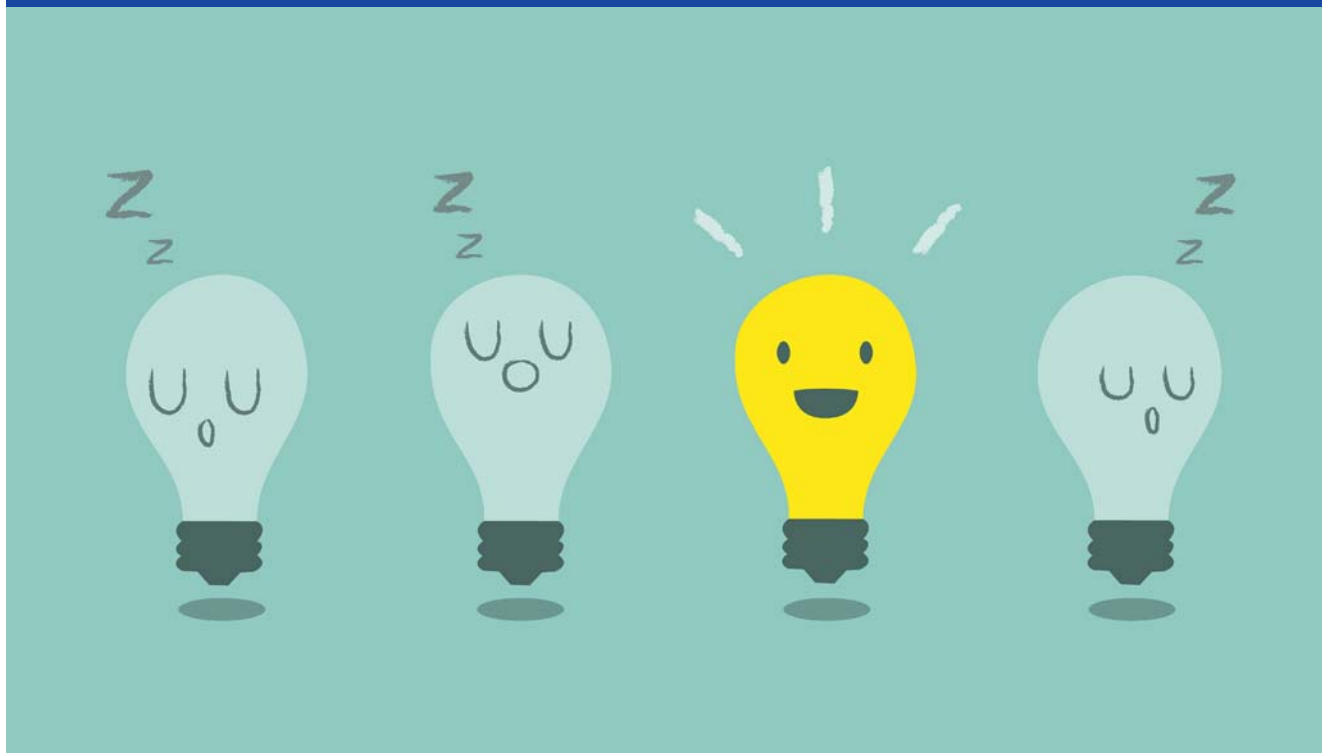


# WATER PERSONALITY

## Leading the charge towards innovation – Valerie Naidoo

*In order for South Africa – and the region – to overcome its massive water challenges will require creativity, innovation and persistence in the water research, development and innovation field. Leading the charge is Dr Valerie Naidoo, current Chair of the Water Institute of Southern Africa (WISA).*



Have you ever watched Star Wars and wondered about how a light sabre or a moisture vaporator might be manufactured and brought to market? Or mulled over the biological processes that treat wastewater so that it can be used for fertiliser or bioplastics?

No? Well, fortunately for us and our sustainable living on this planet, there are people thinking about – and working towards – these sorts of solutions all the time. Current chair of the Water Institute of Southern Africa, Dr Valerie Naidoo, is one of them.

"I love futuristic movies. They have all these innovation principles that get me thinking about what the next world might be and how we might live in it. What sorts of gadgets will we need and how would we do things differently?"

Not content to simply wonder about these things, Valerie has made it her life's work to unpack sustainable living practices and then make them a reality. Now working as the Executive Manager of Business Development and Innovations at the Water Research Commission (WRC), Valerie's background is in the sciences.

As a child, Valerie preferred science over other subjects, but the environmental angle was an early interest inspired by her health problems. "I stayed in South Durban basin in between two oil refineries. It was a highly polluted area, and I suffered from respiratory problems, so I was very aware from quite a young age that pollution was actually accelerating some of these symptoms. I might not have fully understood the whole concept of sustainability at that age, but I was certainly aware that the

unchecked use of resources can lead to negative impact.”

And what her early education in science revealed to her was how systems need to be balanced and in equilibrium. “You get some sense that the environment is really important – and that we are part of the environment. The more I read about it, the more I started to understand the environment around me and the value of our role in protecting it.”

## RESEARCH CAREER

Driven by her curiosity in the sciences, a love for reading, and her solutions-seeking nature, Valerie’s studies veered towards deep research in microbiology and chemical engineering, finally seeing her complete her Masters and then her PHD in water treatment systems. At the urging of her professor at the University of KwaZulu-Natal (UKZN), Valerie took up a two-year PhD data collection position at the Paris research unit of French water company Suez-Lyonnaise-des-Eaux.

The opportunity gave her exposure to a completely different environment – and a significant realisation: “Quite clearly when you go there, you think ‘First World’ and ‘developed’ and they obviously have better facilities and funding. But you start to understand that South Africa, especially at that stage, was quite well ahead on the biological nutrients process and had contributed substantially to scientific literature in that area. It was less a case of being taught by the French who were doing the teaching and more a case of collaboration.”

After finishing up in France, Valerie joined the Pollution Research Group at UKZN as a project coordinator before moving into the private sector with Unilever as the Research and Development Manager in the Africa, Middle East and Turkey regions.

“For me this was an interesting step away from research and analytical spaces of life. This was a deliberate decision. I looked at the academic environment and, to some extent, found it very slow, with limited opportunities to change quickly. After all, that’s just the nature of the way these organisations are structured. But I thought I’d spend some time in the private sector to see where I fit in.”



WISA Chair, Dr Valerie Naidoo, in action at the Water Research Commission Symposium in 2017.

into a very good management training programme at Unilever. Different management skills are important even if you’re purely specialising. You’re always going to have to manage something whether it is budgets, research programmes or teams. So getting an understanding of business principles and how to manage and understand finance to some extent is the useful addition to growing a knowledge base and it all comes together in the end.”

And where it all came together for her was with her appointment to the WRC.

## RESEARCH AND INNOVATION

Valerie’s first six years at the organisation was in research. “But as someone who’s always looking for solutions, I needed to do more than just research. Innovations provide solutions to challenges so if you really want to solve something you have to take on innovation.”

*“We need to consider marketable products that can either then be used by the public sector or the private sector, from households to communities and governments. But there are some big gaps in this process and considerations that are very different from the pure private sector.”*

In 2013, the WRC was restructured for just this purpose. “There are areas we’re playing in now where we are learning as we are doing. We’re asking: “How do you take this research and make it impactful?” We’re looking at the different mechanisms and models and new ways of partnering. It’s exciting because I suppose to some extent it’s new and risky and you have to think on your feet.”

According to Valerie, the water sector needs to push the envelope in terms of the way it looks at innovations and economic growth, industrialisation and business development, while spanning both the public and private sectors. “There are a lot of unknowns here, and this is the part where the curiosity in the excitement in trying to find those solutions is interesting to me from an innovation point of view.”

## INSIGHT INTO THE PUBLIC v PRIVATE CONVERSATION

Anyone in the innovation space will know that although ideas may be many, taking those ideas through a development process and then to market is a whole other ball game. “In our case, we need to consider marketable products that can either then be used by the public sector or the private sector, from households to communities and governments. But there are some big gaps in this process and considerations that are very different from the pure private sector.”



On air with SAFM.

One of the big considerations is the extra step of having to convince government authorities that new implementations and products are viable. "Due to the huge red tape around the Public Finance Management Act, the Municipal Finance Management Act and Treasury rules, most public sector officials are risk-averse. And nobody wants a failure that the newspapers will say is a waste of public funds. People almost need to quadruple-check everything, taking a lot longer to make decisions and only doing so when they feel like the chance of failure is very low."

Although there are the usual methodologies and mechanisms to test new initiatives and lower risk, this is where another gap in the public sector is highlighted. "The chance of failure gets lower if you have a highly capable society, because almost any innovation can be fixed if you have the right minds, if you're nurturing the right kind of excellence in your own system."

"But the problem is that we have an issue of capacity in the municipalities. If you don't have the right people when you introduce new outputs, the guys that are used to routines are unable to take calculated risks on the offering or adjust, think and analyse to adapt your technology to the environment."

Nurturing the right kind of minds then is what Valerie sees as a foundational necessity to encouraging innovation in South Africa and the rest of the continent. "If Africa is to grow and create its own economic base, it needs to know where to prioritise and what to prioritise. We can't compete with the US; we can't compete with China. But we can figure out what areas we want to work in, which people to invest in and what instruments and infrastructure we need to accomplish this."

Valerie believes this means funding the basics: understanding the value of and building capability around engineers, physics, mechanics, electronics, robotics and IT and investing in schools and colleges around manufacturing and assembly. "This is a long-term thing; this isn't a short-term, five-year programme from the government. But it must happen if we're to become part of the global society and competitive."

#### **INNOVATION BY AFRICA, FOR AFRICA**

Despite these fundamental requirements, Valerie believes that water scarcity issues faced by South Africa and the rest of the continent is a point of possible strength when it comes to innovation. After all, physical scarcity demands a solution. "If we push ourselves and ask ourselves tough questions – for

example, in a resource scarce environment is it worthwhile doing things like flushing water down the toilet – we offer ourselves the opportunity to leapfrog, not to copy. We have the opportunity to do things where, while we may not create the Rolls-Royce of the US or European markets, we can create the kind of technologies and opportunities that actually work in this kind of environment."

It's why Valerie believes it's worth investing in the innovation culture of encouraging people to think differently and to try out new things, to test them and to look for opportunities to do things differently. "It's this kind of mindset that will drive other things. If you do come up with a worthwhile technology, for instance, it drives multiple agendas for the government from jobs to new products to export markets to the opportunity to provide services... So you see, multiple benefits come from looking at some of these tough questions just a little bit differently."

Apart from education, Valerie believes that another part of the solution lies in building entrepreneurs and enablers for innovation. "We need people who are curious and looking for new things. These are the people disrupting the status quo and effecting change. This is the basis of life – continuously improving by looking for new and better ways to do things."

#### **LEADERSHIP DRIVING INNOVATION**

Leadership is of utmost importance. "[Leadership] is the heart of innovation or innovative thinking in organisations. It provides a route that gives people a forward-thinking approach to the different initiatives and strategies that are being driven," notes Valerie.

Leaders who embrace innovation leave room to fail, she believes. And in the public sector, where there's a microscope over everything a public official does, there are very few pockets where visionary leaders are strong and daring enough to convince counselors to look forward to the future.

This is not only not a problem for the likes of Valerie, it is part of the challenge and excitement of her role in driving innovation. "I don't look at life in terms of what obstacles there may be. I look at what I want to achieve and then find the different pathways to get there. As you grow older, you realise that what you can achieve on your own is actually easy because it's in your control. The bigger challenge is what you can achieve through others – what can you influence, who you can motivate, or what vision you can create that people buy into and support."

As climate change continues to affect the already strained resources facing South Africa and the continent, answers to the crisis will be found with people like Dr Valerie Naidoo whose passion for exploration and solutions will bravely drive change and lead us into the next world.