



11TH CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

16 - 19 August 2015 - - - Sun City - South Africa - - ->



“As a young engineer it was a privilege to attend this conference-an abundance of relevant knowledge presented by experts.” “Probably the best conference I have attended, very well organised and a great social programme.” “CAPSA is fantastic! All technical papers presented was of high quality and very much helped in the advancement of knowledge.” “The technical content was of the highest quality.” These were just a handful of positive remarks received, post the CAPSA2015 conference. The conference did not go without some hiccups which can be expected for a conference of a duration and number of attendees as was this one, however, based on the outcome of personal interaction by the committee and the feedback received via the evaluation forms, we certainly can be proud of achieving our objectives, both of the technical front as well as the business networking opportunities and social relationships renewed and forged.

At the previous CAPSA held in September 2011 it was noted that the conference drew one of the highest attendances of any previous CAPSA with 492 delegates representing 23 different countries. Remarkably, CAPSA2015 has not just marginally, but significantly surpassed this with an almost 20% increase in the number of full delegates representative of 33 countries!

The Opening Session

After opening the conference, Chairman, Mr Phil Hendricks welcomed and introduced the first key note speaker Dr Martyn Davies who gave a presentation on *‘Africa Now & in the Future: Implications for Business.’*



Dr Martyn Davies is the CEO of Frontier Advisory - a leading research, strategy and advisory firm that specialises in emerging markets. He has advised a large number of multinational companies on their strategies in Africa and other emerging markets.

He not only focussed on the South African economy with suggestions on what should be done to improve growth prospects, but also motivated a strong argument for growth regions in other parts of Africa and beyond.

The second guest speaker, Dr Thierry Goger, Secretary General of FEHRL (Europe’s National Road Research Centres).

In his CAPSA presentation *‘Towards the 5th generation of Roads’* he posed the question “how will the roads of 21st century will be constructed and maintained?” In explaining *The Forever Open Road* concept, he explained that it has been conceived in line with the ambitions set out by the National Road Administrations and the EU to enable their road operations to provide the world’s highest levels of reliability, availability, maintainability, safety, security, health, liveability at the lowest cost.



Goger went on to say *“This is to be achieved in the recognition that the effective utilisation of the available road network should increase by at least 50% to accommodate the expected growth in traffic between 2010 and 2050, whilst decongesting our roads and reducing fatalities and severe injuries towards zero in the long term.”*

In highlighting the innovation areas of the road of the 21st century, Goger emphasized the following characteristics:

The Adaptable Road: Fully adaptable to changes in demand increasing travel volumes

- For public transport, cycling and walking.
- Rapid and flexible construction and maintenance
- Energy:
- Harvesting/saving
- Powering
- Less expensive

The Automated Road: The aim of the Automated Road Element is to

- Provide a step change in the use of technology to manage our roads.
- Contribute towards the development of new ways of providing mobility.

The Resilient Road: Fully adaptable to extreme weather conditions

- Will adapt itself to the impacts of extreme weather conditions and climate change.
- Will monitor flooding, snow, ice, wind and temperature change, and mitigate their impacts through integrated storm drainage, automatic heating and cooling,
- Will be linked to the integrated information system for travellers and operators.



The final speaker of the Opening Session was Mr Thomas Moons, General Manager Sales and Operations Europe & Africa, Shell Bitumen who gave a presentation on *Global Oil Markets and the implication it has on Bitumen*. Prior to his current portfolio, Thomas held a number of strategic roles within Shell.

His most interesting presentation dealt with global oil supply, demand, refinery production and the role geo politics plays in shaping the markets. Of significance was the impact and outlook these issues have on oil prices - with price volatility being the expected outcome.

A varied and extensive programme

Following the Opening Session, the extensive 3-day proceedings comprised of a dedicated Poster session, a Master Class lecture on Bituminous Binder Rheology and papers being presented in the following Plenary, Speciality and Parallel Workshop sessions:

Plenaries

In addition to the Closing Plenary session, fourteen papers were presented from within the following Plenary sessions: Procurement and Sustainability; Structural Design of Pavements; Materials Assessment.

Specialities

A total of 27 papers were presented in the following Speciality sessions: Design of Asphalt; Low Volume Surfaced Roads; Specifications for Bituminous Binders; Construction Practice; Design of Seals; Airport Design.

Workshops

The seventeen workshops took the form of either facilitated panel or 'round table group' discussions during the following sessions: Rehabilitation Assessments and Design; Innovative Procurement; Low



Volume Urban Access Roads; Sustainable Practise in Road Provision / Maintenance; A new Asphalt Design Method for South Africa; Accreditation/Certification of Asphalt Mixes; Maximising Seal Work throughout the year – design, specifications and construction; Structural Design of BSM Pavements.

Delegates in deep discussion at one of the workshop sessions.

Master Class on Bituminous Binder Rheology

This Master Class Lecture was given by Mr John D'Angelo Chief Operating Officer from D'Angelo Consulting LLC. The Master Class lecture covered the following topics:

- Definitions of bituminous binder rheology and its practical implications for binder usage, behaviour and performance;
- Damage modelling the binder's contribution to viscous deformation, fatigue and low temperature fracture; and
- Performance based specification framework.

On the following day, a parallel workshop session entitled '*Transition to a PG Binder Specification*' facilitated by Prof. Kim Jenkins was held in the form of a panel discussion comprising Mr John D'Angelo, Ms Sandra Erkins (Technology University Delft, The Netherlands), Geoffrey Rowe (Abatech, USA) and Mr Athanasios Papagiannakis (University of Texas, USA).

Workshop Resolutions

1. An in-depth study to be conducted on all aspects of deflection analysis and interpretation (FWD, RWD, TSD) with a strong link to application, resulting in the production of a protocol for the analysis and interpretation of deflection for rehabilitation projects in particular.

Available databases of traffic, material and pavement behaviour and performance data (laboratory and field) should be managed in a way to support improvements in pavement technology.

2. To initiate a representative process evaluating available local and international alternative procurement models and provide guidance to the industry.
3. Concerted effort to improve skills and appropriate research focus on access roads within southern African context (urban and rural).
4. Industry supports development of a points-based project rating tool which speaks to existing policies, design standards and best-practices.
5. Development of a SARF and DoT partnership to drive technical development and implementation/Institution alisation of tool, incorporating industry input.

Workshop Resolutions, continued

6. A phased approach should be introduced for implementation of the new asphalt design method.
 - Draft manual – introduce proposed tests, no specified limits, requirements on major projects – testing in private sector.
 - Provisional manual – go through inter-laboratory testing to set provisional criteria.
 - Standard manual.
7. Engineers, technologists and technicians involved in asphalt mix design should be appropriately trained and qualified to understand, appreciate and use the new asphalt design method.
8. Industry accepts that winter sealing is technically possible, appreciating the required risks, adjusted designs, appropriate specifications and contract documentation. Industry requires a formal process to incorporate new binders (outside standard specifications) appropriately into seal contracts.
9. BSM characterisation, models (PN & mechanistic), material evaluation, support guidelines and construction require updates to incorporate current knowledge.
10. Agree that low volume roads are a key component of the road network and any measures to provide them in a more cost-effective, safe and sustainable manner are supported by all stakeholders.
11. Overall: A process needs to be initiated to identify technical documents that require to be incorporated into the relevant SANS series to confirm their legal standing and status.

Award for Best Paper by a Young Professional

In finding out a little more about this enthusiastic young man, Sasheen Rajkumar highlighted the following aspects of his career: *“I am 25 years old and I’m from Pietermaritzburg. I matriculated in 2008 and thereafter graduated in 2012 with a BSc in Civil Engineering at UKZN. I had a bursary with SANRAL since my first year of tertiary studies.”*

“In 2013 I registered as a full-time post-grad student for my MSc in Engineering with a bursary from SANRAL. I approached the Eastern Region office and asked if there was a potential topic in pavement materials that SANRAL would like to be researched. In my research I learned that a direct reduction in the bitumen content by the amount available in the RA could result in a brittle mix - eventually leading to premature failure - especially at high RA contents. However the blending of the RA and new bitumen was not clearly understood at the time. In an effort to determine the degree of blending of the RA and new bitumen, I developed a methodology based on the research of many others. The methodology however, relied on the use of specialised equipment that the university did not have. In 2014 I was employed at SANRAL and the opportunity to use such equipment was granted! I conducted lab experiments that simulated mixing at the hot mix asphalt plant using high proportions of RA mixed with new materials. I found that up to 40% RA all of the RA bitumen blended with the new bitumen; while at 60% RA only some of the RA and new bitumen blended. I put the research together into a technical paper and submitted it to CAPSA”.



Deon Pagel congratulating Sasheen Rajkumar at CAPSA2015

“To my surprise I was awarded with the 'Best Young Professional Award' - in recognition for the best paper submitted to CAPSA 2015 by a young professional. The award means so much to me, especially so early in my career. It has inspired me to

work harder; and also helped me to motivate many of my young colleagues to take advantage of any opportunity that comes their way.”

“The list of those to thank for their help along this journey is too long - in short, if I've spent more than a couple of minutes with someone on a technical level, they have imparted a valuable piece of knowledge unto me - for which I'm extremely grateful. CAPSA is a brilliant forum whereby South Africa showcases its excellence in research and development in asphalt pavements on a world-class platform. I highly appreciate the CAPSA 2015 Committee for giving this award to me.”

Conference Resolutions

The overall outcome of technical discussions, debates, workshops and Q & A sessions led to the formation of the following overall resolutions, presented by Prof. Jenkins during the Closing Session:

1. The conference charges Sabita to convene an international binder expert group meeting in 2015, to progress the PG concepts developed at CAPSA 15, for the purpose of formulating a PG specification for trial implementation by SANRAL.
2. CSIR should facilitate continuous liaison with FEHRL and provide periodic report backs to the roads industry on appropriate innovation at RPF meetings.
3. RPF to initiate a formal process to investigate an appropriate, regionalized approach to Life Cycle Assessment (LCA) in southern Africa, and potential cooperation with the international initiatives already underway in Europe, North America and Asia.
4. CAPSA and RPF should establish regular contact with AFCAP to exchange road technologies pertinent to the needs of the African continent.
5. CAPSA 15 to engage with RPF in order to gain wider exposure to the macro-economic message provided by keynote speaker Martyn Davies, and its implications on the roads industry.

When the sun goes down

Regarding the sponsored social events (Aqua Transport & Plant Hire; Colas; Much Asphalt; and, National Asphalt), one of the respondents gave a rating of 10 out of 5! Although it was quite expected, with an average of 600 people attending the functions that one cannot meet everyone's personal

preferences and peculiarities, the feedback was overwhelmingly positive. The four evenings were an array of colour, varied entertainment, with an offer of appetising food and unique surroundings, setting the scene for socializing in a relaxed environment as shown below.



Appreciation is expressed to each of the Executive and Steering Committee members, the conference organisers – Scatterlings, the Focus Area Co-ordinators, Session Chairs, Workshop Co-ordinators, our very own Durbanite ‘Mascot’ and of course, you, the delegate without which CAPSA would not be possible.