



Press release - FINAL

The heat is on in Limpopo where women are leading the cool roof revolution

As the sun sets on another Women's Month in South Africa, we continue to celebrate the achievements of young and passionate women across historically male dominated sectors like energy – reminding everyone that what is good for the gander can be good for the goose.

In recognition of the enormous opportunities and potential for gender advancement in energy efficiency, the South African National Energy Development Institute (SANEDI) is celebrating the women leading us into a "cooler" future. One such woman is 25-year-old Hilda Muthivhi whose curiosity and determination to make SANEDI's Cool Roofs Project a success has enabled her to assume a leadership role in ensuring the quality and effectiveness of the SANEDI project underway at two of four military bases in Limpopo.

No stranger to the notoriously high temperatures nearly all year round in her home province, Muthivhi believes the impact of cool roof paint technology, and the accompanying special skills needed, will have lasting impact over and above the benefits of energy savings associated with this innovative paint. She sees jobs, skills and opportunities on the horizon.

Muthivhi's work at undisclosed locations for military bases in Limpopo involves noting and documenting how different roof materials respond to the paint, and the methods needed to prepare the surfaces for coating. This has lasting consequences for the integrity of the paint. Hilda is directly contributing to the body of knowledge SANEDI will use to present a strong business case for the widespread adoption of cool roof paints that will ultimately improve our overall energy efficiency and result in electricity and cost savings.

"Where I grew up we had children in school who became sick during summer because it became very hot. This paint will keep our buildings cooler when it gets too hot in Limpopo," Muthivhi says.

"People in Makhado and Musina have complained about the heat and how they could not stay indoors in summer but now they can. It was hard for them to work as a result of the heat."

Her rise to a supervisory and assessor role at the pilot project represented fast progress since she joined the team in February this year (2022). Muthivhi believes taking initiative to do her own research on cool roof paints and paying close attention to how surfaces needed to be prepared was key to her earning respect and authority from her peers and she continues to

display insightful knowledge during her inspections –which includes training her colleagues to apply the same knowledge.

“When I started I had no idea what we would be doing, but I was invited and received training. I then began monitoring where the roof was being prepared incorrectly, this is when I took the lead to ensure that the painters were getting it right and that they had knowledge of the different materials that we needed to paint because they are different,” she says.

“At first it was stressful because men don’t want to listen to a young woman and so they questioned my authority and expertise. I have learnt to communicate effectively and build trust with them. Admitting when I am wrong and working together has shown them that my supervision was effective. Women are starting to accept my offers to learn about coating the roofs to make our buildings cooler someday. We are like one big family now,” Hilda explained.

The paint delivers higher solar reflectance and higher thermal emittance than standard designed building envelope coats. A cool coating immediately reduces temperatures on the surface by up to 20⁰, keeping the frequent heat expansion and cooling contraction to a minimum– allowing the roof to last longer. In addition, the structural integrity of the roof is strengthened while temperatures can be reduced by up to 10⁰C indoors, as the paint reflects and scatters heat away from the roof, reducing the absorption and penetration of solar radiation into the building.

“We are certainly documenting, monitoring and recording everything Hilda reports so that we can build a business case. When we started there were only two manufacturers of these paints and there are now seven so that creates new opportunities and a need for more skills. Ideally we would like to see more women coming into this space because it is a robust technology that is easy to apply and the benefits are enormous. We ultimately take demand off the grid and create positive energy savings,” Dr Karen Surridge, Acting General Manager at SANEDI.

For every square metre painted, Dr Surridge and her team are able to quantify electrical and thus cost savings per square metre per annum.

Muthivhi is aware of the market potential the cool roof paint technology will have in sunny and hot South Africa where temperatures can reach scorching levels in the summer. She has set her sights on her own business in the near future and promises to continue upskilling the people, and particularly women around her.

“We are approached by a lot of curious people who want to know how they can access the paint for their buildings or houses so I can see the interest is there. One day my own company could provide this service beyond Limpopo.”

“I hope through this field I can build people, encouraging unity and development around me.”

Dr Surridge has observed that teachers and staff at the military base school and creche have noted positive changes in everyone's health and focus since their classrooms are cooler in summer.

“The military base is an ideal pilot to test whether we can create a cool bubble effect which is essentially what happens when surfaces are cooled on a cluster of closely knit buildings, creating a net cooling effect in that entire vicinity. Critically, this is reversing the heat island effect associated with urban heating,” she explained.

Boots hit the ground for the next phase of the Cool Roofs Project between SANEDI and the SANDF in November 2021 to promote energy efficiency and savings by reducing the need for cooling.

“Cool Roof paint acts as a fire retardant so it staves off the fire giving people inside a burning building time to escape but it also preserves the roof from the elements and can seal asbestos effectively where it has not been removed,” Dr Surridge says.

Cool Roof Paint technology represents a major leap in making cooling accessible in places where people would otherwise not have access to conventional air conditioning. SANEDI will keep promoting and celebrating women's excellence in the advancement of energy efficiency and sustainability beyond Women's Month, by advancing the development of skills and opportunities these technologies represent for South Africa's energy security.

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About SANEDI:

The South African National Energy Development Institute (SANEDI), established by the Government, directs, monitors, and conducts applied energy research to develop innovative, integrated solutions to catalyse growth and prosperity in the green economy. It drives scientific evidence-driven ventures that contribute to youth empowerment, gender equity, environmental sustainability, and the 4th Industrial Revolution, within the National Development Plan (NDP), through consultative, sustainable energy projects. For more information, go to www.sanedi.org.za.

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