

# NCPC-SA celebrates 20 years of resource efficiency implementation

*MechChem Africa* talks to the Director of South Africa's National Cleaner Production Centre (NCPC-SA), Ndivhuho Raphulu, about the spectacular growth this CSIR service to industry has been able to offer to South African industry.



ments to their industrial processes. From R1-million back then, we now have a budget of between R60- and R75-million a year," he notes.

"Expectations are far higher than we anticipated, especially with Eskom still struggling to meet demand. There is still a huge requirement for system's optimisation assistance to reduce energy management. And, because of electricity capacity restraints, companies are also struggling with access to good, clean water from the system. Pumps fail because of load shedding, and this reduces their lifespan, so the energy and water management aspects of our resource optimisation offering still make up the biggest part of our transformation offering," says Ndivhuho Raphulu. Today, he says there is a growing base of RECP and energy experts assisting and providing services to industry, many of them trained through the NCPC-SA/UNIDO partnership programmes.

Speaking more broadly, he says resource efficient and cleaner production is all about waste minimisation and management and, in addition to focusing on energy and water management, it is also about the lifecycle of processes and products of production systems, and the materials used and wastes produced from these systems.

"We aim to look at production as closed-loop or circular systems. We are doing some studies right now on the circular economy with the CSIR, the University of the Witwatersrand and Cape Town University. We have identified a number of products in the agro-processing, manufacturing and mining sectors and we are looking at the lifecycle of those products from a circular economy point of view.

"The NCPC-SA is working with provincial governments to run programmes for industrial symbiosis, a circular economy methodology where the waste from one process is made available as a resource for another. Industrial symbiosis models are highly suc-



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"We were born back in 2002 after South Africa hosted the World Summit on Sustainable Development," begins Ndivhuho Raphulu, Director of South Africa's National Cleaner Production Centre (NCPC-SA). "One of the local outcomes of that Summit was South Africa's commitment to the concept of sustainable consumption and production embedded in the Millennium Development Goals, which involves managing resource and production efficiency at all levels. The key driver back then was awareness, and the NCPC-SA was established to begin the transition towards full implementation of this goal," he tells *MechChem Africa*.

"Twenty years on, we can proudly say we have survived the childhood and teenage years and are now young adults, having firmly established resource efficient and cleaner production (RECP) as an exciting, valuable and even essential transition path for South Africa's future," he continues.

Raphulu joined the NCPC-SA in 2006. "At that time, I was a senior sustainability advisor for ESKOM, part of the team responsible for all efficiency and environmental management activities. I was part of a meeting with the CSIR and the Department of Trade and Industry and, after I had expressed myself rather strongly, delegates from the CSIR, the

Department of Environmental Affairs and the Department of Trade invited me to put together a business plan for the NCPC-SA.

"I have a background as an environmental scientist, so at least the concept of cleaner production was clear to me. I joined and, in partnership with UNIDO at that time, I was taken through all the UNIDO training programmes before starting to try to translate these concepts and objectives into the context of the South African economy.

"Then, in November 2007, Eskom load shedding hit and it became very easy to use energy efficiency as the vehicle for growing the NCPC-SA's vision. UNIDO had international funding for an international pilot project on industrial energy efficiency, and the NCPC-SA was the perfect implementing agent, so energy efficiency has always been one of the cornerstones of cleaner production initiatives," notes Raphulu.

The growth and adoption of NCPC-SA initiatives since has been phenomenal. "In 2006, we were visiting companies to create awareness that we exist, while having to prove that efficiency and cleaner production concepts work; that they are economically beneficial and not an additional expense to satisfy radical environmentalists. Many didn't understand what we were talking about.

"Today, we have assisted over 1 800 companies to identify and implement improve-



Resource efficiency and cleaner production is also about the materials used and minimising and utilising the wastes produced from production systems.

cessful overseas, particularly in the context of industrial parks.

"South Africa has hundreds of government and privately owned and managed industrial parks. If we can create an environment where these parks use our industrial symbiosis tools to connect parks and tenants with each other to maximise their use of resources and waste, the impact on their profitability and sustainability can be enormous," Raphulu points out.

Power or water excesses can be locally sold-on where and when another participant has a shortfall, and industrial machines with spare capacity can be made available to nearby industries, avoiding the need for unnecessary investments, for example.

"Companies are exchanging data and realising real savings as a result. We now have a number of tools that we are developing and testing for Industrial Parks and we are starting to talk about the impact that we're experiencing: companies that were closing down or moving to adjacent parks or provinces have decided to stay because of the survival advantages of industrial symbiosis.

"In the beverage industry, for example,

one company has accumulated four or five freshwater inlets into their systems, but only two are needed at any one time. We now help with tools on how to manage and share these resources. We also offer training on resource optimisation to every company that participates," he tells *MechChem Africa*.

A key success of the NCPC-SA over its 20-year life has been the creation of the growing base of professionals in the fields of energy management and resource optimisation. "In the beginning all the specialists we used were from the USA and Europe. Not only does South Africa now have its own base of experts and trainers, but many of these professionals are exporting their skills across Africa, supporting implementation and technical interventions to optimise and improve production processes, resource efficiency and sustainability," adds Ndivhuho Raphulu.

The 'adult' NCPC-SA still has the same three strategic focus areas: to develop the technical skills needed to transform our industrial economy; to develop and advocate for the policy support needed to enable this transition; and to make implementation tools

available that are relevant to our developing nation, our economy and the prevalent industrial capacity.

"We are a national industrial support programme with the mission to facilitate the transition of the South African economy to a green, low carbon and climate resilient economy: featuring circularity, efficiency, productivity and competitiveness. Our role is to facilitate this transition."

This is proving to be very worthwhile. "Most of our work is fully subsidised by the Department of Trade, Industry and Competition as an industry support mechanism. Most of the general and technical follow up audits are free and training courses are offered at highly subsidised rates. While we cannot fund the implementation of recommended solutions, we can assist companies to apply for funding with reports that provide projected savings data from implementation and payback periods from savings realised. Case studies show that our recommendations have a real return on the investment – and we undertake to measure and verify the outcomes to ensure and record the value of the gains.

"We have hundreds of successful case studies from large and small industrial clients, but we would like to help more small and medium enterprises, who typically have greater affordability challenges. The NCPC-SA has the local knowledge, skills and ability to help industry across South Africa to deal with the current pressure of transition and to using efficiency and optimisation measures to become globally competitive. And we invite companies of all sizes to take us up on this opportunity.

"There is nothing to lose, while the ultimate reward is lasting sustainability for South African industry and its economy, along with a healthier planet for the benefit of everyone and everything that is dependent on it," Raphulu concludes.

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Energy and water management aspects of resource optimisation still make up the biggest part of the NCPC-SA's transformation offering.