who were previously excluded. Here SMEC is proud to participate in furthering the aims of BBBEE. Today, most tender documents require that a transfer of skills should be part of that tender. As part of this, the company is finalising an agreement with a major South African university where certain SMEC specialists will transfer specific rail skills.

This knowledge sharing is at no cost to the university concerned, explains Stander. “It is our joint and individual responsibility to ensure that Africa – not just South Africa – benefits from our history and experience,” he continues. Here the requirement is not only for skills that need to be applied to new projects, but also the capability to maintain assets once they have been constructed.

Africa is experiencing unprecedented growth as the world looks to the continent as the source for its future mineral needs. SMEC International has regional offices that have been operating in most African countries for many years. From South Africa, we are able to support those regional offices.

“At SMEC, we have built up the experience and capability to offer unparalleled expertise to Africa’s rail networks,” concludes Stander.
It took both courage and initiative on the part of Andries van Heerden when he founded Vanrail Supplies in the early 1990s – a period of political volatility in South Africa. However, the wisdom of van Heerden’s vision was confirmed in 2013, when the company celebrated its 21st birthday.

This year heralds a new and dynamic growth phase as Vanrail engineers and manufactures quality products for Africa’s rapidly expanding rail networks. From its manufacturing bases in two provinces in South Africa, Vanrail supplies products that meet the all-important customer requirements for price, delivery and reliability.

Its in-house manufacturing capability, which includes machining, plating and assembly, allows it to meet short lead times. Many of its cost-competitive products are designed to meet international and local quality standards including those of the AAR and UIC.

By partnering with international railroad suppliers, Vanrail is also able to offer the world’s best to Africa’s railroad operators. With the assistance of these international partners, it is also able to localise the manufacture, field service and maintenance of key products to the benefit of its African customer base.

Its current products include:

- Air, vacuum and steam hose assemblies to meet AAR M601 or M618 and associated standards
- Air and vacuum brake equipment (end cocks, dirt collectors, brake cylinders, release valves, tee-pieces, pressure taps, dummy couplings, repair kits etc.)
- Steel air-and vacuum-pipes including formed bends and welded end-flanges
- Cast and machined bogie products

Vanrail is also the exclusive Southern African representative for the US-based Graham-White Manufacturing Company who produce world-class air dryers and other pneumatic valves for rolling stock applications. Contact Vanrail for the best in a range of rolling stock components and systems.
In a R90 million investment, Powertech Transformers, a company in the Altron Power division of the JSE-listed Altron Group, has constructed a new small power transformer (SPT) facility. It was officially opened by Eskom Senior Manager (commercial, commodity sourcing) Charles Kalima, and Altron CEO Robert Venter on 3 February 2014. The SPT area was specially designed and built to improve the flow of small transformers through the manufacturing process, an improvement that will result in shorter lead times. The transformer sizes that will be manufactured range from 20 to 60 MVA 132kV.

Commenced 18 months ago, the project was carried out in two phases. In the first, Powertech purchased new vertical winding machines and upgraded the existing ones while excavating the existing factory space. The second phase involved the installation of additional equipment as well as reorganising the existing fabrication area to enable tank manufacture to match the assembly area.

The facility, which was locally designed and manufactured, will double Powertech’s SPT capacity. The new SPT capacity is 4,400 MVA (previous 2,200 MVA) which equates to 120 transformers a year (40 x 20 MVA + 60 x 40 MVA + 20 x 60 MVA). PTT’s total revised factory capacity inclusive of medium and large power transformers is 13,680 MVA a year.

Speaking at the opening, Powertech CEO Bernard Meyer said “With Powertech Transformers 70th birthday celebration around the corner, we are thrilled with what the future holds in this market sector for both domestic and export supply. This major investment confirms the confidence we have in manufacturing in South Africa. We have nearly doubled our capacity in this market sector in anticipation of a R250m potential increase in the export market.

The new facility is perfectly timed with new growth opportunities in the renewable energy and rail market sectors. Lastly, and most importantly, we have created additional employment opportunities for many skilled, semi-skilled and young professional talent.”

Powertech Transformers supplies a full range of transformers, from generator step-up to transmission and distribution transformers in its three factories. The range includes three-phase and single-phase units, auto-transformers, arc-furnace, locomotive and traction transformers, miniature sub-stations, NECRTs as well as LNERs and shunt reactors. An after-sales service division offering complete peace of mind for customers which includes maintenance of their transformers and related equipment for an extended period specific to each and every customer has been added to our range of services.

Powertech Transformers is 80% owned by Power Technologies (Pty) Ltd (Powertech), the largest power-electrical group in Southern Africa and 20% by Power Matla (a local black empowered company). Its main business is the design, manufacturing and selling of a complete range of power and distribution transformers for the African continent.

Powertech Transformers’ factories in Pretoria West, Johannesburg and Cape Town are state-of-the-art, world-class facilities, amongst the best in the Southern Hemisphere boasting ISO9001, ISO14001 and OHSAS18001 quality, environmental and health and safety listings respectively as well as a laboratory and test facility which has SANAS accreditation. Powertech Transformers is a Level Three Contributor to BBBEE and their rating was re-certified in June 2013.

The SPT area was specially designed and built to improve the flow of small transformers through the manufacturing process, an improvement that will result in shorter lead times.
We are passionate about ‘Making Power Perform’ in the Rail industry as we understand how important this sector is to the socio-economic development of the country. Our comprehensive packaged offerings provide total design, manufacture, supply, installation, commissioning of electrical products and solutions – we offer the resources that keep the industry moving.

As a local manufacturer in South Africa, Power Technologies (Pty) Ltd (Powertech), a wholly owned subsidiary of the JSE-listed Altron Group, is one of South Africa’s leading suppliers of products and services for the transmission and distribution of power in South Africa.

For close to 40 years, we’ve been offering our wide range of products to the rail industry. With this amount of local experience under our belt, Powertech is today established as one of the industry’s most credible and leading suppliers.

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Powertech, channelling power to organisations through the influence of science. Now that’s magic.
At the recent Fleming Gulf Africa Rail summit in Johannesburg, Cummins Business Manager Rail for the Europe, Middle-East and Africa region, Andreas Dammann, elaborated on the advances the company has been making in complying with emissions regulations as well as updating those present on the company's new loco engine.

"With our new QSK 95, we are entering the prime mover market for very high output main-line locomotives, and will have the first Tier 4 applications on rail in 2014," says Dammann.

Cummins, the world’s largest independent manufacturer of diesels, produces about a million engines yearly. This scale gives Cummins the advantage of having the capacity to conduct the research needed to produce more advanced engines that meet the latest emission regulations, explains Dammann.

Although the company has manufacturing facilities worldwide, its locomotives engines are mainly produced in Daventry, England.

"Today, we have more than 13,000 rail engines in service worldwide, our range covering power outputs up to 3,300hp and soon up to 4,200hp," Dammann continues.

When it comes to emissions, the company began developing its Tier 1 technology in 2002, moving on to Tiers 2 and 3, the latter standard being reached in 2012. From 2014 the company will supply engines that will comply with Tier 4 final regulations in the US, and Stage 3b regulations in Europe.

Tier 4 regulations for high-horsepower engines call for a dramatic 70% reduction in emissions. Compliant engines will require exhaust gas after-treatment and diesel fuel with an ultra-low sulphur content. Cummins is uniquely positioned to produce such engines as it began working on reducing engine emissions as long ago as the 1980s. The company has invested in developing advanced turbochargers, high-pressure fuel systems, filtration components as well as complete exhaust after-treatment systems. As Cummins designs and manufactures these critical technologies, it has extensive experience in integrating these systems to deliver appropriate solutions for each market that it serves.

The company already has a variety of proven emissions technologies, such as cooled exhaust gas recirculation combined with Diesel Particulate Filter (DPF) for on-road and construction equipment, For larger engines serving the off-road market, the company has the proven Selective Catalytic Reduction (SCR) technology. The scalable technology can be transferred from smaller to larger engines, and provides the performance, the fuel efficiency, and reliability that locomotive prime movers require, Dammann adds.

With SCR technology for larger engines, the exhaust gas catalyst replaces the usual locomotive silencer. The diesel exhaust fluid (DEF) system, a urea-based chemical reactant designed specifically for use in SCR systems, is in use in the US and in Europe already. For countries looking to comply with the new emissions regulations, these new ultra-low emissions prime-mover systems can be easily engineered into new locomotives and as well as a repower option to upgrade existing fleets.

Cummins top-end high-speed QSK95 model is a 16 cylinder V-configuration. For service in locomotives, the engine is available in 3600hp, 4000hp and 4200hp ratings. These all comply with Tier 3/4, Stage 3a/3b emissions standards.

The new QSK95 engine is available as part of a drop-in module, which offers locomotive operators an affordable means of repowering their existing locos to Tier 4 emissions standards. The module contains the engine, the alternator, traction motor blowers, the combustion intake system and the exhaust system.

In 2014, a Cummins-owned EMD SD90 locomotive will be remanufactured and go into service in Indiana for purposes of testing the new unit.

"This will be the first freight locomotive fitted with a Tier 4 compliant engine. It represents a major leap forward for the locomotive industry and we will prove we can achieve the lowest emissions standards in the industry while delivering the same high standard of reliability and efficiency," concludes Dammann.
The introduction of an insulation insert as means of retaining heat during thermite welding in uncontrolled environmental conditions brings considerable improvements to the quality of rail welds.

To meet demanding requirements of rail freight transportation, methods of welding rails are constantly being improved. In this ever-changing world, Thermitrex understands that innovation is the only key that will sustain long-term growth of companies and, in the rail industry, innovation is the means of reducing logistics costs.

The aluminothermic reaction used in rail welding is highly exothermic and therefore liberates large quantities of heat. Heat flow is an inevitable consequence of contact between objects of differing temperature. As the very rapid rate of cooling has an effect on the resulting microstructure of the steel, Thermitrex took it upon itself to research thermal insulation as means of retaining heat during thermite welding.

Thermal insulation prevents the transfer of heat by lining with a non-conducting material. The traditional method of welding remains unchanged. The introduction of the insulation insert between the mould and the mould shoe (figure 1) was invented by Charles Lloyd and has been patented under the title “A method of uniting metals” with patent application number 2013/02126.

Tests and trials were conducted and thermal images (right) show the difference between thermite welds with and without the insulation insert.

Thermitrex would like to express its gratitude to the following parties for their involvement in ensuring good quality welds: Transnet Freight Rail Infrastructure, Transnet Engineering, RME and SIMS.

In December 2013, Thermitrex, South Africa’s leading supplier of rail welding solutions, has had its management strengthened when Xoliswa Njokweni-Mlotywa joined the company as commercial managing director. In this position, she will be working closely with her co-manager Charles Lloyd, the technical MD of Thermitrex.

A civil engineer by training, Xoliswa’s work experience is impressive. After graduating from the University of KwaZulu-Natal, she joined Metrorail as a perway engineer. For the following four years, she was responsible for asset and maintenance management.

In order to gain commercial experience, Xoliswa then joined the IDC as a business analyst. In this capacity, she was tasked with carrying out due diligence studies of potential clients, and providing input to financing of new ventures, and other financial projects.

From the IDC, Xoliswa joined the Coega Development Corporation. As project manager, she had an extensive range of responsibilities. Her next career move was to the Development Bank of South Africa as a civil engineering expert of the Development Fund. Among other things, she was required to work with various municipalities, assisting with their integrated development plans.

She then moved to RACEC Rail as general manager: South African operations, being later promoted to Managing Director.

“We are pleased to have Xoliswa joining our company, as, with her valuable experience, she will strengthen Thermitrex’ leadership considerably,” says Lloyd.

www.railwaysafrica.com
November 28, 2013 was another significant day for DCD Rolling Stock (DCD RS) when it unveiled its new suite of robotic welding equipment. Recently, the company also announced the launch of its advanced passive hydraulic steering (Jika) bogie.

The latest purchase became necessary after DCD RS’s sister company, DCD Protected Mobility, moved to new premises taking its welding equipment with it. The new robotic welding equipment was installed in DCD RS’s Boksburg East factory in early October and was commissioned later that month.

DCD RS’s GM, Petrus Mulaudzi, explained at the launch of the new equipment that, after the move, the company needed to spend R80-million on refurbishing its facility. R10-million of this was spent on the welding equipment.

Mulaudzi added that although the railway industry has been in the doldrums for a number of years, its immediate future both in Africa and South Africa is set for a marked increase in activity. For this reason, DCD RS has embarked on a R240-million recapitalisation programme to entrench its reputation as a manufacturer of locomotives, wagons and bogies to railways, mining and industry.

Managing Director: DCD Group Rob King adds that DCD RS will be supplying new locomotives to Tanzania and it was the winning of this contract that prompted the decision to invest in the new robotic welding cells.

DCD RS has the advantage that it is a division of the much larger DCD Group. “If the level of work picks up considerably, and DCD RS receives a large contract, it will call on the other DCD businesses such as Heavy Engineering, Venco, and Protected Mobility, which also have similar manufacturing capability, to fulfil this order.”

In terms of the equipment, DCD RS has invested in four Swedish-built Motoman welding cells, two larger and two smaller units, a combination that will give versatility to DCD RS’s production processes. As the cells are modular, their length can be increased to cope with the larger jobs that DCD RS may have to undertake.

Five DCD Rolling stock welding technicians have been trained in robotic welding under the leadership of a highly experienced robotic welding expert. Automated welding will be used to carry out straightforward fabrication, allowing the company’s experienced welders to finish more complex tasks such as welding curves and corners.

Automation does not mean the loss of any jobs, explains King. “The robotic welding capacity will almost quadruple DCD Rolling Stock’s capacity to produce bogies,” he explains, adding that this level of productivity is essential if the company is to cope with the anticipated demand.

Rob King (left) assists the Minister of the Department of Public Enterprises, Malusi Gigaba with cutting the ribbon at the launch of DCD Rolling Stock’s new robotic welding facility.
MONTREAL, MAINE & ATLANTIC RAILWAY SOLD
On 6 July 2013, a train of 72 tankcars loaded with crude oil ran away unattended in eastern Quebec, derailing, exploding and killing 47 people in the little town of Lac Mégantic, whose centre was effectively destroyed in the resultant massive fire. The Montreal, Maine and Atlantic Railway, operator of the train, was bankrupted by the financial implications of the disaster and on 20 January the concern was sold by auction. Proceeds will be used to repay creditors and victims, adding to $25 million in insurance payouts for wrongful death, personal injury, property damage, fire suppression and environmental impact. The money realised is unlikely to come anywhere near the town’s clean-up expenses, said to exceed $200 million.

TAZARA OPERATIONS HALTED
Damage resulting from a road vehicle colliding with a railway bridge in Tanzania on 2 December halted all traffic on the Tanzania-Zambia line (Tazara). Reportedly the track was dislocated. It was expected that operations would not resume for at least a week, a company spokesman told the press.

MINIBUS OFF BRIDGE ONTO KZN LINE: 2 DEAD
Two people died and 13 were badly hurt on 24 November when the driver of a minibus-taxi from Umhlanga lost control of his vehicle as he approached the T-junction of a road-over-rail bridge. The vehicle hit the guardrail and concrete wall, then fell onto the line where it was rammed by a Transnet Freight Rail timber train. Paramedics recorded two fatalities and transported 13 people with serious injuries to nearby hospitals. The accident took place between the Umhlali and Compensation stations, 50km north of Durban in KwaZulu-Natal. In a media statement, the Railway Safety Regulator (RSR) said “Motorists are urged to adhere to road signs and treat road-over-rail crossings with caution.”

BRAZILIAN TRAIN DERAIS INTO HOUSE: 8 DEAD
On Sunday 24 November, a freight train derailed nine wagons in a suburb of Sao Jose do Rio Preto, a city in the south-east of Brazil. The rolling stock was thrown violently against nearby houses, badly damaging four and in the process killing two men, four women and two children. A further six people were reported hurt.

MAMRE CROSSING ACCIDENT
Incredibly, one of the two occupants in this vehicle came out alive - though critically injured - following a collision with a train near Mamre (77km north of Cape Town on the line to Saldanha) during December. The other person died.

STORMS DISRUPT GAUTENG TRAINS
An exceptional storm in Gauteng on 28 November badly disrupted commuter train services in the Friday afternoon peak. Passenger Rail Agency of South Africa (PRASA) COO Mosengwga Mofi blamed “old infrastructure” which he explained “cannot cope with severe weather conditions.”

PRASA told the press that lightning damaged signals, electrical overhead wires, and “perway (bridges and platforms)”. Jeppe, Braamfontein, Randfontein, Rosslyn and Katlehong experienced flooding and track washaways occurred in the Vereeniging corridor. Signal faults were reported in the De Wildt corridor, Mabopane, Irene, Olifantsfontein, Germiston, Johannesburg, Springs, Leralla, Daveyton and Vereeniging.

Difficulty in communicating with commuters in the Pretoria area was attributed by PRASA to “dysfunctional MTN lines”. As this would take time to rectify, the agency appealed to commuters to “stay calm”.

LIMPOPO LINE REOPENS
Repairs and recovery following the 5 January derailing of 20 vehicles in a 26-wagon freight train on the Limpopo line took five days, during which all traffic on the line from Zimbabwe was suspended. The first passenger train was permitted through on 10 January and freight consists were allowed from the following day. The accident
took place between Chokwe and Mabalane in Mozambique’s Gaza province, 272km from Maputo. Twelve of the derailed wagons overturned, spilling most of their cargo of export sugar.

FIRE!

BLUE TRAIN LOCO BURN-OUT

Dual-voltage electric locomotive 14-001, one of two class 14Es heading South Africa’s prestigious Blue Train, caught fire and burned out near Kimberley on 8 February. The exact location has not been pinpointed, but concrete OHTE masts in photos suggest somewhere to the south of the diamond city. (Not too far south, probably, as four parallel tracks are visible).

- This wasn’t the first time a 14E burned out while on Blue Train duty. The previous instance occurred somewhere in the Karoo on 28 November 2012.

LOCO FIRE DELAYS 25 TRAINS

Four railway employees sustained burns while uncoupling a burning locomotive from the rest of its 50-wagon train – mostly tankcars loaded with diesel fuel. The incident took place on 28 November between the Barsoi and Mukuria stations in Bihar, India. Ironically, several empty wagons had been marshalled between the tankcars and the locomotive – a precaution to protect it in the event of a fire in the train. Many trains were delayed, including the Darjeeling Mail and the Padatik Express, both en route from Sealdah to New Jalpaiguri. Other trains held up included the Teesta Torsha Express from Sealdah to Cooch Behar, the Saraighat Express from Howrah to Guwahati, the Kamrup Express from Howrah to Dibrugarh and the Brahmaputra Mail from New Delhi to Guwahat.

TRAIN FIRE IN INDIA: 26 DIE

On 28 December, fire reportedly engulfed a coach of an express near Kothacheruvu, about 155km north of Bangalore, India. There were 67 people in the vehicle, of whom 26 were burned fatally, being unable to escape due to barred windows (standard practice in Indian trains) and doors which refused to open. The injured were taken to hospital by firefighters who broke their way into the train. A second coach caught fire but this was extinguished. Press stories pinpointed the incident about 2km from Puttaparthi in the state of Andhra Pradesh. The train was travelling from Bangalore to Nandod in the western state of Maharashtra. Railways minister Mallikarjun Kharge said the fire was probably caused by an electrical short circuit.

BROKEN AXLE CAUSED DERAILEMENT & FIRE

On Monday 30 December 2013, a westbound BNSF grain train derailed near Casselton, a small town in North Dakota, and wreckage fell onto the adjacent track. This caused the two locomotives and 21 vehicles in a 106-wagon eastbound BNSF train to derail. Twenty tankcars were involved, and 18 of these were punctured, spilling some 1.8 million litres of crude oil, resulting in a series of massive explosions. No injuries were reported but potentially hazardous smoke was carried towards Casselton by the wind. About 1,400 of the town’s 2,400 residents evacuated their homes for several days. Twenty-four hours after the accident, investigators still could not get close to the burning train and had to wait for the fires to burn out.

Federal investigators found nothing wrong with the track or signals but recovered a broken axle at the scene. This may have caused the grain consist to leave the track. The estimated cost of the incident is put in excess of $50 million. According to press reports, most Casselton residents acted on the warning to evacuate, as well as people living up to 8km to the south and east. No injuries were reported.

ANOTHER TRAIN FIRE IN INDIA: 9 DEAD

According to a Times of India report on 8 January, nine people died when fire broke out in a passenger train shortly after it left Mumbai on an overnight journey to the northern city of Dehradun. The windows are barred on Indian trains, the paper explained, and doors are locked at night. The incident occurred only two weeks after 26 passengers died in another Indian train fire.

COSTLY DERAILEMENT AT FISANTKRAAL

The derailment of a loaded coal train at Fisantkraal, 39km from Cape Town on the branch from Kraaifontein to Malmesbury, badly damaged concrete pillars supporting the R312 bridge over the line, resulting in the road being closed for an indeterminate period. The accident, which took place in the afternoon of Sunday 1 December, ripped up the track over a considerable distance and smashed a number of coal wagons. According to an unconfirmed report, the cause was vandalism of the track, with pandrol clips stolen.

1,600 STRANDED AT DODOMA

According to the Tanzania Daily News, 1,600 Tanzania Railway Limited (TRL) passengers remained stranded at Dodoma on 10 January, “following railway mishaps at Gulwe and Godegode stations in the Mpwapwa District due to damage caused by the ongoing rains. More than 500 passengers on the train bound for Dar es Salaam from Kigoma marched to the Regional Commissioner’s (RC) Office to demand alternative transport, after being stranded...
for seven days in various stations”. People complained their money had run out. Some reportedly sold their cellphones, even shoes, to pay for food. Railway officials said there were insufficient buses to move so many people.

KENYAN TRAIN PASSENGERS STRANDED
“Hundreds” of passengers bound for Mombasa were reportedly stranded overnight on 14 January after the goods train preceding theirs derailed in the Taru area, blocking the line. Railway officials quoted in the press said there were more than 1,000 people on the train. All were eventually moved to Mombasa by bus, and the train was sent back to Nairobi.

METRORAIL DISRUPTED IN PRETORIA & CAPE TOWN
Metrorail commuter services were disrupted in both Cape Town and Pretoria on 15 January. According to radio news reports, early morning services on the Central Line in the peninsula came to a standstill after the track in Khayelitsha was vandalised. In the afternoon, commuters were advised by Metrorail to find alternative transport after services from Pretoria to Mabopane were stopped due to protesters blocking the line.

NEW YORK COMMUTER CRASH KILLS 4

On 1 December 2013, the 05:54 Metro-North (New York) commuter train from Poughkeepsie to Manhattan’s Grand Central station derailed at speed on a curve near Spuyten Duyvil station in the Bronx area. “At least” four fatalities were reported, with many injured – “about eleven” of them critically. The locomotive and coaches left the track, the rolling stock being literally flung around. Fortunately none landed in the adjacent Hudson River. Firefighters freed trapped passengers from the wreckage and ambulance personnel moved those hurt to nearby hospitals. The BBC quoted an eyewitness saying “There was smoke everywhere and debris.” Luckily however nothing caught fire.

8-HR STALL IN SUB-ZERO CANADA
According to a report on Canadian television, a Quebec passenger train running from Sept-Iles to Schefferville was stalled for eight hours at temperatures between minus 26C and minus 33C before fire department rescuers from Labrador City could reach it. According to the crew, “power was lost” for unknown reasons about 65km from Labrador City. Heat in the train went out and the 270 passengers pooled their body heat by cramming into a single coach.

8-HR STALL IN SUB-ZERO USA
On 5 January, the locomotive of an Amtrak passenger train lost power during freezing weather in south-western Michigan. The passengers were left stranded aboard for more than eight hours, but did have heat. The journey began north of Detroit, but the loco broke down between Niles and New Buffalo. Eventually it received a push from another train and arrived in Chicago an hour after midnight.

SUICIDE BOMBER HITS RUSSIAN STATION
On 30 December, a suicide bomber identified (after her head was recovered) as Oksana Aslanova detonated a device at Volograd station in Russia, killing 15 people and injuring about 34, eight seriously. According to the paper Russia Today, Aslanova had two ex-husbands, both of whom had previously been “eliminated.” On the following day, a Volograd trolleybus was bombed, killing 15 people.

METRORAIL DERAILMENT ELANDSFONTEIN
On 3 January, Metrorail train 0610 to Johannesburg from Pretoria derailed between the Elandsfontein and Isando stations at about 06:45, near O R Tambo International Airport. The leading motor coach and the following two coaches of the 12-car set left the track, injuring 16 people. After hospital treatment, all except one were discharged. Train services were disrupted for most of the day, with single-line working instituted past the accident, supplemented with buses. Service on the Leralla branch was condensed to a shuttle to and from Kaalfontein.
Atmospheric photographic opportunities were provided by FoTR on their December 2013 summer steam outings. With iconic former South African President Nelson Mandela dying towards the end of the year, class 19D 4-8-2 no 2650 carried a special commemorative headboard on its smokebox door – together with the traditional Santa Claus decoration.

Reefsteamers, Germiston

On 16 November 2013, 23 Swiss, UK and South African tourists boarded Reefsteamers' recently refurbished and upgraded long-distance passenger trainset for an 11-day, 1,300km journey entitled Reefrestate Xplorer. Organised by Southern African Rail Steam Tours, 630km were operated behind steam. Economy class followed the usual South African pattern with transverse bunks (four to a compartment and two to a coupe), with communal showers and toilets. In addition, Reefsteamers' renovation had contrived upmarket, en-suite accommodation – “gold” and “silver” class. A highlight of Reefrestate Xplorer was the variety of top-class meals produced in the confined kitchen of Reefsteamers' catering car by the crew from Feedem Pitseng.

The tour began at Reefsteamers' Germiston base with Susan, their class 12AR 4-8-2 no 1535, heading the train to Hermanstad in Pretoria. Guests and crew got to know each other at a traditional South African braaivleis (barbeque) on the platform at the Friends of the Rail station. Susan and no 3664 (FoTR’s class 24), gently simmering in the background, provided good opportunity for night photography.

On the second day, the class 24 and a short mixed train took the travellers to Cullinan, where they tasted a selection of hand-crafted beers over lunch at the Cockpit Brew House. This set the scene for a feature of the itinerary, with all beer supplied from local micro-breweries in the areas visited. At Germiston on the return from Pretoria, electric locomotives were attached for an overnight run to Bethlehem in the Free State. Passengers spent a day exploring the pretty town of Clarens, lunching at the brewery while the crew serviced the locomotives.

The next morning dawned misty and damp with Reefsteamers' Susan giving a spirited performance on the steep climb out of Bethlehem. Advantage was taken for photography along the scenic section to Ficksburg, with towering sandstone cliffs forming a stunning backdrop to the train.

Next day the group visited the Sandstone Heritage Trust. The entire 26km, 610mm gauge system was explored using class NGG16 Garratt no 153 and Little Bess (a 1919 Kerr Stuart 0-4-0ST), with plenty of time for photographs. After lunch, the rest of the Estates’ extensive collection of tractors, traction engines and railway items was viewed. During this time the hardworking Reefsteamers' train crew – all volunteers – attended to the locomotives and reportedly invented a new game dubbed “clinker cricket”. The photographers put the service train to good use next morning in the Ficksburg area, prior to the return trip to Bethlehem. Then it was back to Germiston overnight behind electric traction.

The last leg of the tour, on the line west of Johannesburg to Magaliesburg, featured various “photo trains” using Reefsteamers’ Susan and class 15F. Off-line, the Pilanesberg game reserve was visited, followed by a “bush braai”. From Magaliesburg the train retraced its steps to Germiston. Reefsteamers’ no 3046 left the travellers with a lasting memory of large South African steam, working hard on a feisty climb up Three Sisters bank at Battery. At OR Tambo airport, the overseas visitors embarked on their long flights home.

Southern African Rail Steam tours is a South African non-profit based operator running “relaxed and stress-free” steam excursions in partnership with local steam operators. Surplus money is invested back into steam preservation projects http://www.sarsteamtours.com
Sadly Reefsteamers found themselves in trouble during December, when Transnet placed a suspension on the club’s local public operations. This was still in force throughout January, resulting in two advertised excursions being cancelled and a serious accompanying loss of revenue. The derailing of a locomotive at Magaliesburg station is believed to have something to do with this.

Umgeni Steam Railway (USR), KwaZulu-Natal
The 55km second phase of Durban’s Western Aqueduct bulk water pipeline project began at USR’s Inchanga station. The railway was contracted to move 40 nine-ton steel pipes, 1.6m in diameter and 18m long, to points along the next 7km section, which lacks suitable road access. Each pipe was individually loaded onto a special bogie consisting of two specially built carriage chassis. Class 19D no 2685 did the honours. Revenue earned went towards the R600.000 refurbishing of class 3BR no 1486 Maureen, which continues (she also needs a new tender) together with work on class A tank no 88. USR spent a busy December running passenger trains between Kloof and Inchanga, using the class 19D.

Sandstone Estates, Free State
The Stars of Sandstone event this year runs between 12-21 April. Once again, British tour operator Geoff Cooke will be bringing out visitors

Sandstone Estate’s class NGG15 no 153 dwarfs the Kerr Stuart tank Little Bess.

Apple Express volunteers make progress
The Apple Express volunteer group has commemorated its first year since its founding during which time they have laid a solid foundation to tackle the restoration work on the Apple Express rolling stock. The group is upbeat and positive about the future of this narrow gauge icon.

After serious thought, it was decided to take the Apple Express back to the original livery she had at her launch in 1965, to give the historical train authenticity. This means that all Apple Express coaches will be painted in the SAR/SAS colour scheme of Gulf Red and Grey.

A coach that has sparked quite a bit of interest recently is NG28 13. This coach was converted from a guard’s van into a coach to accommodate persons with disabilities and those confined to wheelchairs. NG 2813 can hold six wheelchairs and six seated passengers, and even has special toilet facilities.

After spending the past three years at the mercy of the elements, the exterior of NG 2813 has suffered some weathering and will be undergoing restoration. The coach was moved into the shed in mid-February and has been fully sanded – including the window frames. This coach requires some new tongue-in-groove timber, otherwise it is ready for the application of an undercoat. On a positive note, the interior is still in good condition. A number of other coaches are at various stages of refurbishment or restoration.

- NG82 and NG83 both have long seating and toilet facilities, each with a capacity to seat 20 passengers. Both coaches have been stripped and prepared for the undercoat. All the metal plates and window frames have also been sanded.
- NG113, which also seats 20 passengers and is fitted with a toilet, has been stripped and prepared for the undercoat. The metal plates, as well as window frames still require sanding.
- NG94, the ‘Apple Tuckshop’, is almost fully sanded and some timber panels on one side need to be replaced. The interior comprises moveable fittings, but this will only be redone once the modification plans have been finalised.
- NG78, one of the regular guard’s vans, is in the process of being stripped for refurbishment.

After further inspection it was decided to remove the main steam pipe to establish its condition, which was a good move, as it was found to be in a poor state. With no spares available, a new one will be manufactured. Seven boiler tubes have been removed and are in the process of being replaced. The bending of the new elements for loco no 119 (class NG 15) will begin shortly. The locomotive’s boiler plates have also been removed pending an inspection from the boiler inspector.

One of the biggest challenges that the Apple Express has always had, was the coaching stock having to be stabled outdoors, which increases the chance of weathering as well as vandalism. Therefore, to accommodate the coaches in the 90-metre shed, temporary light rail has been laid. The coaches were manually pushed onto this section as the light rail would not support a locomotive.

Fortunately, the small narrow-gauge coaches make them relatively easy to move – willing hands and a pinch bar and off one goes – all under the watchful eyes of a supervisor and a stop-block if needed.
Yesterday’s train

Children under 7 travel free and those under 16 at half-rates. These are two of the travel bargains you get when you go by train.

Then there’s the comfort of our modern main-line trains to be considered. Hot or cold showers, air-conditioned lounges where you can chat and have a drink, and six-course meals in the dining car, with a choice of South Africa’s incomparable wines. (A full meal costs only 95c; children under 10 pay 55c.) In your compartment, you also have hot and cold water, and plugs for electric shavers.

All in all, we feel quite justified in calling our trains ‘hotels on wheels’. In fact, if you haven’t travelled by train for some time, you’ll be surprised - and very pleasantly so - when you do. It’s the only form of land travel which gets you to your destination relaxed and at peace with the world.

In our busy age, train travel is a haven of old-world calm. You can send your luggage on ahead and at many centres we will even pick it up at your home and deliver at your destination. There are other benefits too. You can book your seats up to three months ahead just by ringing the booking office at the nearest station or by approaching any of our appointed travel agents.

Better still, let the nearest Railway Travel Bureau (there are offices in all the main centres) take care of all your travel arrangements - including hotel bookings. And in our special ‘concession’ times, you travel 25% cheaper. These discounts are in force during the quieter times, when there aren’t so many people about, and you can really enjoy a peaceful, relaxed holiday. Concession tickets are valid for one month. They apply only to return journeys. The forward journey may not be broken, but you can break your journey back. Return journeys may not be commenced before six days have lapsed since the start of your forward journey. Concessions do not apply on the Blue Train. In concession times, the usual discounts for children still apply.

Indulge yourself - travel by train

Photos courtesy Pierre de Wet and Jacque Wepener
The announcement that Transnet is placing its largest ever order (and the single-biggest investment initiative by a South African corporation) for new locomotives which will be deployed on South Africa’s general freight routes is to be welcomed as it should reduce the country’s logistics costs. As a player in the world market, South Africa is known for its above average cost of bulk logistics.

On Monday March 17, Transnet announced the four international original equipment manufacturers (OEMs) that had been chosen to fulfil the R50-billion contract for 1064 locomotives. Of the total, 599 locomotives will be electric units, the balance being diesel. Apart from 70, the contract will see 994 locomotives being built in Transnet Engineering’s Koedoespoort and Durban workshops. However, the OEMs involved have had to ensure that the diesel locomotives have a 55% local content while the electric units have a local content of 60%.

Transnet Group CE Brian Molefe said that the transaction would create and preserve about 30,000 new jobs. A Transnet press release states that at the programme’s peak, locomotives would rolling off the production line at a rate of 480 a year. Molefe explained that while the loco build programme had been given a five-year schedule for completion, he would like to see it completed in the next 3.5 years.

This very tight delivery schedule is the rationale for splitting the order into four. “It is our view that no single supplier would have had the capacity or resources to deliver within the timelines we had envisaged,” said Molefe.

The foreign OEMs involved are CSR Zhuzhou Electric Locomotive and Bombardier Transportation SA who will supply 599 electric locomotives between them. The 465 diesel locomotives will be supplied by General Electric SA Technologies and CNR Rolling Stock SA.

**LOCO DIVERSITY**

Bombardier has an order for 240 Traxx Africa 100km/h dual-voltage (3kV DC and 25kV AC) electric locomotives. CSR, in turn, will supply 359 dual-voltage six-axle electric locomotives, which will have a continuous output of 4.6MW and a maximum speed of 100km/h. This is the second Transnet award for CSR Zhuzhou Electric. In October 2012, Transnet had awarded a group led by the Chinese railway manufacturer an R2.6bn contract for 95 electric locomotives.

GE will be supplying 233 ES40ACi Evolution Series diesels and CNR will be responsible for 232 3.3MW six-axle diesels with AC traction. The award has stringent local content, skills development, and...
training commitments, as dictated by the Supplier Development Programme, a government initiative led by the Ministry of Public Enterprises whose main goal in this is to localise the production of imported equipment. To this end, each of the foreign OEMs has a number of local empowerment partners.

While the locomotive fleets of the coal and iron-ore export lines have been upgraded, Transnet Freight Rail’s general freight fleet has had to soldier on with loco, some of which were built as long as 48 years ago.

LOWERING COSTS
Transnet Engineering has been keeping South Africa’s fleet of locomotives going with a series of notable overhaul and rebuild programmes. However, in terms of heavy machinery and its operating costs, ultimately, new equipment is cheaper in the long run.

Transnet Engineering will share approximately 16% of the total build program, about one-third of which will be outsourced to local emerging engineering and manufacturing firms. In total, the localization elements are expected to contribute over R90-billion to the South African economy.

Molefe added that the drive to modernise the loco fleet is intended to improve both the reliability and availability of the fleet. “This will improve customer satisfaction, ultimately leading to our crucial goal of road to rail migration of cargo in line with government’s objectives.”

Transnet Freight Rail (TFR) contributes about half of Transnet’s revenue and requires about 50% of its capital expenditure in turn. With the injection of new tractive power, TFR expects to grow its volumes transported to 350 million tonnes from the current 207-million tonnes.

MEETING EXPECTATIONS
Once all the locomotives have been delivered, Transnet would have met all its rolling stock requirements needed to successfully execute its Market Demand Strategy, the organisation’s R307-billion infrastructure investment programme.

This initiative will enable Transnet to create export capability for locomotives and related products, as well as drive South Africa’s regional integration objectives. Molefe pointed out that Africa’s economies are growing at a rate of approximately 5% a year. He added that many of the continent’s railway networks would be experiencing growth that matches this. The fostering of a thriving local rolling stock industry will allow South Africa to be a dominant supplier to Africa’s rail operators.

Transnet Engineering has already taken a lead in this respect, supplying rolling stock of all descriptions to many other African states.

PROCESS TRANSPARENCY
The award follows an open and public tender process overseen by the Board of Directors through a sub-committee of independent directors. In addition, the evaluation of the bids was monitored by Transnet Internal Audit to ensure that the process complied with the highest standards of governance as required by the Public Finance Management Act.

The evaluation had six stages, including Broad Based Black Economic Empowerment and Supplier Development; technical ability, – including details of technical offers from the potential suppliers; and commercial. The latter included pricing, total cost of ownership and contractual terms and compliance with the supply agreement.
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