

Young Scientist's Project aims to remove CO₂ produced by industry

Interest for Carbon Capture and Storage (CCS) technology continues to grow amongst young people in South Africa. This was evidenced during the 2018 Eskom Expo for Young Scientists Regional Science Fairs in Gauteng and KwaZulu-Natal Provinces respectively.

Eskom Expo for Young Scientists (Eskom Expo) is South Africa's primary and only existing science fair for school learners, where they have an opportunity to exhibit their own scientific investigations and engineering projects. Eskom Expo brings together learners, teachers, professional organisations and educational bodies and government departments to increase awareness in the field of Science, Technology, Engineering, Maths and Innovation (STEMI).

This year saw more than ten (10) Carbon Capture, Utilisation & Storage (CCUS) projects developed by learners during the Eskom Expo Regional finals. A CCUS project that stood-out was the CARBON EATER project developed by Ms Nyeleti Mashale, a Grade 11 learner from Sir Pierre Van Ryneveld High School in Kempton Park during the Ekurhuleni Regional Eskom Science Fair Finals held on 18 August 2018. This unique project aims to reduce CO₂ emissions. It won her the CCS Special Award category introduced in 2015 by the South African National Energy Development Institute (SANEDI).



Image 1: Colleagues of South African Centre for Carbon Capture and Storage (SACCCS) conducting an interview with Ms Nyeleti Mashale about her CARBON EATER project.

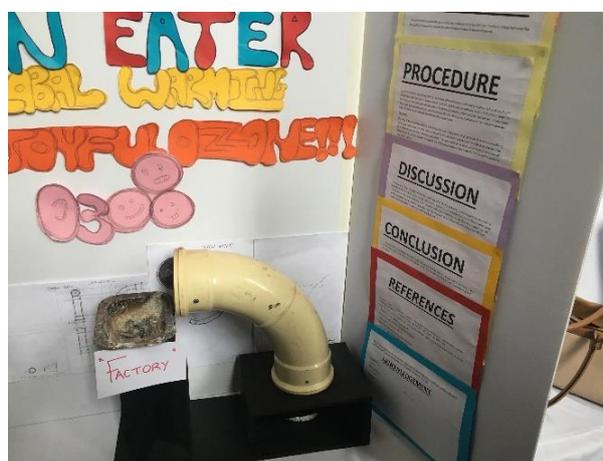


Image 2: The Apparatus called "Carbon Eater" that absorbs carbon dioxide from factories thus mitigating against climate change.

The Carbon Eater aims to absorb the carbon dioxide (CO₂) emitted by factories during the combustion of fossil fuels thus mitigating against climate change. The apparatus works by means of a built cylindrical tube protruding from the ground extending vertically to the top of the funnel that is used to absorb the CO₂ from burnt coal. The tube consists of sodium hydroxide and a vacuum which acts as a magnet for flue gases emitted post-combustion.

The learner indicated that the sodium carbonates collected at the end of the process can be used to manufacture glass, paper, soaps and detergents amongst other things.

Mashale collected the results by means of recording the change in colour that occurred in the sodium hydroxide when it reacted with different amount of CO₂. Mashale also won the Best Female Project. The SANEDI's Cleaner Fossil Fuels programme will be mentoring her for the International Science Fair (ISF) taking place in October 2018. In addition, the learner will be introduced to the SANEDI team that is investigating CCUS options in South Africa.

Eskom Expo is a Non-Profit Organisation established in 1980 and is a project based education with 24 categories for learners in Grades 5 to 12. The Expo has thirty five (35) affiliated regions in nine (9) Provinces in South Africa and neighbouring countries.

SANEDI entered into a Memorandum of Understanding with Eskom Expo with a primary aim of demystifying STEMI related subjects thus raising awareness on low carbon energy solutions. SANEDI provide mentorship for the selected learners at the Regional and International finals.

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