

# Meet Allyson Lawless

Allyson Lawless took up the reins of SAICE's presidential office on 1 January 2000. Allyson makes her mark on history as SAICE's first lady president and first president in the new millennium. She talked to Philip Clarke about her background, her business, and her thoughts on civil engineering in South Africa



## Young and restless

I was very strong in maths and science – I used to drive my science teacher crazy by pointing out why this or that scientist didn't get this or that experiment to work. I would even suggest why the theory might be wrong.

As a result, early in my high-school career she said to my mother: 'This child has to do a PhD in chemistry, nothing less. If you can't afford it, you have to work out how she can get a scholarship.' My father was a plumber, you see, and he was hardly a high earner – those were the days when plumbers made less than engineers!

So my science teacher planted in my brain that I should be some oddball scientist, but when I went for the normal vocational testing, I simply couldn't take those questions seriously – 'Would you rather sell peas, shell peas, or grow peas?' What a ridiculous question to ask a fifteen-year-old! As a result, I was completely inconsistent in my answers and it was impossible for anyone to advise me.

## The filing cabinet, the bridge, and the man in the hard hat

It was simple for a girl in those days. If you were strong in a subject, you became a teacher; if you were academically weak, you went into nursing. That made it very easy to make up your mind, but I wasn't prepared to accept either of those. After another abortive test at the Education Department in Maritzburg, the counsellor emptied the entire contents of his filing cabinet into my mother's Morris Oxford and told me to spend the weekend going through it all until I found something I liked. Well, I started with A, and when I got to C,

there was a beautiful brochure showing a man wearing a hard hat, staring up so affectionately at a bridge that he had built, and he was so proud!

I didn't read any further. The poor counsellor exploded: 'Young ladies don't do that!' I think he ended up in therapy.

The next hurdle was Natal varsity. They simply would not accept me for civil engineering. 'No,' I was told, 'Young girls don't do civil engineering. But you can be an electrical engineer if you like!'

So I took electrical at Maritzburg, because the first year of all engineering courses was much the same in those days. No specialisation. But for me, electrons never went the right way, and at the end of the year I insisted on changing to civil and transferring to Durban. Unfortunately the Durban campus student adviser was dead set against it, because young ladies needed the arts behind them so that they could be gracious dinner companions.

But I was lucky, and when I went to fight for admission he was ill, so the Maritzburg student adviser intervened. 'The only way we can solve this is to send you to see the professor.' He phoned the professor, Ken Knight, and asked whether he would see me. 'I don't even want to,' Ken said. 'Just make sure she's in my class next week!'

## Not the first, but the first of a new wave

We found subsequently that a woman had graduated in civil engineering from Natal in 1946, and it was this particular adviser rather than the engineering faculty who took it upon himself to prevent young ladies from entering what he deemed to be an entirely unsuitable profession.

He had a point though, because I found myself at the mercy of 250 students who unpitifully took the mickey, and without a sense of humour I wouldn't have survived. For example, one day the class picked up my little Triumph Herald and lifted it onto a terrace in front of Memorial Tower Building. The only way I could get it down was to plead with them and do every forfeit they demanded of me.

After I started, women began enrolling for civil engineering in greater numbers every year, but the dropout rate was very high.

*Many men are sceptical about women, and in trying to prove themselves right they give you a chance*



**Sixteenth man in her third-year civil engineering rugby team!**

Even today I get into very funny conversations about being a woman engineer. Recently I answered the switchboard late in the afternoon, and a man said he wanted to speak to somebody urgently about a structural design. 'Can I help you?' I replied.

'I need to speak to somebody technical,' he said.

'What seems to be the problem?' I asked.

'I must speak to an engineer, I have a technical problem!'

'Well, I am an engineer,' I said.

There was an embarrassed silence at the other end, followed by a few choice phrases! My laughter eventually put him at ease, and we solved the problem.



**Allyson on site in Windhoek in her Ove Arup days discussing 'reinforcing of concrete' with site foreman Alex Reyneke**

People still don't expect to meet women engineers, but that's great, because it gives me an advantage. Many men are sceptical about women, and in trying to prove themselves right they give you a chance. If you do the job well, you stand out and are remembered. It's a very strong advantage for me.

#### **Falling formwork creates a rising star**

I started my career with Ove Arup in Windhoek learning how to reinforce concrete, before coming back to Johannesburg, where it was all mining related – slimes dams, piling and structures such as conveyors, reduction plants, and so on.

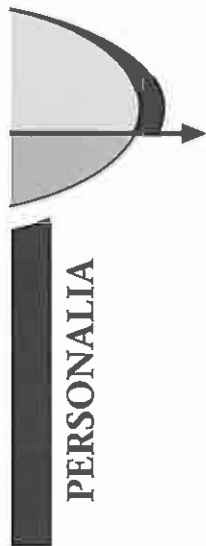
I went to Imperial College to do an MSc in structural engineering, and I got a gold medal. There, I worked for Conder, a big steel-building design, fabrication and construction company in the UK. It was very different from what I was used to, with a massive design office with 20 engineers, 10 estimators and 300 detailers, fabricators, and other staff.

We had a huge export market – refrigeration structures to the Middle East, factories to Venezuela, and similar contracts. There was a lot of pressure on deadlines. We had to design efficient structures quickly and competitively, and without computers, I may add.

I returned to South Africa in 1978 and worked for the forerunner of what is now McKenzie Cairns & Browne, working on thickener tanks, conveyors and similar projects. It was very interesting and I became increasingly involved in formwork, where the practice is for the contractor to 'use the formwork properly'. Sometimes it falls down.

I then started on my own, as a consultant on formwork, mainly doing what is now

*That's the future of civil engineering in South Africa – making a difference by being creative and innovative*



*Thabo Mbeki's African Renaissance has created an enormous window of opportunity*

termed forensic engineering – finding out why structures fail. I found the work to be really interesting and worked on some spectacular failures around the country. As I couldn't afford to buy the analytical software on the market at that time, I had to write my own.

That's how the company Allyson Lawless Inc, now (Pty) Ltd, got started. I wrote my own software for the analysis that was needed in court as part of my expert-witness submission. People began asking where the software had come from, tracked it down to me, and in about August 1980 I began selling it.

It's grown from there – developing more and more software for more and more applications, adding CAD and GIS and everything else. Thank goodness for the computer training from second year at varsity, even if it was Fortran!

### **Allyson and the Renaissance**

Today the company has three branches, in Johannesburg, Cape Town and Durban – all our own properties – as well as 26 staff. I can't tell you how many thousand people use our software, but probably 70 per cent of consultants use it as well as lots of the municipalities, contractors, mining houses, and so on. And we have an extensive base in the rest of Africa.

We're making the most of Thabo Mbeki's African Renaissance, which has created a tremendous window of opportunity. Right now there is a brain gain into South Africa from the rest of the continent. Engineers from all over have got their degrees in the UK or USA, and now they are coming here because little is happening in their home countries. So there is a substantial number of quality engineers here, and the funding that's coming into Africa is generating exciting opportunities.

What drives me mad is all the doom and gloom. It doesn't matter where in the world you are; there are always changes in government spending patterns as well as floods and other natural disasters, even wars. And where local contingency plans are inadequate, aid comes in. If you keep your eyes open, you can spot the opportunities.

A lot depends on attitude. There are those who say that there is no work, while there are others who can't keep up with demand. Those who haven't adapted to the new game are battling; those who have worked out the new rules are growing and growing.

### **The great inventors did it without tenders**

Everyone has to believe there is a future.

People should have got more excited about the RDP. Those who went out to find the projects, find the finance, and find how to get the community to buy in, found a lot of work. If you look at SAICE's national awards in September, the Molote Resettlement Project was a wonderful example of what can be done.


My message for the year is in support of the topic chosen for our 2000 Congress in Pretoria: 'The Role of Civil Engineering in the African Renaissance – The Time Has Come'. It centres on the fact that there are opportunities if you are willing to get out there and make them. If you look at our inventive engineering forefathers – the Stephensons, the Telfords, the Brunels, the McAdams – none of them had a tender saying build me a steam engine or a bridge or a road; they created those things to make life better, and those are our civil engineering roots, which we seem to have forgotten about.

I feel there are huge opportunities, especially with President Mbeki saying, 'Let's do something spectacular as a continent.' There's funding available, and if you can't match demand with supply and create a great opportunity for civil engineering, that's a tragedy. We have to be more proactive and less reactive!

### **Let's make a real difference**

As for training, the challenge is the emigration of the middle group of civil engineers, which has overloaded the older engineers and made them less available to pass on their knowledge to junior engineers. The older ones then take early retirement and there is no one! What I am doing is trying to bring all those retired civil engineers back into harness so that they can devote part of their time to assuming that training load. Many retired engineers find they miss the intellectual stimulation and are only too happy to get back into engineering. The process needs refining, but it's working. We are putting a programme together that will hire out these engineers for X hours a week to local, provincial and central government and firms who want somebody mentoring their young recruits.

It's a very exciting development, because after six weeks of retirement most people suddenly find the holiday's over and start wondering what to do with the rest of their lives. They are desperate to use their brains again. I'm not talking full-time employment, with late hours and working weekends; we need people who are happy to devote a few hours a week to making a difference.

And that's the future of civil engineering in South Africa – making a difference by being creative and innovative. 

## President's greeting - 2000

**G**reetings in the new millennium! The Y2K bug did not strike, but SAICE now has a bug – a ladybird as your new president. Thank you for this rare and challenging opportunity.

I am very excited at the prospects facing us this year. A strong economic recovery is predicted for the year – GDP growth of 3,5%. Growth requires development, which means opportunities for our industry. Apart from a growth rate of more than 4% in 1996, this would be the best performance since 1988.

The African Renaissance call suggests extended civil engineering development. As President Thabo Mbeki wrote: 'Our vision of an African Renaissance must have as one of its central aims the provision of a better life for these masses of people whom we say must enjoy and exercise the right to determine their future. That renaissance must therefore address the critical question of sustainable development which impacts positively on the standard of living and the quality of life of the masses of our people.'

Civil engineering is clearly a key industry, which can plan, deliver and maintain the infrastructure so desperately needed and can do it properly. The recent reports in the *Sunday Times* of collapsing houses highlights the danger and wasted money of inappropriate development.

I was interested to read the results of James Clarke's survey to determine 'the 100 people who made South Africa'. The work of a civil engineer was recognised and appreciated – Andrew Geddes Bain (1797-1864) made it to a staggering number 5 'for engineering routes into the interior', topped only by Jan van Riebeeck at number one followed by Nelson Mandela, Jan Smuts, and Jesus! Another engineer was at position 28 – John McAdam 'whose tarmac made South Africa's road system possible'. Two engineers therefore pipped Bill Gates, who was only at number 30, with George Pauling also getting a mention for 'laying 9 000 km of railway track in southern

Africa at the turn of last century'.

If these men could shape the nation in its formative days, then we can surely shape the new South Africa during its rebirth! The challenge is to provide practical, innovative and affordable solutions for all aspects of development. Let's get busy.

... and my challenge?

To co-ordinate civil engineering so that we all sing the same song to everybody – to central, provincial and local government, the private sector, the public, aid organisations and donors alike: we civil engineers can make the difference.

Come and join our committees, branch and division meetings and help us think, plan and forge an exciting future, with new approaches and solutions for our industry. Tom Landry, head coach of the Dallas Cowboys football team, said: '... our success is not the system, but it comes out of the sweat glands of our coaches and players.'

Your Institution, SAICE, needs you, the members, as players in the 21st-century development game. I look forward to working with you all and seeing you on my visits!

Best wishes



ALLYSON LAWLESS  
President 2000

*We can surely shape the new South Africa during its rebirth!*