



The South African  
Institution of Civil  
Engineering Western  
Cape Branch

NEWSLETTER No 2/2017

May/June 2017

## MESSAGE FROM THE CHAIRMAN

**Congratulations** to all our winners, be they in Aqualibrium Water, Bridge-building or Technical Excellence in Civil Engineering in the regional project awards. We're rooting for you at the national competitions.

**BRANCH BUZZZZING:** events you may have missed–

**The Presidential Address on 6 March** did not take place as advertised! Instead, there was a breath of fresh air, with **Pres Sundran Naicker** saying we would have seen his address already and he would rather hear from us what we thought SAICE should be doing. Groups then discussed– (i) How can SAICE better serve you? What should be done differently?; (ii) How should SAICE engage with government?; (iii) What is your view of the “culture of engineering”?; (iv) SAICE/ECSA registration; (v) What is your perception of SAICE? (preferably the view of a non-SAICE family member). A small sample of 30+ ideas that emerged after just a few minutes: audit and benchmark companies; provide cheaper courses; help provide mentors; better branding; get key decision-makers/politicians to SAICE events; offer to help government; ensure good communication with registering body; get mentors with a good awareness of the registration process; challenge politicians to get it right. **CEO Mangin Pillay** was excited at SAICE having been asked to establish what Pres. Zuma should pay towards upgrades at Inkandla and about taking the Minister and Department of Public Works to court on an illegal appointment of ECSA board members.



**Simon Lester** spoke to us on **15 March** about **Concrete Canvas**. Turns out to be a patent “flexible, concrete impregnated fabric that hardens on hydration to form a thin, durable, water proof and fire resistant concrete layer.

Essentially concrete on a roll, it comes in thicknesses of 5, 8 and 13mm and is usually 1,1m wide, although widths of up to 6m are obtainable. The high costs of R300, R400 and R550/m<sup>2</sup> for the different thicknesses arises from the mats (PVC backing, 3 dimensional fibre matrix impregnated with cement and a hydrophilic top surface) having to be stitched together in the UK! (The Brits’ job creation pro-gramme?). However, installation costs are low, typically of the order of 5% of the total. One example of the applications shown: the canvas was very quickly laid in the severely corroded invert of an Armcoculvert in what would otherwise have been a difficult operation.



**25 March** and the **Aqualibrium Water Competition**, again held at **UCT**, went very well with the learners having fun and an exciting, wet experience. Parel Vallei took the title. And what about Pinelands Primary who also did so well?! Starting young. The kits continue to be upgraded and your Branch is the proud owner of 10 of them!

**30 March: 15th Jennings Memorial Lecture:** Professor Kenichi Soga of the University of California, Berkeley: on geotechnical instrumentation: no feedback available.

The 11th **ICE Brunel Lecture** was held on **3 April 2017** at the **Stellenbosch University engineering campus**. Lecturer **Elko Dykstra**, a medical doctor specialising in the field of disaster response, discussed the concepts of resilience and how this applies both to engineering design and the management of disaster situations. He presented a methodology he had developed called the “Nine-universal Roadblocks” and challenged the audience, through a simulation exercise, to imagine the experience of a municipal manager faced with a flood disaster such as was experienced with Hurricane Katrina in New Orleans in 2005 and to work through a potential response. In summary his thesis was that engineers cannot prevent disasters from happening, but we can prepare for disasters and design more resilient infrastructure and more resilient communities to survive them.

**4 April: ICE Africa Regional Conference, Century City:** some excellent speakers presenting on new and happening

## FOR YOUR DIARY

**21 June:** James Melvill: Engineering Solutions for Crossrail at Bond Street Station  
**19 July:** Viola Milner: new ECSA Registration System and mentoring on this  
**16 August:** TBC (Stainless steel?)  
**20 September:** JSD/Branch presentation (topic TBC – arch bridge?)  
**18 October:** Snape Memorial Lecture  
**15 November:** AGM

projects across Africa, most notably the North South Corridor development (DRC to Richards Bay); innovations adopted in the Hilton Hotel, Freetown, Sierra Leone; Construction of the Port of Tema in Ghana, and defining Africa’s future needs and priority infrastructure projects (with a focus on road/ rail networks, renewable energies and the ever growing shortage of resources/ skills)! Project financing was also in the limelight for the wrong reasons - \$1.5 billion spend in developing countries yet a severe lack of quality, cost of addressing Africa’s \$93 billion deficit annually and the lack of Project Lifecycle approach.

19 April and Hans King talked about the rehabilitation of severely eroded river beds/wetlands. Hans, who is a registered Professional Civil Engineer, has a Bsc.Eng and Graduate Diploma in Engineering from UCT. After 8 years with Clifford Harris he saw the light and joined the Department of Agriculture where he has been since (20+ years), becoming an expert in his field and is now the last remaining soil conservation Engineer in the country. Hans mentioned various disaster areas, among them Tierkloof, Duiwenhoksrivier (where some 250000m<sup>3</sup> of soil was washed away after an ill-advised activities



of the farmer, left a canyon 80m wide, 8m deep and 700m long) and the Elandskloof River, the latter wetland site near Tesselaarsdal (near Caledon) being the main subject of the lecture. This

started as a small problem but after a small dam broke, various floods took over, with headcut erosion working its way upstream and eventually over a 10 year period took 150000 to 200000m<sup>3</sup> from what should have been a wetland. Had remedial measures been taken early the damage would have been a fraction of

what eventuated, but the needed funds were unavailable at first. Solution, when the funds were found– Gabion weirs and mattresses, removal of alien vegetation and re-vegetation (especially with Palmiet, which has roots like those of a palm tree). Re-vegetation on its own would not help as the slope of the riverbed at 2½% is too steep to survive unaided. Finding foundations for the gabion weirs was not easy – the site was littered with 4m<sup>3</sup> blocks of peat (what was left of the wetland) and uneven. However, boulder beds are found under the peat if you look hard enough. There was some thought given to impervious layers on the upstream side of the weirs, to prevent piping under them, but this was not pursued for fear of the peat downstream drying out and cracking. Success is measured by the amount of re-vegetation, and this R20million project is a success.

Hans arrived with a book, a “River Rehabilitation Manual” which was sponsored by the Water Research Commission. “Many South African rivers (especially in the Western Cape) have been heavily transformed, even if unknowingly, by land users in the very recent history. Typically braided rivers have been condensed into single channels with limited space in urban and agricultural environments. The explosion of invasive alien vegetation over the last forty years has only made this situation worse. The result of this transformation of rivers has been that rivers have become very unstable...” The book can be downloaded for free:

[http://www.wrc.org.za/Pages/DisplayItem.aspx?ItemID=11879&FromURL=%2fPages%2fKH\\_AdvancedSearch.aspx%3fdt%3d1%26ms%3d4%3b%26d%3dThe+Development+of+a+Comprehensive+Manual+for+River+Rehabilitation+in+South+Africa+%26start%3d1](http://www.wrc.org.za/Pages/DisplayItem.aspx?ItemID=11879&FromURL=%2fPages%2fKH_AdvancedSearch.aspx%3fdt%3d1%26ms%3d4%3b%26d%3dThe+Development+of+a+Comprehensive+Manual+for+River+Rehabilitation+in+South+Africa+%26start%3d1), or one can buy it.

**17 May: Presentation: Regional Award entries (Athenaeum).** 75 people listened to presentations on the Construction of the Bottelary Road and the R300 Interchange by Aloysius Horniman of EFG Engineers, New Horizons Waste to Energy Facility in Athlone by Richard Emery of JG Afrika & Joav Shmulevich of New Horizons Energy (Pty) Ltd, The Implementation of Electrolytic Chlorination at Selected CoCT Reservoir sites by Mike Greener of the City’s Water & Sanitation Department and Residential Property at 145 Kloof Road, Clifton, presented by JG Afrika’s Bobby Jarratt. Scores were high and they were close! Winner was the New Horizons Project, second the Clifton property, third the Electrolytic Chlorination, with the R300 I/C a creditable fourth. The first three go forward to the national competition on 19 October in Durban. Our thanks to sponsors EFG Engineers, JG Afrika, Inenzo Water and Maxal Projects, who helped make for a convivial get-together.

**We find we still have to call for entries in the categories related to SAICE Divisions**, so keep an eye out for an E-flash in that regard.

New Horizons. A lot going on on the triangular site in Athlone. From a daily dose of > 500t municipal solid waste, pure organic waste and wet trade waste organic fertiliser, liquid carbon dioxide, compressed bio-methane, refuse-derived fuel and recyclables are produced, leaving 20% odd to go to landfill!

20 May: Bridge Building Competition, Canal Walk. Organised by Geoff Du Toit, and well run, of course. Andrew, Clothier, Brian (ill and home early), Alice, Marianne, Emmanuel, Veronica, Reinholdt, Eddie ....Fred much involved. The pre-event lecture on the principles involved in getting the bridges to carry loads was again brilliantly delivered by Evan Arendse. Our thanks to them and to the other committee members, the student chapters and the assisting students, the Alcolin team and BestWood Joinery, without all of whom the competition would not be possible. Our great appreciation for stalwarts ASLA who come to the party regularly with big hearts (and pockets) and for our other sponsors – thank you all. The judges – Sheila Ross, Andrew Rowan and Kenny Mudenda –



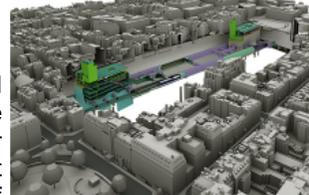
Winners (not) revealing their secrets

well done, a great job! Winners, Brackenfell High 1, whose bridge carried 295kg before succumbing. 2<sup>nd</sup>. Parklands College (185kg), 3<sup>rd</sup> College of Cape Town (165kg). Congratulations to them and to all the entrants. Good to see some first time schools,

## MORE DETAIL ON SOME OF THE COMING EVENTS

### BRANCH LECTURE 21 JUNE 2017

**Topic:** Engineering Solutions for Crossrail at Bond Street Station  
**Presenter:** James Melvill  
**Date:** 21 June  
**Time:** 17:00 for 17:30  
**Venue:** Athenaeum  
 James is a Marine Structural Engineer with WSP but was the Lead Structural Engineer for WSP at Crossrail’s Bond Street Station. The Station consists of



two 25m deep city block excavations for the two new stations entrances connected by two, 260m long station platform tunnels. All this was constructed in and around and beneath London’s Bond Street and Oxford Street. James will discuss the specific challenges faced and the innovative and practical engineering solutions WSP found to overcome them.

### BRANCH LECTURE 19 JULY 2017

**Topic:** New ECSA Registration System; mentoring this.  
**Presenter:** Viola Milner  
**Date:** 19 July  
**Time:** 17:00 for 17:30  
**Venue:** Athenaeum  
 Viola is the CESA WC-Branch YPF Chairperson and hopes that we will attract interested CESA members to the meeting. The lecture is in two parts: **Mentoring** on the New Registration System. Changes from the old ECSA Registration System and how the role of the mentor has become even more significant are highlighted. Common areas of mentor/mentee miscommunication and tips and ideas for improving the mentoring culture in your office are noted. **New ECSA Registration System:** Tips & FAQs: a practical summary of the ECSA Registration process, starting with career planning/checklists to monitor progress to tips on writing Training Reports and Engineering Reports. This is for mentors and mentees.

**NEWSLETTERS:** Please let Cheryl know so we can cancel surface mailing to you if you are able to receive your newsletter by email: [cheryl.wright@uct.ac.za](mailto:cheryl.wright@uct.ac.za).

**WE ARE LISTENING...** If you have any comments regarding Branch activities, please email us ([ClothierA@jgafrika.com](mailto:ClothierA@jgafrika.com)) or post on our website <http://www.saicewc.co.za>.

**ARE YOU CONNECTED.....?** We regularly send out email messages to members via E-flash. If you would like to be on the E-flash list, send an email with the heading “SAICE E-flash” to [marianne.vanderschuren@uct.ac.za](mailto:marianne.vanderschuren@uct.ac.za) or fill out the Contact Page on the Branch Website <http://www.saicewc.co.za>.

Please tell us about changes in email / other addresses. Official records are kept at National Office, so any changes in your personal details should also be sent to the National Office: SAICE National Office, P/Bag X200, Halfway House 1685.

Steve Fanner  
**Editor**

**PS No CPD points here, but they are on the Branch website**