



THE STATE OF THE ELEMENTS

SOUTH AFRICA'S CLIMATE CRISIS

SMF 2024



SHERIE VOLLENHOVEN

THE STATE OF THE ELEMENTS: SOUTH AFRICA'S CLIMATE CRISIS

EDITOR'S LETTER

What does one think of when the topic of climate change is broached? Some of my classmates think of Stellenbosch – of excessive, blistering, oppressive heat where your clothes stick to your back from sweat.

Others think of stormy winter weather, with rain so heavy that you may as well swim to class.

For me, climate change evokes an image of a dying planet that is screaming for help.

The idea of dedicating a newspaper to a topic of a planet in crisis initially seemed like trying to climb a dune that was collapsing from the inside out. There were a hundred different puzzle pieces that all seemed to belong to a different puzzle.

To do justice to this topic, I had the idea to split the crisis into the four elements. Granted, the idea came to me after binge-watching the *Divergent* movie series, but it made the topic seem more exciting than daunting (pun intended).

Water, fire, earth, and air were the first elements that were brought into the mix, but we still felt that this did not cover the crisis enough – something was missing. Soon, we realised that the missing piece to the puzzle was the impact of humans.

Indeed, the human impact on the environment has become an element of its own. Humans have, for years, basked in the beauty of the earth without thinking of how to maintain it. Pollution, waste, and fast fashion are only a few of the ways humans have taken the earth for granted.

For the articles you are about to read, our journalists have climbed burning mountains, ventured into polluted waters, dug around in compost bins, flown across the country, and begged – no, pleaded – with sources (and with our news editors for deadline extensions). This was all to produce a newspaper that we hope will help you find more pieces to the puzzle of all the elements that create the earth we know today.

- THE EDITOR



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NAVIGATING REGULATORY GAPS IN THE DIGITAL NEWS AGE

BAYANDA GUMEDE

The shift from traditional print to digital news production has seen the news industry increasingly aligning itself with the information and communication technology (ICT) sector, which lacks definitive environmental sustainability policies in South Africa.

This may increase the industry's environmental impact, according to Basil Fortuin, a digital media professional.

Egbert de Waal, head of research, reporting and communication at Media24, said that their shift to digital news production favoured business and economic sustainability.

"The crux of the shift from print to digital [news production] relates directly to the continuous and irreversible decline in demand for print media products," said De Waal.

However, News24 aims to manage its environmental impact through the implementation of its sustainability policy, he said.

DIGITAL ACCESS

"Digital access, from a carbon



The shift to digital news production has had dire consequences for environmental sustainability efforts. "Digital access, from a carbon footprint point of view, [is] contributing to environmental pollution," said Basil Fortuin, a digital news publisher. PHOTO: Ubaid Abrahams

footprint point of view, [contributes] to environmental pollution," said Fortuin.

In order to bring online products to the end-consumer, digital news companies require investment in digital infrastructure such as hardware, software, data centres and cloud computing server farms, according to Fortuin.

Carbon dioxide (CO₂) emissions created by increasing electricity demands have significant impacts on the environment.

The same can be said about carbon-intensive mining activities for precious metals and minerals that are used to produce and power the digital infrastructure needed to access digital news. This is according to Dr Romain Pirard, an environmental economist at the Stellenbosch School for Climate Studies.

This digital infrastructure contributes to the more than 1.5% of greenhouse gas emissions produced by South Africa, according to World Bank's 2019 estimates.

ABSENCE OF ICT REGULATIONS

"We rarely consider the impact of our digital footprint on the planet," said Jane Molony, executive director at Paper Manufacturers Association of South Africa (Pamsa), in an article for Bizcommunity, published in October 2023.

Fortuin explained that this is due to the difficulty of auditing the perceived intangible processes of the digital world, leading to a lack of sustainable regulations and environmental standards.

"There [were] never proper policy frameworks to govern the environmental impact of digital businesses [in South Africa], because in its current format, it's not a tangible product," said Fortuin. "Only now do we realise that digital businesses have [...] a far greater environmental impact than what we thought [they] had."

ADVANTAGES OF REGULATORY FRAMEWORKS

The pulp and paper industry is one which demonstrates the benefits of environmental policies, said Molony, in an interview with SMF News.

"Forest, pulp, and paper companies are among the most fervent adherents of

sustainability," said Molony in Bizcommunity.

"From a circular economy perspective, we recycle. We collect approximately 1.1 million tonnes of paper [annually], and our recycling rate [...] for 2023 was about 63%," said Molony in the interview.

In order to gain Forest Stewardship Council certification, companies within the paper and pulp industry are required to manage their plantations sustainably and report the CO₂ emissions that they produce. As a result, many paper and pulp companies have taken on biodiversity projects to aid in environmental conservation, according to Molony. This certification confirms the integral sustainability of these companies.

"There needs to be a policy framework that governs [...] the environmental impact that digital businesses have because of the things that precede the actual product [reaching] the consumer," said Fortuin.

"I think it might be outstripping what print did in its best days."

WAAR IS ONS OMGEWINGSJOERNALISTE?

ANTOINETTE STEYN

Daar is te min omgewingsjoernaliste in Suid-Afrika, volgens Elise Tempelhoff, 'n vryskut omgewingsjoernalis vir Media24.

"[Omgewingsjoernalistiek] is nie sexy genoeg nie," het Tempelhoff gesê. Daar is baie ander onderwerpe waaroor joernaliste eerder wil skryf, soos bekendes, het Tempelhoff bygevoeg.

"Dit is asof [omgewingskwessies] nie vir [joernaliste] belangrik is nie," het Tempelhoff gesê.

Slegs sowat 51% van Suid-Afrikaners het al van die term 'klimaatverandering' gehoor, volgens 'n 2023-studie deur die Instituut vir Geregtigheid en Versoening (IGV).

Dit is ten spyte van die feit dat Suid-Afrika aardverwarming teen dubbel die spoed van die globale gemiddeld ervaar, volgens 'n artikel deur Joan Igamba vir Greenpeace in Augustus 2023.

TEKORTKOMINGE IN OMGEWINGSJOERNALISTIEK

Jana Boshoff, 'n senior digitale media spesialis by Caxton Local Media,

glo daar is 'n tekort aan kundige joernaliste wat oor omgewingskwessies skryf, sonder om dit "te tegnies of ingewikkeld te maak".

"[Artikels oor klimaatverandering] gaan bo-oor die meeste lesers se koppe en bereik net 'n klein groepie [reeds ingeligte] lesers," het Boshoff gesê. Sy het beweer dat joernaliste soms self nie verstaan wat kenners sê nie, en dit lei tot sinnelose artikels.

Dikwels is artikels nie net moeilik om te verstaan nie, maar ook lank.

Boshoff het gesê dat klimaatverandering 'n "hot topic" is onder jongmense. "[Maar] die realiteit is dat hulle nie elle-lange berigte wil lees nie."

FINANSIËLE UITDAGINGS VIR NUUSKANTORE

Dr. Trust Matsilele, 'n senior dosent in joernalistiek aan die Universiteit van Birmingham, het gesê dat daar beslis 'n tekort aan omgewingsverslaggewers in Suid-Afrika is. Hy glo egter dat dit 'n resultaat is van makro-ekonomiese uitdagings.

"Nuuskantore is besig om te krimp en daarom belê



Daar is te min kundige omgewingsjoernaliste, volgens Jana Boshoff, senior digitale media spesialis by Caxton Local Media. FOTO: Ubaid Abrahams

hulle slegs in nuus-areas met gewaarborgde opbrengs," het Matsilele gesê. Hy glo dat joernaliste meestal georganiseerde geleenthede dek wat befonds word deur "groepe met gevestigde belange".

Tempelhoff het gesê dat dit moeilik is wanneer joernaliste oor 'n maatskappy wil skryf wat skade aan die omgewing verrig en daardie maatskappy deur die nuuspublikasie

adverteer. Volgens Tempelhoff het "groot maatskappye 'n houvast op sekere publikasies".

'N KOPSKUIF IS NODIG

Omgewingskwessies is die basis vir meeste nuusgebeure, volgens dr. Dominic Okoliko, 'n kommunikasie-navorsers by die Universiteit Stellenbosch.

"Alles wat gebeur, is eintlik maar gekoppel aan klimaatverandering," het Tempelhoff gesê.

Okoliko het beweer dat elke joernalis 'n omgewingsjoernalis is, maar dat hulle net nie stories oor "storms, sport, kos of elektrisiteit" aan klimaatverandering koppel nie.

Publikasies moet 'n "kopskuif" maak sodat meer joernaliste hul dekking van gebeure na klimaatverandering oriënteer, het Okoliko gesê.

STYGENDE KWIK HOU GEVAAR IN VIR DIÉ KALAHARI-GEMEENSKAP

AURELIA MOUTON

Die Kalahari met sy strawwe hitte en strak landskappe is 'n bekende gesig vir baie Suid-Afrikane, maar met toenemende klimaatsverandering word die gebied warmer, droër en meer gevaarlik vir inwoners.

Dit is volgens Naas Mouton*, eienaar en toergids van Rooiuidin gaste- en avontuurplaas naby die Kgalagadi-oorgrenspark. Mouton is 'n lewenslange inwoner van Askham in die Kalahari.

Die impak van klimaatsverandering is merkbaar in die temperatuur en reënval van 'n streek soos die Kalahari, volgens professor Guy Midgley, waarnemende direkteur van die Universiteit Stellenbosch (US) se Skool vir Klimaatstudies.

UITERSTES WORD OORSKRY

Midgley het verduidelik dat daar risiko's is vir mense as temperature bo 35°C styg.

Die daaglikse temperatuur in die Kalahari tydens die

somermaande, November tot April, is gereeld bo 35°C, volgens die Pierre van Ryneveld-weerstasie.

"Ons Kalahari-mense is geharde mense; ons ken van vanoggend af tot vanaand werk, maar weens die hitte kan ons dit nie meer doen nie," het Mouton vertel. Die aande bring nie veel verligting nie, het hy gesê. "Die hitte is kwaai. Selfs in die nag ook kry ons temperature van 20°C en op."

Volgens Petronella de Wee, 'n booring van Mier in die Kalahari, was die eerste paar maande van 2024 van die "bloedigste hitte" wat sy al in die Kalahari beleef het.

AL MINDER WATER

Die 70-jarige Mouton vertel dat selfs die put waarmee hy grootgeword het, opgedroog het. "Ons kry reën, maar nie soos gewoonlik nie," het Mouton gesê.

Mouton het verduidelik dat Askham en die daaromliggende plaasgemeenskap, wat 'n somerreënvalstreek is, gewoonlik teen April 100mm

of meer reënval kry, maar dat hy teen 4 April van hierdie jaar nog net rondom 40mm reënval gemeet het.

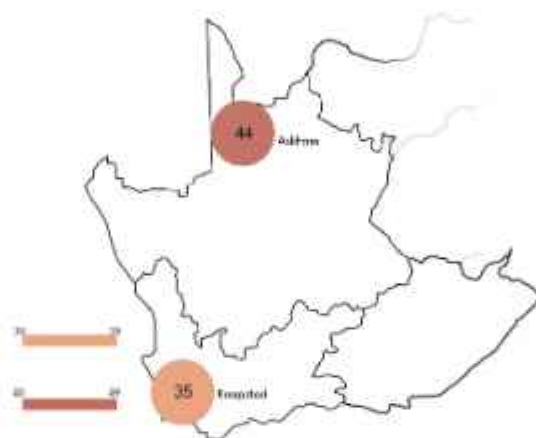
"Sommige [boere] is tans op 60mm, maar daar is ouens wat nog net 20mm het in hierdie gebied," het Mouton gesê.

MENSLIKE RISIKO'S

"[Die] dodelikheid van die temperatuur hang baie af van die humiditeit in die lug," het Midgley gesê. Hy

het verduidelik dat die hoë hitte en lae humiditeit in die Kalahari 'n uitdaging is, omdat dit mense vinniger laat dehidreer soos hulle probeer termoreguleer.

"Mens kan aktief jou liggaamstemperatuur verlaag deur te sweet. Die probleem is [egter] dat as jy sweet, verloor jy water. [...] [As] jy nie toegang het tot water om te rehidreer nie, sal jy binne 'n paar dae sterf," het Midgley verduidelik.



Warmste temperatuur gemeet (°C) tydens die onlangse somerseisoen (Desember 2022, Januarie 2023, Februarie 2023). BRON: AccuWeather GRAFIKA: Ubaid Abrahams

Die lang afstande na hospitale maak dit egter vir inwoners van kleiner dorpieë moeilik om mediese sorg in die Kalahari te ontvang.

"Ons naaste hospitaal is Upington. Die naaste klinieke het nie 24-uur-diens nie. So, baie van ons mense moes al met ambulans Upington toe as gevolg van dehidrasie," het De Wee beweer.

"Dan het ons nou ook ernstige veldbrande in ons omgewing, wat nie voorheen so erg was nie," het Mouton gesê.

Volgens De Wee was daar groot veldbrande in 2022 waartydens "omtrek 50 plase" geraak is. De Wee het vertel dat die naaste brandweerstasie 250km van Mier af is.

"Selfs met ons veldbrande sukkel ons verskriklik om hulp te kry. [Om] by die volgende buurman uit te kom is minstens 12 km," het Mouton gesê. "Hulp is maar skaars."

* Die skrywer is verwant aan Naas Mouton.

STRAND COMMUNITY BLAMES MUNICIPAL MISMANAGEMENT FOR 'BOUNDARY ROAD SWAMP'

UBAID ABRAHAMS

A centrally located piece of land along Boundary Road in Strand, Western Cape, has become run-down following years of pollution and illegal dumping. This causes rats and mice to breed, which then enter the community, claimed Raymond Fredericks, Strand community developer.

The 'Boundary Road swamp', as the community refers to it, was previously a rugby field rented and used by Wesley's

Rugby Club, according to Fredericks.

"[During the 1970's], the club rented the field area from the Morkel brothers," said Fredericks. "Wesley's could not uphold [the rental] agreement and the field area was left unoccupied."

The rugby field was located on a natural floodplain which caused it to be surrounded by water constantly, added Fredericks.

The land is now managed by the City of Cape Town

(CoCT), after being acquired from the Morkel Brothers, according to Fredericks.

POLLUTION WOES

"There are various sources of pollution [sewage discharge, windblown rubbish, and disposal of chemicals] [and] illegal dumping [...] in and around the wetland," said councillor Zahid Badroodien, a mayoral committee member for the department of water and sanitation (DWS).

According to Fredericks, pollution accumulated in the swamp as a consequence of the Lwandle township and the Greenways Golf Estate situated on either side of Boundary Road.

"The [CoCT] planted the reeds in the swamp to filter the rubbish coming through from Lwandle. This was done so that the rubbish does not reach the Greenways area," claimed Fredericks.

However, Badroodien said that the reeds grew naturally due to the nutrient rich area created by the illegal dumping.

Shannan Maans, a resident



Mouldy and decaying rubbish occupies a stagnant water body within the 'Boundary Road swamp'. PHOTO: Ubaid Abrahams.

of Boundary Road for the last 17 years, expressed his dissatisfaction regarding the municipality's alleged mismanagement of the swamp.

"They don't do anything," claimed Maans. "The swamp is not maintained or kept clean." According to Maans, the "stench takes away your appetite".

CONSERVATION EFFORTS

The Soet River Pollution Abatement Strategy and Action Plan (Pasap), composed by DWS in 2023, was designed to tackle sources of pollution in the Soet River area.

The Soet River area has a total catchment of 17.4 km², which stretches from Durbanville to Gordon's Bay.

The Pasap outlines the appointment of 'river wardens' to monitor overflows and minimise pollution. The plan should help mitigate the unhygienic state of the swamp, according to Badroodien.

However, there has been no tangible evidence that Pasap has been implemented in the area, according to community members.



A collection of dumped rubbish, causing a "stench" along the 'Boundary Road swamp' in Strand, according to Shannan Maans, a resident of Boundary Road for the last 17 years. PHOTO: Ubaid Abrahams.

HOT AS HELL

SHERIE VOLLENHOVEN

The past Western Cape fire season has been one of the most devastating ever experienced by the Drakenstein fire department.

This is according to Dereck Peceur, head of the fire rescue operations and training of Drakenstein Municipality. The most recent Western Cape fire season ran from December 2023 to April 2024.

"The past fire season [in the Drakenstein area] was the worst one in the [entirety] of the Western Cape," said Derick Damons, the fire chief officer at Drakenstein fire department.

"We had more than one fire to attend to every day this season," said Deon Lynch, a volunteer with Drakenstein Farm Watch (DFW), a nonprofit entity of approximately 45 people who volunteer as firefighters, first-aiders and maintenance teams.

Between 1 December and 31 January, more than 6 000 fires destroyed approximately 100 000 hectares in the Western Cape, according to

a *Daily Maverick* article by Victoria O'Regan and Kristin Engel.

The article predicted the recent fire season to be the worst since the 2014/2015 season.

CAUSES OF THE FIRES

"[Firefighters] have seen more arson this season as opposed to other seasons," said Lynch when asked about the main causes of the fires this past fire season.

"[The fires are] a result of malicious damage by disgruntled workers. The reasoning behind this is as a result of wage negotiations," claimed Lynch.

In response to the allegations by Lynch, Peceur said that he was aware of the potential of arson-based fires during the season. However, he was not aware of wage negotiation being linked to it.

According to Peceur, the causes of fires in Drakenstein usually cannot be determined because of the destructive nature of the fires, which compromises any evidence

pointing to their origin.

O'Regan and Engel also reported that the reason why this fire season was so difficult was due to the "El Niño weather pattern, and dry, windy conditions, as well as human negligence".

Peceur supported this statement by adding that "most fires are started due to accidental negligence".

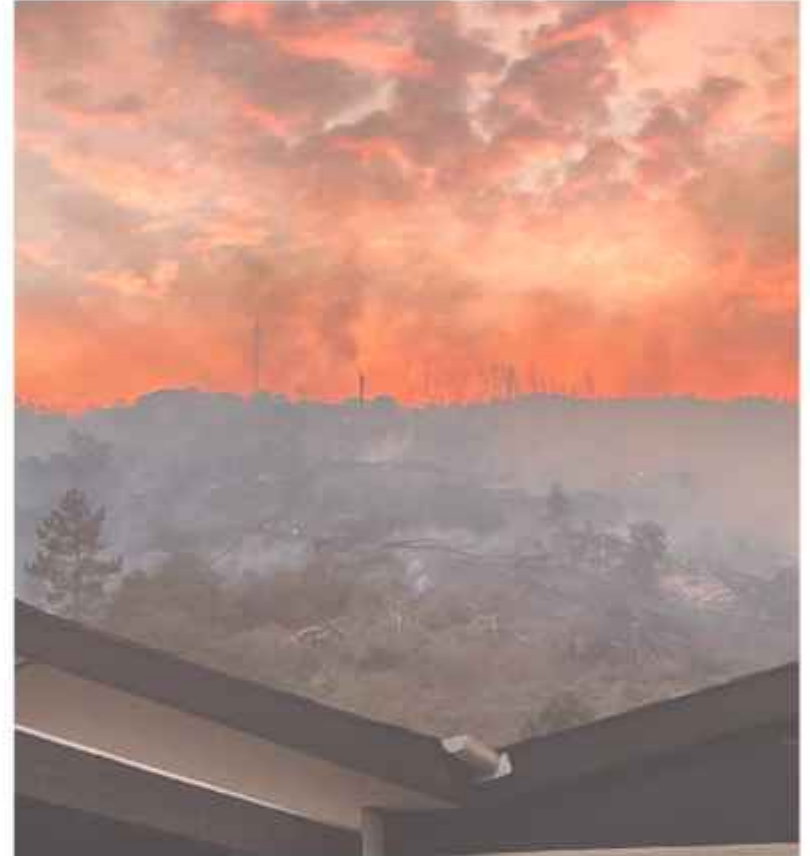
FIGHTING FIRES IN HIGH TEMPERATURES

The Drakenstein area, particularly Paarl, is known to experience high temperatures during the summer.

According to the Council for the Science and Industrial Research (CSIR), in a story map analysis on the impact that climate change has on wildfires in South Africa, Paarl has the highest number of days with high fire danger.

According to the CSIR, due to the high temperatures caused by climate change, Paarl is in danger of experiencing high fire seasons again.

"The excessive heat makes it



The Drakenstein area had its worst fire season from December 2023 to April 2024, according to Derick Damons, head of the fire rescue operations and training facility of Drakenstein Municipality. PHOTO: Sherie Vollenhoven

more tiresome to extinguish fires," said Peceur.

"The air you breathe is so hot that it burns your throat," said Lynch about fighting fires in warm climates such as Paarl.

TYD VIR STEDE OM NATUUR TERUG TE BRING

MALIZA ADENDORFF

Die huidige toename in die Wes-Kaapse bevolking kan moontlik oor die lange duur 'n impak op temperatuur hê in digbevolkte gebiede.

Sensusdata van 2022 het getoon dat die Wes-Kaapse bevolking uit 7,433 miljoen mense bestaan. Dit is 'n amper 3 miljoen verhoging sedert die 2001-sensus.

Suid-Afrikaners trek na die Wes-Kaap vir werkseleenthede, 'n stabiele ekonomie en goeie akademiese instansies, het dr. Cecil Madell, 'n senior dosent in stads- en streeksbeplanning aan die Universiteit van Kaapstad (UK), gesê.

"Hoewel die Wes-Kaap nie baie natuurlike hulpbronne soos steenkool of ystererts het nie, het dié provinsie 'n sterk landbou-basis, maar ook ander uiteenlopende sektore, wat toerisme en nywerhede insluit," het Madell gesê.

STEDELIKE HITTE-EILANDE

Die stedelike hitte-eiland-effek is volgens Tania Katzschner, 'n senior dosent aan UK se departement van stads- en streeksbeplanning, 'n simptoom van klimaatsverandering in stede. Die Massachusetts Instituut

vir Tegnologie (MIT) definieer stedelike hitte-eilande (SHE) as "n verskynsel waarin stedelike gebiede hoër temperature ervaar as landelike gebiede".

In 'n gevallestudie deur die geografiese data-wetenskaplike, Lukas Beuster, is daar bevind dat groter stede meer geraak word deur die SHE-effek as kleiner stedelike gebiede, en dat areas met digte bevolkingsyfers, dié effek aanhits.

Uitdagings rondom klimaatsverandering in stede is volgens Katzschner sistemies van aard. Tog word hierdie uitdagings in isolasie gesien. "Klimaatsverandering word in silo's aangespreek en word nie in verband met ander kwessies gesien nie. Ons beweeg van een krisis na die volgende, veral omdat [klimaat en sosio-ekonomiese] kwessies verstreng is," het Katzschner gesê.

Hierdie kwessies sluit ruimtelike-onreg en klimaatsverandering in. Madell het vertel dat ruimtelike-onreg deel van apartheid-wetgewings se nalatenskap is, waar sekere bevolkingsgroepe se toegang tot werkseleenthede in stede beperk was.

Suid-Afrika het in die afgelope 30 jaar nie 'n duidelike beleid vir verstedeliking ontwikkel nie, het Madell gesê. Stede word ontwikkel op grond van modelle wat geskep is voor klimaatsverandering 'n werklikheid was, het Katzschner vertel.

"Na 1994 het [Suid-Afrika] grootskaalse verstedeliking gesien, veral onder mense wat beperkte toegang tot stede gehad het weens die tuislandse-wetgewing," het Madell gesê. Volgens Statista het die persentasie van die Suid-Afrikaanse bevolking wat in stede woon van 63,27% in 2012 na 68,34% in 2022 gestyg.

NATUUR OMARM

Denkpatrone oor die skeiding tussen stede en die natuur moet volgens Katzschner heroorweeg word.

"Vir baie lank is stede as die antitesis van die natuur beskou," het Katzschner gesê. "Ons moet soveel as moontlik doen om stedelinge weer met die natuur te herverbind."

Openbare groen areas is nodig vir mense se welstand, sowel as die bekamping van die SHE-effek, het Katzschner gesê.



Openbare groen areas is nodig vir mense se welstand. Dit is volgens Tania Katzschner, 'n senior dosent by die departement stads- en streeksbeplanning aan die Universiteit van Kaapstad. FOTO: Maliza Adendorff



Volgens die Massachusetts Instituut vir Tegnologie, absorbeer teer-en-betonoppervlaktes hitte en laat dit weer vry, terwyl dit die absorpsie van water in die grond verhoed. FOTO: Maliza Adendorff

"Ons moet begin om die konsep van sorg in stede te herdefinieer," het sy vertel. "Ons kan nie nét op die kennis

van kenners staatmaak nie. Mense moet ook aangemoedig word om saam aan oplossings vir die klimaatskrisis te dink."

LIFE ALONG A DIRTY RIVER

NKULULEKO NDLOVU

The worsening contamination of Durban's rivers following ongoing *Escherichia coli* (*E. coli*) outbreaks has left informal communities near these rivers in dangerously unhygienic conditions. This is according to Desmond D'Sa, environmental activist and coordinator of the South Durban Community Environmental Alliance (SDCEA).

SETTLEMENTS STRUGGLE WITH RIVER CONTAMINATION

"Many of the informal settlements are based [...] on the river beds and they use the river water," said D'Sa.

One of these informal settlements is kwaNcancayi,

situated along the Umbilo River in the Roosfontein Valley, in Durban.

KwaNcancayi residents have petitioned the eThekweni Municipality for "basic things" such as a "bridge, formal housing to live in, electricity and water", said Sanele Cele, a resident of kwaNcancayi.

In a press statement for *SMF News*, Gugu Sisilana, eThekweni Municipality spokesperson, said, "The city's human settlement unit aims to relocate vulnerable households, [but] the reality is that suitable, alternative land is scarce and funding for new houses is severely constrained."

KwaNcancayi is one of the communities that

the SDCEA works with.

"We found that the water is highly contaminated with *E. coli* and other chemicals," said D'Sa. SDCEA performs water quality tests of the river weekly, added D'Sa.

According to municipal standards, a safe *E. coli* count measures below 500 colony-forming units per 100 millilitres of water. A test conducted by Water Community Action Network (WaterCAN) on the Umgeni river, on 3 April determined that the *E. coli*, phosphate and chlorine levels were unsafe on that date.

WHO IS TO BLAME?

"Here in Durban, [eThekweni Municipality] always blames

the floods, as if before the floods everything was fine – which is not true," said Azile Mpukwana, an environmentalist for Adopt a River Eco Solutions, a non-profit organisation operating along the Umgeni River.

"It is the combination of [the] misuse of sewer infrastructure, illegal sewer connections [by informal settlers] and damaged sewer infrastructure as a result of the recurring storm damages and flood disasters," claimed Sisilana.

"Umbilo Wastewater Treatment Works is broken," claimed Jonathan Erasmus, operations manager of WaterCAN at the non-profit

Organisation Undoing Tax Abuse (OUTA).

According to an article by Tony Carnie for *Daily Maverick*, published in November 2023, the Umbilo and Northern Wastewater Treatment Works were set for repair and rehabilitation.

"At least 20 million litres of raw sewage [enters] the system [from the Northern Wastewater Treatment Works into the Umgeni river] every day," said Erasmus. "Just think about that volume."

The Umgeni River's headwater is in the Drakensberg mountains. Therefore, the sewage and rubbish from informal communities and factories flows "downstream and ends up at the river mouth into the [Indian] Ocean," explained Mpukwana.

Informal communities, like kwaNcancayi, face risks during heavy rainfall in Durban, with overflowing rivers damaging homes and posing health hazards, according to D'Sa.

COPING WITHOUT HELP

Service provision and infrastructure for informal communities is often limited due to their residency being interpreted as an "invasion of land", according to Sisilana.

"[KwaNcancayi] invaded land and built informal structures inside a nature reserve," claimed Sisilana. According to Cele, the settlement has existed since the 1960s.



An Adopt A River Eco Solutions employee collecting bags of litter along the Umgeni River mouth. The litter washes up from the Umgeni River along the beach. PHOTO: Nkululeko Ndlovu

POISONING MORE THAN PESTS

MIA OLIVER

Pesticide poisoning, or 'street pesticide' poisoning, is a dangerous issue within South Africa that continues to affect the lives of many people. This is according to Dr Gerhard Verdoorn, operations and stewardship manager of CropLife South Africa.

“[IN 2023], THERE WERE ABOUT 150 CASES OF PESTICIDE EXPOSURE EVERY MONTH

In 2023, there were "about 150 cases of pesticide exposure each month and about [...] 60% had symptoms of pesticide poisoning," said Dr Cindy Stephen, director of the Poison Information Centre at the Red Cross Children's Hospital. These cases were reported to the national Poisons Information Helpline Service.

People who purchase illegal pesticides are "unaware of the toxicity as there is no labeling, instructions, or warning", which is a legal requirement in South Africa, according to Verdoorn. Illegally bought chemicals and pesticides, that are used for pest control within households, have "no

place in the home or garden market" and incorrect use is "killing people", claimed Verdoorn.

THE STREET MARKET

The term 'street pesticide' refers to products that are stolen from warehouses and decanted into smaller containers, before being sold to the public, according to Verdoorn. These products are sold through "informal street vendors, [which contribute to] 20% of all symptomatic pesticide cases", said Stephen.

"[These pesticides can] only be sold [legally] by those who are qualified and registered to sell them," said André Nieuwoudt, a field biologist at

BPC Pest Control Services.

"All the pest control companies are issued with pesticides for their routine work per day or per week," said Nieuwoudt.

WHY IS IT ON THE STREETS?

Poor urban townships are plagued by pest infestations, according to a policy brief published in 2019 by the division of environmental health at the University of Cape Town. The policy brief states that the high pest infestation rates are due to "poor sanitation, overcrowding, low quality houses, litter and poor refuse collection".

The high infestation rates

of pests within poor urban townships leave communities desperate for methods of eradicating these pest populations, stated the brief.

Illegal pesticides are the "first choice for pest control by residents" as there is a "demand for cheap [and] effective control", according to the brief. Cases of pesticide poisoning are severely underreported by medical practitioners, despite its status as a "notifiable medical condition", according to the brief. There is a lack of risk information given to the community and informal vendors, and a lack of affordable low-toxin pest control alternatives, according to the policy brief.

FARMERS CONCERNED OVER POLLUTED BERG RIVER

LARA SMITH

Pollution has impacted the quality of the Berg River water, according to Ilze Fielies, an environmental technician at Drakenstein Municipality.

Statistics from the Green Economy Berg River project indicate that crops on 600 farms are irrigated with water from the river, which flows into the Atlantic Ocean from St Helena Bay.

POLLUTION IN THE RIVER

"There is pollution taking place within the Berg River daily, because of the informal settlement [Mbekweni] that is situated next to the river," claimed Fielies. "[The residents] use the storm water drains to dispose of their waste and then that ends up in the river."

Firaz Khan, the owner of Dur Khyber Farm, claimed that residents of the settlement defecate in the water. Khan and several of his neighbours created a WhatsApp group where they reported foul smells emanating from the river as a



"The Berg River is mainly used for agriculture these days. We actually refer to the river as our lifeline because everything revolves around the river," said Ilze Fielies, an environmental technician at Drakenstein Municipality. PHOTO: Lara Smith

result of faecal matter.

"Whilst [the river water] looks clean and we can use it for crops [because] the pH is generally within the swing of usability, the quality does vary," said Khan.

The farmers receive water readings from the water management board, he said. Some of his neighbours also occasionally take water readings, he added.

According to Sizinikwe

Khano, a resident of Mbekweni, the residents of the settlement sometimes dispose of items used for rituals into the river.

"They do pollute and those who stay near the river usually do their laundry [in the water] or urinate," claimed Khono, adding that because the municipality does not provide residents with clean water, "most people who [wash clothes in]



The remnants of a red bucket with a white plastic bag caught around it, stuck in a tree branch, is an indication of where the Berg River flood line was in 2023. This is according to Firaz Khan, the owner of Dur Khyber Farm. PHOTO: Lara Smith

the river don't have a running tap or they use tanks for water in their settlements where they stay, so then they resort to doing it in the river".

MUNICIPAL STRATEGIES

The river is monitored weekly to ensure its ecological health is maintained so that farmers have good quality water, according to Malcolm Lamour, an environmental

officer at Drakenstein Municipality.

However, the large area that the municipality oversees makes it difficult to prevent "a single person from defecating in the river", said Khan.

They do what they have to do to manage it, but everything that happens between the dam and releasing, is out of their control, said Khan.

SOUTH AFRICAN INDIGENOUS FISH IN PERIL

ALISON HERMANUS

Indigenous freshwater fish species in South Africa are under threat from invasive fish species, as well as poachers, according to Jeanne Gouws, freshwater ecologist for CapeNature.

"Most of our indigenous fish species have a threat status [...] due to the impact of invasive alien fish and other factors," said Gouws.

"[...] The Cape Fold Eco region, mostly located within the Western Cape, has the highest proportion of threatened [species] – 67%," said Dr Martine Jordaan, fauna ecologist for CapeNature.

Indigenous fish have been under threat since the 1890s, according to Jordaan. Examples of indigenous freshwater fish are Cape kurper, Cape galaxias, and Fiery redbin, according to a CapeNature factsheet.

INVASIVE FISH ALTER NATURAL HABITATS

Gouws explained that invasive fish species often alter the preferred habitats of indigenous fish in order to survive.

The Common carp – an invasive species, according to the Stellenbosch University



Local fishermen that rely on fishing for food and money have noticed catfish are becoming more scarce, according to Riedwaan Fatagodien, a local fisherman from the Western Cape. PHOTO: Alison Hermanus

Centre for Invasion Biology – is a bottom feeder that eats sediments from the bottom of dams and other slow-moving bodies of water, according to Gouws.

This stirs up mud and silt, which remains suspended in the water column, said Jordaan.

"The water column becomes brown and silted, which does not allow sunlight into the water as readily, and alters the oxygen present

in the water, amongst other things," said Gouws.

"Common carp is native to most parts of Europe and central Asia, and was introduced into South Africa in 1859," said Jordaan. "[Common carp] are now present in every major river system in South Africa."

PROBLEMS AGGRAVATED BY POACHING

Poaching is not just done in the ocean on a large

scale, but is a noticeable issue in freshwater fishing communities.

This is according to Bertrum Jaftha, a Western Cape angler and warrant officer for the South African Police Service.

Small-scale freshwater fish poaching is not as commonly heard of as something like abalone poaching in coastal waters, but it still poses an environmental and economic threat, said Jaftha.

"Because of job scarcity, [fishermen] do this for a living to feed their family," said Riedwaan Fatagodien, a local fisherman from the Western Cape.

"It's become more difficult with fish poaching," said Fatagodien.

The reason for this is that poachers overfish, leaving less fish for local fishermen, who rely on fishing to make money, according to Fatagodien.

RABBITS MAY BE YOUR NEXT SOURCE OF PROTEIN

AMY LINDSTRÖM

United Nations statistics show that Africa's population is going to double, reaching 2.5 billion people by the year 2050. It, therefore, may be time to start looking at more sustainable, quick-growing protein sources. This is according to Wendy Robertson, a commercial rabbit farmer in the Eastern Cape.

"Every single person is entitled to at least one nutritional meal a day. We starve in this country when we don't have chicken or beef," said Robertson. "Rabbit is a versatile white meat. We can't support ourselves on just chicken and beef anymore."

According to a 2015 report by the Bureau for Food and Agricultural Policy (BFAP), there will be a 38% increase in global poultry consumption in the next decade, as well as a 28% increase in beef consumption and a 33% increase in pork consumption.

This was confirmed in an article by Innovus, the division for innovation at Stellenbosch University, which stated that the

demand for animal protein is estimated to rise by 70% overall within the next 30 years.

OTHER PROTEIN SOURCES

According to Robertson, there is more protein in 100g of rabbit than there is in 100g of chicken. This was confirmed by Food Struct, an Armenian company that produces an evidence-based encyclopaedia of food.

"Rabbit meat is higher in protein, while being lower in calories and fats compared to chicken meat," according to Food Struct's in-depth nutrition comparison report.

This was one of the many reasons why Robertson started farming rabbits in 2020, with the larger goal of "feeding Africa", said Robertson.

"Rabbit farming is sustainable, good meat. They take up very little space, so you don't need a big farm. They are especially easy to process and they need little water compared to other animals," said Robertson.

Breeding stock is distinguished from slaughter

stock, as a doe (female rabbit) can birth up to eight kits (infant rabbits) per litter, said Robertson. The gestation period of a rabbit is only 28 days whilst goats have a five-month gestation period and chickens lay only one egg a day, Robertson added.

PROCESSING RABBIT MEAT

Carltonville Poultry Abattoir, based in Gauteng, is one of two South African abattoirs that are certified for rabbit meat export. This was according to Robertson, and confirmed by Jeremiah Jothams, the owner of Carltonville Poultry Abattoir.

The abattoir slaughters up to 500 rabbits every second week, according to Jothams.

"Rabbit is classified under poultry but it is treated like red meat. They are processed like any other protein source," said Jothams.

RABBIT MEAT STIGMA IN SOUTH AFRICA

"We can't support ourselves on the local market, which is why rabbit meat has a huge market

for export. [South Africans have] domesticated rabbits, but it is a widely eaten protein worldwide," said Robertson.

"I've heard crazy things [...] like people saying eating rabbits is like eating dogs," she added.

"It's a psychological thing, [people are] being biased," said Alycia Boag, a private dietitian in Gqeberha.

Rabbit is not a common food source in South Africa, but it is a popular source of protein in the United Kingdom, added Boag.

According to Boag, in South African culture, rabbit meat could be a great alternative to the current protein market.

"On the sustainability aspect, [rabbit meat] could work just as well as any other hunting protein," said Boag.



Rabbit meat is processed like any other protein source, according to Jeremiah Jothams, the owner of Carltonville Poultry Abattoir in Gauteng. According to Wendy Robertson, a commercial rabbit farmer in the Eastern Cape, the key to cooking rabbit meat is cooking it low, slow and covered. The meat to bone ratio is also exceptionally low, said Robertson. GRAPHIC: Amy Lindström

RESTORATION ECOLOGY: REHABILITATING SOUTH AFRICA'S BIODIVERSITY

NICHOLAS GLEESON

Restoration ecology, a combination of processes aimed at repairing damaged ecosystems, has great potential in benefitting biodiversity in South Africa. This is according to professor Karen Esler, a lecturer at Stellenbosch University's department of conservation ecology and entomology.

"It's an interesting and relatively new space, and I think there's a lot of hope for future work in South Africa on that topic," said Esler. The field involves restoring disturbed habitats through various human intervention tactics in line with global policy, according to Esler.

INNOVATIVE RESTORATION IN PRACTICE

Shamwari Private Game Reserve in the Eastern Cape has implemented innovative methods to rehabilitate the farmland on which the reserve lies.

"With elephants and the animals around, we can't actually plant [trees, because] the elephants [have] [...] got a



Woody fynbos and spekbom are native to the Eastern Cape. Indigenous plants withstand human intrusion better than alien species, according to professor Karen Esler. PHOTO: Nicholas Gleeson

sick sense of humour. If you plant a tree, they'll take it out within two days," said Dr John O'Brien, ecologist and head of wildlife at Shamwari.

However, the reserve has found a way to use the elephants to their advantage. According to O'Brien, a scientific research paper published by Nelson Mandela University cited the amount of viable and indigenous tree seeds present in elephant dung.

"We use elephant dung at certain times of the year where we pack them up into areas that need rehabilitation [...] and then from there we just let nature take its course," said O'Brien.

SUCCESS IN THE KLOOF CONSERVANCY

"Indigenous ecosystems are biodiversity hotspots, but have been drastically reduced by human interference and the planting of alien

plant species," said Esler. Indigenous ecosystems are better for wildlife and at withstanding human intrusion, according to Esler.

"By removing indigenous species, we upset [the natural] balance and the consequences can be [a] significant loss of biodiversity [...]," said Paolo Candotti, the chairman of Kloof Conservancy, an organisation that protects the Kloof area north-west of Durban through

habitat restoration and invasive alien plant eradication.

Indigenous habitats, such as wetlands and grasslands, are vital for humans as well, according to Candotti.

Wetlands such as the protected Zandvlei Estuary Nature Reserve increase biodiversity, as seen in population increases of kingfishers, herons and fish in the area, according to the Zandvlei Trust.

"Wetlands act as filters to [...] clean contaminated stormwater, which comes from streets and other hard surfaces. Wetlands can also provide significant buffers during periods of heavy rain and floods, thus minimising damage to infrastructure," said Candotti.

The removal of invasive species results in healthy grasslands, and can consequently be more productive for well-managed livestock farming, he added.

According to Candotti, Kloof Conservancy has successfully cultivated healthy indigenous ecosystems and provided vital ecosystem services in Kloof.

WAAROM BLOM GAUTENG SE JAKARANDAS DEESDAE VROEËR? KARA LE ROUX



Jakarandas is volgens professor Jennifer Fitchett, ekologie professor aan die Universiteit Witwatersrand, 'n geliefde kenmerk van Gauteng wat kommer wek op ekologiese vlak, omdat dit 'n indringer-spesie is. FOTO: Kara Le Roux

Gauteng word jaarliks in pers getooi wanneer die jakarandabome (*Jacaranda mimosifolia*) blom. Onlangse waarnemings deur professor Jennifer Fitchett, ekologie-professor aan die Universiteit Witwatersrand, dui egter op 'n vroeër blomtyd wat sy toeskryf aan 'n warmer winterseisoen. Volgens Fitchett toon historiese data dat jakarandas in die 1920's teen die middel van November begin blom het. Deesdae blom dit reeds teen September. Hierdie aanpassingsreaksie

stem ooreen met globale klimaatpatrone, het Fitchett gesê. Deesdae word daar meer as 10 miljoen jakarandas in Johannesburg aangetref terwyl ongeveer 70 000 in Pretoria aangetref word, meen Fitchett. Volgens Anton van Vollenhoven, geskiedenis-professor aan Noordwes Universiteit, het inwoners van Pretoria in die 1920's twee bome van die stadsraad ontvang om in hul erwe te plant, wat jakarandas deel van die stad se kultuur gemaak het,

Jakarandas is egter uitheems, en wek dus kommer op ekologiese vlak. "Enige indringerspesie neem die plek van inheemse spesies in," het Fitchett gesê. Jakarandas se waterverbruik is hoër as inheemse Suid-Afrikaanse flora. Op 'n soortgelyke wyse perk jakarandas in Australië ook inheemse biodiversiteit in, volgens Cassandra Cheeseman, 'n Australiese omgewingsielkundige. Fitchett het gesê dat die jakaranda 'n indringer-spesie afkomstig van Suid-Amerika is.

A BUZZING NEW SOURCE OF WASTE MANAGEMENT AMY LINDSTRÖM

Insect-based protein is gaining popularity as more people acknowledge the diverse opportunities that insects offer. This is according to Dr Elsje Pieterse, a senior lecturer at the department of animal sciences at Stellenbosch University (SU). "Insects are not only a source of protein. They are the answer to our inability to manage ourselves, the waste we generate, and our impact on the environment," said Pieterse. Pieterse is involved with AMASECT, a company that uses black soldier fly larvae to process organic waste, producing diverse products beyond just "animal feed or even food", according to Pieterse. "The rate at which organic waste is produced is substantially faster than the rate at which it is decomposed," said Pieterse.

According to Pieterse, AMASECT utilises the black soldier fly to decompose diverse waste types, including food factory waste. The resulting larvae are used in the production of various protein products, she added. Pieterse said that these products include protein powders, chitin, which is used in biomedical and cosmetic applications, and lipids, a natural anti-microbial and anti-inflammatory.

“[INSECTS] ARE THE ANSWER TO OUR INABILITY TO MANAGE OURSELVES, THE WASTE WE GENERATE...”

ASBESTOS STILL PREVALENT IN MANY FREE STATE HOMES MANDISA MAPHISA

Following years of inaction, a supply chain contractor was assigned to start a project to replace asbestos roofing on 36 000 government houses in the Free State. This is according to an employee of the Free State human settlement office, who spoke to *SMF News* on the condition of anonymity. The project will be carried out in the remainder of 2024, said the source.

10 YEARS TOO LATE

Ten years ago, the department of human settlements (DHS) also awarded a sub-contract to the ORI Group to assess 36 000 houses that had been fitted with

asbestos roofing, said Kgotso Abel Manyike, the director of the ORI Group. According to Manyike, the asbestos roofing was "just assessed but never removed". The reason for this, according to the Zondo Commission's report published in 2020, is that the funds set out for the removal of asbestos roofing were misused by Ace Magashule, former provincial premier of the Free State.

PROMISES AND FAILURES

Meanwhile, the asbestos roofing issue in the Free State has had real implications for the residents of these homes. "I got my governmental house in 1975 and I still have the same

roofing as back then. In 2013, we were promised by the provincial office that it would be removed for our safety," said Sibongile Joseph (52), a homeowner in Rocklands, Bloemfontein. According to another owner and resident, Anna Bosman (69), residents in homes with asbestos roofing become exposed to the fibres during colder months. "When it is cold, we make fire to keep warm. The [...] governmental houses with asbestos roofing don't go well with fire, [the roofs crack] and the asbestos contaminates the air we breathe," said Bosman. The asbestos roofing has caused breathing difficulties, tuberculosis, asthma, and some residents being

diagnosed with mesothelioma, according to Bosman. **HEALTH RISKS** Microscopic asbestos fibres enter the body through inhalation or accidental ingestion, and they remain in the lungs for years. This is according to an article by the Abramson Cancer Centre at Penn Medicine. Asbestos fibres can cause gradual inflammation and scarring in the lungs, which can cause cancer. "Most people don't show symptoms from asbestos exposure immediately," said Dr Roanne Ray, a physician and pulmonologist at Mediclinic in Stellenbosch. Early signs of asbestos exposure can give unclear symptoms such as coughing or shortness of breath, she said. Because symptoms are commonly associated with less serious conditions, many do not seek out medical attention immediately, said Ray. The use and processing of asbestos in South Africa was prohibited in 2008 by the former minister of environmental affairs and tourism, Marthinus van

Schalkwyk. These measures were an attempt to reduce the risk of exposure to the harmful material, according to the department of mineral resources' (DMRE) website. Asbestos has been used in industries such as the building and construction industry and the automobile and automotive industry, according to the DMRE website. **REMOVAL PRECAUTIONS** "Inhalation of asbestos is very common once workers remove the asbestos roofing. It is important that contractors make sure everyone working on the asbestos removal has personal protective equipment on [...], especially a mask," said Geoffrey Jack, managing director of Indawo Construction. According to Jack, the use of personal protective equipment is effective to reduce the level of exposure to below the occupational exposure level for asbestos. Upon completion of the work, the premises, structure or area should thoroughly be checked in order to ensure that all asbestos waste has been removed.

This year marks 16 years since the use of asbestos was prohibited in South Africa, but houses in the Free State still have asbestos roofing, according to Sibongile Joseph, a homeowner in Rocklands, Bloemfontein. PHOTO: Mandisa Maphisa



PLANT POACHING THREATENS SOUTH AFRICA'S SUCCULENT FLORA

ABIGAIL BAARD



95% of the world's succulent flora is found in South Africa, according to Nick Helme, a botanical consultant within the Greater Cape Floristic Region. PHOTO: Abigail Baard

An estimated 30 small succulent plant species have gone functionally extinct in South Africa due to poaching, according to Nick Helme, a botanical consultant within the Greater Cape Floristic Region. Populations of the species in the wild are now small and sparse, and their survival may no longer be viable, added Helme.

"Poached succulents are taken from private land as well as national parks," said Wendy Foden, specialist scientist at South African National Parks (SANParks). Illegal harvesting occurs most notably in the Succulent Karoo biodiversity hotspot, according to the South African National Biodiversity Institute (SANBI) website. According to Helme, 95% of the world's succulent flora is found within South Africa.

Succulents are habitat-specific and a singular plant can be responsible for providing seeds for its particular population. This is according to Annerie Senekal, assistant curator at Stellenbosch University Botanical Garden. If removed from their original environment, the population cannot regenerate or sustain itself, said Senekal.

HOW COVID-19 TRIGGERED A TREND

"The whole poaching thing really exploded during Covid-19. When people were housebound and bored, [they] ordered plants [off of] the internet," said Helme.

"It's the little dwarf succulents that are being targeted the most," said Foden. Succulent plants in South Africa are under threat due to international demand for ornamental plants, according to the SANBI website.

"The drivers of this poaching crisis sit [...] offshore but they employ locals to [gather the plants from the wild]," claimed Senekal.

"Thousands of marginalised people in rural parts of South Africa lost what little work and income they may have had [during Covid-19], and this was exploited by [...] middle men, who paid them to go out and poach plants from the veld, [which is the habitat of many succulent species]," claimed Helme.

ANTI-POACHING EFFORTS

"Anti-poaching efforts are becoming much more organised and effective, but

it is a very difficult thing to prevent entirely as we have such vast areas with high plant diversity and many potential target species," said Helme.

Police busts on the main roads in these large areas are frequent, and police dogs have been trained to identify succulents by smell, according to Foden.

However, succulents recovered by authorities cannot be replanted after being dug up due to the tough conditions of their environments, said Helme. They are also at risk of being poached again after being returned.

"I believe the first jail sentences [for plant poaching] have been handed out now," said Foden.

On 1 December 2023 at the Springbok Magistrates' Court, Quinton Steenkamp and Benedict Beukes received an eight year suspended prison sentence for dealing in protected plants. The sentence has been suspended for two years, according to a media statement published by the South African Police Service (SAPS) on 4 December 2023.

BOTANICAL GARDEN RESCUES ENDANGERED SUCCULENTS

ABIGAIL BAARD

A batch of *Conophytum* succulents that were found on the side of the road have been rehabilitated at the Stellenbosch University Botanical Garden (SUBG) and are "looking stunning", according to Annerie Senekal, assistant curator at SUBG.

In 2024, after a year of rehabilitation, SUBG has been able to identify about three to

four species among the rescued succulents, said Senekal.

SUBG received the batch of succulents in early 2023. It is assumed that they were dumped by poachers after they became aware of a roadblock where police might check vehicles for poached plants, added Senekal.

"These succulents were not in good condition upon arrival.

They were dry and dusty and were ripped from their habitats," said Senekal. "They were in such poor condition that it was not possible to identify their species [at the time]."

Conophytum is a succulent plant genus that is critically endangered and has, in some cases, faced extinction as a result of being highly targeted by plant poachers, according to Senekal.

IS KUNSGRAS WERKLIK GROEN?

EUGENE MARAIS

Kunsmatige gras word al gewilder in Suid-Afrika as 'n alternatief vir natuurlike gras. Dit is volgens Jeremy Stewart, eienaar van Seamless Flooring Systems, 'n Kaapse maatskappy wat spesialiseer in vloer-installasies.

Daar is egter steeds onsekerheid oor hoe omgewingsvriendelik hierdie produk is, volgens professor Guy Midgley, waarnemende direkteur van die Skool vir Klimaatstudies aan die Universiteit Stellenbosch (US).

Stewart het die gewildheid toegeskryf aan die feit dat kunsgras minder onderhoud nodig het as natuurlike gras.

"Al wat jy hoef te doen om 'n kunsmatige grasperk te onderhou, is om dit te hark. As dit nie met sand gevul is nie, kan jy dit selfs stofsuiig," het Stewart gesê.

Omdat kunsgras nie water benodig nie, is dit ook meer aanloklik, veral in Suid-Afrika waar waterskaarste 'n probleem is, het Stewart gesê.

"Plekke soos Johannesburg, byvoorbeeld, sukkel met water en dit raak net al erger. 'n Paar jaar terug het Kaapstad dieselfde probleem ervaar toe ons Dag Zero genader het," het Stewart gesê.

Volgens Bonafide Research, 'n Indiese marknavorsingsfirma, sal die Suid-Afrikaanse kunsgras-mark na verwagting tussen 2023 en 2028 met 7% groei.

NIE SONDER UITDAGINGS

"Kunsgras het waarskynlik 'n plaaslike voetspoor soos enige ander kunsmatige bedekking," het professor Michael Samways, 'n voormalige navorser van die bewaringsekologie -en entomologie departement van die US, gesê.

Midgley het saamgestem dat daar negatiewe gevolge aan die gebruik van kunsgras verbonde kan wees.

"[Kunsgras] skep steriele grond. 'n Mens verwag nie dat daar veel daaronder sal kan lewe nie," het Midgley

gesê. "Onder [natuurlike] gras kry mens gestoorde koolstof, erdwurms, insekte. Dit bied 'n ekosisteem waarin diere kan oorleef."

Kunsgras laat ook temperature bo die grond meer styg as natuurlike gras. "Die rede daarvoor is dat natuurlike gras transpireer, wat verkoeling veroorsaak. Dit is hoe plante hulself koel hou," het Midgley gesê.

"'n Nie-lewende voorwerp gaan dit nie doen nie, wat veroorsaak dat die temperatuur daar rondom styg. Die enigste manier om dit te voorkom is om dit met water af te koel, maar dan mors jy water," het Midgley bygevoeg.

ROL VAN OU MOTORBANDE

Kunsmatige gras se positiewe gevolge weeg egter swaarder as die negatiewe gevolge, veral wanneer kunsgras vir sport gebruik word. Dit is volgens Stewart, wat ook die voorsitter van die South African Sports and Play Industry (SASPI) is.

Herwinning speel 'n rol in die produksie van kunsgras wat vir sport gebruik word, aangesien ou, verkrummelde motorbande herbruik word om die gras meer natuurlik te laat voel, het Stewart gesê.

"As dit nie vir die produksie van rubber-krummels benut word nie, eindig die ou motorbande op vullishope, wat in ons opinie veel slegter is.

"[Kunsgrasvervaardigers] vat 'n produk wat op vullishope gaan eindig, en omskep dit in iets bruikbaar," het Stewart gesê.

Volgens Lawnking, 'n tuinaanlegmaatskappy van Johannesburg, moet kunsgras egter steeds herwin word na die langtermyn gebruik daarvan. Dit is egter 'n uitdagende proses, aangesien die sintetiese materiale waaruit dit bestaan, eers geskei moet word en die herwinningsinfrastruktuur vir kunsgras nie baie goed ontwikkel is nie.



Through Stellenbosch University Botanical Garden's (SUBG) rehabilitation programme, these previously dry and dusty *Conophytums*, that were dumped on the side of the road, are "looking stunning", explained Annerie Senekal, assistant curator at SUBG. PHOTO: Abigail Baard

DRAGON DISA REVIVED IN OVER-CULTIVATED SANDVELD

EMMA HAMMAN

On a hill overlooking the Sandveld of Yzerfontein, sits !Khwa ttu – a heritage site dedicated to protecting the San people and their connection to the elements of nature. !Khwa ttu is also home to several protected plant species, including the small surviving population of the *Disa draconis* (dragon disa). This is according to Michael Daiber, manager of !Khwa ttu.

"The dragon disa is an endemic orchid species of the Western Cape," said Daiber. "Their natural habitat has been altered through agricultural practices and urban development." The *Disa draconis* is currently marked as decreasing in population on the South African National Biodiversity Institute (SANBI) Red List of South African Plants, with only five locations remaining between Yzerfontein and the Cape Peninsula. The list also highlights the fact that the largest subpopulation, which constitutes over 50% of the species, is highly likely to be lost to urban development in the next 10 years.

According to Daiber, the

area on which the heritage site was built is home to endangered lowland fynbos, providing a habitat for several endangered species.

He explained that !Khwa ttu, which opened to the public in 2006, was once a productive farm of 850 hectares, which meant that extensive rehabilitation of the area was required.

"For the past 25 years !Khwa ttu has taken various steps to rehabilitate the degraded landscape," said Daiber.

"It has been amazing to witness the transformation of !Khwa ttu from a wheat and cattle farm to a place that is home to the endangered *Disa draconis* plant," said Daiber.

"The existence of small clusters of indigenous plants on the land paved the way for this honour, showcasing the power of conservation efforts in restoring biodiversity."

THE RESCUE TEAM

Dr Donovan Kirkwood, a curator at Stellenbosch University Botanical Garden, is actively working on rehabilitating the dragon disa, which will be introduced in three to five years after the seeds have germinated.

"We plan to use the seed extracted from the *Disa draconis* at !Khwa ttu to improve our technique of reproduction, in order to work with the threatened local population," said Kirkwood.

According to Kirkwood, the intention is to return more of the dragon disa plants back to !Khwa ttu in order to bolster the population, and to be able to work more effectively with the existing local population that is almost extinct.

IMPACT OF AGRICULTURE

Large parts of the disa's habitat loss could be ascribed to the acquisition of land for agricultural purposes in the Sandveld, according to Kirkwood.

"It seems like the bulk of [the transformation of the Sandveld] was driven by a simple requirement that potato crop rotation was extended from two years to three years," said Kirkwood.

According to Kirkwood,



The dragon disa, seen in Bokbaai approximately 25 km from !Khwa ttu. The scarce plant is rarely photographed in its natural habitat, as there are only five plants left, according to Dr Donovan Kirkwood, from Stellenbosch's Botanical Garden. PHOTO: Supplied/Petra Broddle via iNaturalist.

An arid glasshouse at Stellenbosch University's Botanical Gardens matching the vegetation and climate of !Khwa ttu in the Sandveld. The *Disa draconis* is being rehabilitated at the Botanical Gardens in Stellenbosch until the seeds are ready to be planted at !Khwa ttu. PHOTO: Emma Hamman

farmers needed "at least 50% more land to grow their usual number of potatoes" after the legislation change. As a consequence, farmers utilised land where the dragon disa grew, leading to its near extinction.

Farmers' influence on the area's transformation cannot be denied, said Niël Joubert, Agri SA Commodity Chamber chairman. However, Joubert highlighted the

importance of encouraging research on climate change in the Sandveld.

"I would be very careful in saying that agriculture is the main cause of the extinction of [plants in the area]. That agriculture played a role or [that farmers] irresponsibly expanded farms is without doubt, but I wouldn't just put the blame on the agricultural community alone," said Joubert.

FOOD WASTE DUMPED ON PRIVATE SERVICE PROVIDERS

NICOLA AMON

Restaurants and organic waste service providers in Cape Town have been working towards diverting food waste from landfills. This is in line with the City of Cape Town's (CoCT) waste management plan. However, little has been done by the municipality to assist this process. It also lacked public organic waste collection services, claimed Allison Hendricks, marketing communicator for Clearer Conscience, an organic waste service provider. This was corroborated by Lyndall Maunder, the owner of Clarke's, a restaurant in Cape Town's central business district.

PRIVATE COLLECTION SERVICES

The CoCT has recently instituted the requirement for all businesses' Integrated Waste Management Plans (IWMP) to include efforts to reduce organic waste sent to landfills by 50% initially, and working towards a 100% reduction by 2027. This is according to Alderman Grant Twigg, the CoCT's mayoral

committee member for urban waste management.

Clearer Conscience collects food waste from restaurants, companies and residential areas, and then drops it off at composting facilities located



Maintenance staff member, Mabuto Moyo, sorts through Clarke's compost bins. Clarke's has been using YWaste, another private service provider, to dispose of their food waste for several years. This is according to the owner, Lyndall Maunder. YWaste trains staff to dispose of food waste correctly. PHOTO: Nicola Amon

on farms, such as Reliance Compost in Paarl and Master Organics in Ottery, said Hendricks.

"The service was initially set up in 2008 to fill the gap where city-run recycling services should have been," said Hendricks. "Fast forward 16 years, there is still a large demand for recycling and food waste collections in Cape Town."

Cape Town's food waste occupied 15% of landfill capacity in 2020, equivalent to 156 956 tonnes of waste. This is according to Greencape, a non-profit organisation that analyses the CoCT's waste data to drive economically-viable green practices across South Africa.

"[Food waste] puts landfill sites at risk of collapsing, while emitting flammable greenhouse gases," said Hendricks.

"There is currently no municipal organic waste collection service, with only two accredited organic waste composting sites in the area," Hendricks claimed. This was confirmed by Twigg, who added that the

reduction of organic waste in the business sector is done primarily through the CoCT's monitoring of businesses' IWMP, rather than providing collection services. These plans are meant to indicate how they are managing and reducing waste, said Hendricks.

However, the CoCT has piloted food waste drop offs where residents can dispose of food waste, such as Bellville Integrated Waste Management, and is "currently investigating different models". This is according to Sam Smout, an expert analyst at Greencape involved in furthering the IWMP for the CoCT. However, many of these services are for household food waste only, leaving businesses to find their own solutions, said Smout.

LOADSHEDDING AN ADDED CHALLENGE FOR FOOD WASTE

"The city, whether it's funding, or guidance, or hand-holding in the process, gives none of that [...]. I think there would be so much more possibility if the city

was involved. Instead, you get in trouble for everything," claimed Maunder.

Off the grid refrigeration is essential to prevent food waste, said Maunder.

Maunder claimed that restaurants without pre-existing sustainable practices would struggle to prevent further food waste during loadshedding. "Loadshedding means that food cannot be prepped in bulk," Maunder said. "This necessitates a flexible kitchen staff with a well-established system."

Riad Davids, Pinelands ward councillor from the CoCT, maintained that the city provides "a huge amount of assistance to get people off the grid", including financial incentives of selling power back to the grid.

Maunder claimed that Clarke's received no information about reselling power to the grid and has spent over R900 000 on solar panel installations and inverters. "We only heard from the municipality when we did something wrong," claimed Maunder. "We finally transitioned, in March 2023."

JOU 'HUISIE BY DIE SEE' VERNIETIG OMLIGGENDE DUINE DUNÉ VAN JAARVELD

Woonbuurte wat naby duine ontwikkel word, veroorsaak dat duine se sand nie kan waai waar dit moet nie. Dit is volgens Cindy Jagers, 'n omgewingswetenskap-student en vrywilliger by Blaauwberg-natuurreservaat.

DUINBESTUUR IN 'N VERANDERENDE LANDSKAP
Sandduine is in 'n dinamiese toestand totdat ontwikkelings rondom dit plaasvind, het Deon van Eeden, besturende direkteur van VULA Ecological Services, 'n organisasie wat duinbestuur-dienste voorsien, verduidelik.

"Duine doen wat duine doen. Die oomblik wat mense by die prentjie inkom, wil ons allerhande behoeftes op dit afdwing," het Van Eeden gesê.

"Die rede vir die [weggekalkte] toestand van [St. Francisbaai se] strand [...] is die ontwikkeling van die woonbuurt Santareme op 'n sandduin," het Antoinette Grundling, sekretaresse van Friends of the St. Francis Nature Areas (FOSTER), beweer.

Volgens Richard Cammell, inwoner van St. Francis sedert 1970's as 'n woongebied begin floreer.

Die vestiging van dié gemeenskap het, volgens Grundling, direkte gevolg: minder sand, en weggekalkte duine voor kanale.

Volgens Grundling is St. Francis Property Owners (SFPO), 'n vereniging wat hom beywer vir die beskerming van St. Francis se eiendomswaardes en leefstyl, besig om geld in te samel vir 'n projek wat hierdie gevolg aanspreek.

Grundling het gesê dat die Santareme-ontwikkeling sand-beweging stabiliseer.

"[Die duin waarop Santareme gebou is], was die oorsprong van die sand wat gedurig, met wind en see, neergelê is op die strand," het Grundling gesê.

ALMAL WIL 'N HUISIE BY DIE SEE HÊ

Mense wat by die see wil woon, dra by tot die probleem, meen Van Eeden. "Almal wil 'n huisie by die see hê. [...] Maar dan begin die hele storie ons byt."

"Duinbestuur is 'n direkte gevolg van mense wat in die verkeerde plek [...] bou. Duine kort nie rehabilitasie nie, mense doen," het Van Eeden gesê.

Stadsbeplanners wat nie voorsiening gemaak het vir sand se natuurlike beweging nie, is die oorsprong van die probleem,

meen Van Eeden.

"Stadsbeplanners het gebiede ontwikkel naby die see en nou is dit duinbestuurders se werk om te keer dat hierdie ontwikkelings [nie] deur die natuurlike vloei van sand verniel word [nie]," het Van Eeden gesê. Alhoewel munisipaliteite verantwoordelik is vir reëlins rondom duinbestuur, bestuur hulle dit self nie, volgens 'n verslag deur Kaapstad se vervoer- en stedelikeontwikkelingsowerheid.

VULA OP BLOUBERG SE STRAND

VULA bestuur Bloubergstrand se duine sedert 2022. Dié organisasie plant plante op die duine en gebruik 'n stelsel van nete om sand te vang wat oor paaie sou waai, het Van Eeden gesê.

"Ons probeer die plantegroei [op duine] terugbring omdat ons nie kan bekostig dat so baie sand by die ontwikkelde land inwaai nie. [...] Sand het altyd ingevloei in die somer en uitgewaai in die winter, totdat dit nou gestabiliseer het as gevolg van infrastruktuur," het Van Eeden gesê.

Volgens GVI Africa, 'n natuurbewaringsorganisasie, verander die vermindering van sand in die see die dinamika van die kus, deur biodiversiteit rondom duine te verminder.



Bloubergstrand se duine word deur VULA Ecological Services bestuur. "Duinbestuur is 'n direkte gevolg van mense wat in die verkeerde plek bou. Duine kort nie rehabilitasie nie, mense doen," het Deon van Eeden, besturende direkteur van VULA Ecological Services, 'n organisasie wat duinbestuur-dienste voorsien, verduidelik. FOTO: Duné van Jaarsveld



Hierdie duinbestuurprojek by Bloubergstrand in die Wes-Kaap is in 2022 deur VULA Ecological Services, 'n organisasie wat duinbestuur-dienste voorsien, begin. Dit is volgens Deon van Eeden, besturende direkteur van VULA Ecological Services. FOTO: Duné van Jaarsveld

MUSIC EQUIPMENT INDUSTRY OUT OF TUNE WITH SUSTAINABILITY MARTHINUS BOTES



The musical instrument store Bothners Stellenbosch, takes part in programmes that repair and refurbish old guitars, and donate them to children in need, according to Haydn van Rheede, the store's manager. PHOTO: Marthinus Botes

Over the last half century the music equipment industry has changed significantly due to digitisation and technological advancement. Despite this progress, it is becoming harder to repair and maintain instruments, and cheap, low quality equipment is threatening the sustainability of the industry.

This is the view of Jean Marais, founder of Tunes Studios, a rehearsal and recording studio in Stellenbosch. Marais claimed that the art of repairing analogue equipment (such as mixing desks with physical knobs and faders) is dying out as there are very few experts still able to maintain analogue equipment.

To Marais, the production of low quality equipment is an inevitable systemic problem.

"Stuff is built to break, because then there can be more products – more people buying more products," claimed Marais.

Global digital microphone sales, for instance, rose from 4.6 million units in 2016 to 7 million units in 2021, according to Statista. Cohen Recycling, a recycling company based in Ohio in the United States of America, reports that digital microphones that are not recycled end up being disposed of in landfills or incinerators, releasing hazardous materials into the environment.

INSTRUMENTS NO LONGER LAST A LIFETIME

Derek Sale has been a music equipment salesman in South Africa for 56 years and has witnessed the rise of digital instruments in the industry.

"If you buy an acoustic piano, it can last your whole life, and it can go for longer than you're on this earth, because it can be maintained and it can be reconditioned again and again," said Sale. "[Electronic products] last for a certain amount of years and then they start giving problems."

Repairing digital equipment is often impossible, as spare parts are seldom manufactured, said Sale. People have therefore stopped inquiring about warranties or guarantees, and expect to discard broken instruments and buy new ones, rather than repairing them, according to Sale.

EFFORTS TOWARD A SUSTAINABLE FUTURE ARE UNCERTAIN

Haydn van Rheede, manager of the music equipment store Bothners Stellenbosch, believes that there is a culture of sustainability to be cultivated within the music equipment industry.

Bothners' staff try to recommend products to customers that are built to last, and old guitars are repaired and resold, according to Van Rheede. "It's a cycle that happens frequently in our industry."

Nonetheless, the future of sustainability in the music equipment industry remains uncertain.

"Capitalism is not designed to further sustainability for the earth. It's designed to further its own sustainability," said Marais.

"Music is just another aspect of capitalism."

ZWEZWE FLOODPLAIN DWELLERS FACE EVICTION

IVA FULEPU

Residents who have built houses along the Diep River floodplain in the Zwezwe informal settlement near Du Noon, were given eviction notices in 2023, but have nowhere to go. This is according to Bukho Mcetywa, a Zwezwe resident.

"Most of us moved from Du Noon where we were renting as backyarders. We cannot afford to move again and pay rent," said Mcetywa, who moved to Zwezwe in 2020 during the Covid-19 pandemic.

"The land is owned by the city and is very important to Cape Town's biodiversity, because it contains endangered veld types and will be incorporated into Table Bay Nature Reserve, as it is a priority for preservation," said Alderman Eddie Andrews, the City of Cape Town's deputy mayor and mayoral committee member for spatial planning and environment.

The human impact on the Diep River is compromising water quality, according to a 2022 study published in the *Sustainable Water Resources Management* journal.

"Occupying a floodplain also poses a risk of flooding of adjacent and downstream properties," said Andrews.

RESIDENTS RECEIVED WARNING

"We warned [residents] not to build there because that is a wetland. They chased us out of the meeting," said Sinethemba Matomela, chairperson of the South African National Civic Organisation's Du Noon branch. The meeting took place after the residents began building on the floodplain in 2017, said Matomela.

Community leaders in

Du Noon are working in collaboration with city disaster management to offer blankets, food, and temporary shelter to residents in Zwezwe when the area floods, said Matomela.

The main challenge they are encountering is finding suitable land to which residents can be relocated, according to Matomela.

RESIDENTS' PLIGHT

According to Mcetywa, she moved to Zwezwe because she could not afford to pay rent elsewhere. She also faces challenges with flooding during heavy rains.

"I used sand, bricks and tyres to lift my house up," said Mcetywa. "It hasn't rained yet, so I don't know if it will be effective."

"We receive no help from the municipality when floods occur," claimed Iva Tyhalintsika, a resident of Zwezwe.

"The house floods when it rains, but we stay there while it's still wet with the children," said Tyhalintsika.

EVICTION NOTICE

The city has attempted several interventions to protect the floodplain, including serving the residents with eviction notices, according to Andrews.

"Last year, the city served 'Notice to Vacate' on the illegal occupants," said Andrews. This was the first step before starting the process of officially removing the unlawful residents, he added.

Residents of Zwezwe, who spoke to *SMF News*, claimed that they did not receive eviction notices, but said that they will not move, as they have nowhere else to go.



Zwezwe, an informal settlement near Du Noon, is built on the floodplains of the Diep River. It often floods when the Diep River bursts its banks, said Bukho Mcetywa, Zwezwe resident. PHOTO: Iva Fulepu



The entrance of Zwezwe informal settlement, located near Du Noon. Residents say they struggle with flooding after heavy rains. PHOTO: Iva Fulepu

MAMMOTHS TO WALK THE EARTH ONCE MORE?

STAFF REPORTER

Colossal, a biotechnology company based in the United States of America, is looking to bring back the extinct woolly mammoth. According to the Colossal website, their scientists aim to have the first mammoth calf by 2028.

Colossal claims that this will revolutionise tools and techniques that will contribute

to saving modern elephants from extinction. The African forest elephant, the African savanna elephant, and the Asian elephant are listed as endangered species by the World Wildlife Fund.

The African and Asian elephants will act as "parents" of the modern mammoth, said Dr George Church, co-founder of Colossal, in a recent statement.

"Asian elephants and mammoths are really close genetically, [...] so we're taking advantage of that closeness to take genetic changes that are fixed in the cold-resistant ancients, in the modern ones," said Church on the *Evening Standard* podcast.

According to Dr Eriona Hysolli, head of biological sciences at Colossal, the

company has recently achieved a global-first cell-research breakthrough.

"A multitude of attempts to generate elephant [induced pluripotent stem cells] have not been fruitful. Elephants are a very special species and we have only begun to scratch the surface of their fundamental biology," said Hysolli in a recent statement.

Colossal executive advisory board member and astronaut, Richard Garriot, compared the weight of reviving an extinct species to the moon landing, in a statement on the Colossal website.

"It is hard to imagine a more profound project than the de-extinction of species once considered lost forever," said Garriot.

After 4 000 years of extinction, Colossal aims to reincarnate the woolly mammoth. GRAPHIC: Maliza Adendorff

2.5 MILLION YEARS AGO

Emergence of the woolly mammoth (*mammuthus primigenius*) in the Pleistocene epoch

4 000 YEARS AGO

Last populations of mammoths go extinct

1796

First recorded discovery of mammoth fossils in Siberia

1997

The first successful extraction of intact mammoth DNA from frozen specimens

2015

Launch of the woolly mammoth de-extinction project by scientists

2018

Colossal company founded

2024

Elephant iPSC milestone

2028

Introduce hybrid mammoth-elephant embryo into surrogate elephant mother



SOURCE: COLOSSAL

SOUTH AFRICA'S BATTLE AGAINST FAST FASHION

KARA LE ROUX

South African clothing import policies have made it easier for individuals to participate in exploitative fashion practices. This is according to Tegan Gibaud, a climate change scientist with the African Climate Development Initiative.

"It's very difficult for local brands and organisations to compete with the kind of pricing you will see on Shein," said Khensani Mohlatole, volunteer at the non-profit organisation Fashion Revolution, referring to the Chinese fast fashion group. "Part of how [fast fashion companies] kind of get away with these low costs and [...] avoiding import taxes [is] because garments are so low priced and they package everything individually," said Mohlatole.

SA FASHION REGULATIONS

In South Africa, regulation against fast fashion faces challenges. Although tariffs of 40% to 50% are imposed on clothing by the South African Revenue Service's customs and tariffs schedule, local manufacturers are struggling to compete with cheap, mass-produced clothing from foreign markets, according to Gibaud.

This is further exacerbated by South Africa's labour laws and minimum wage requirements, Mohlatole added.

"Producing clothing in South Africa is generally quite expensive, because we do



As awareness grows about fast fashion's environmental impact, South African consumers are shaping a greener future for the industry, said Tegan Gibaud, a climate change scientist with the African Climate Development Initiative. PHOTO: Ubaid Abrahams

have very good labour laws and trade unions. They are setting standards in terms of workplace conditions and liveable wages, which does increase the cost of production," said Mohlatole.

The latest data from the World Bank revealed that South Africa spends an average of \$3.47 billion annually on clothing and textile imports, with China being our largest trade partner in this sector.

THE CONUNDRUM OF SHEIN

Dr Jiyae Liu, an economics professor at King's Business School (KBS), defined Shein as a global e-commerce platform that has become emblematic

of the fast fashion industry's rapid expansion.

Shein's model of rapid production and distribution often comes at the expense of environmental sustainability, reported Astha Rajvanshi for *The New York Times*.

Shein and other major fast fashion corporations contribute significantly to textile waste according to a study by KBS.

Annually \$460 billion worth of cheap, low-quality apparel designed for swift disposal is discarded, according to the study.

GreenPeace's 2022 Textile Industry Report underscored the urgency of the situation. According to this report, over

700 000 tonnes of textile waste was dumped into Cape Town's landfills in 2022 alone.

The department of trade, industry and competition launched an investigation into Shein's import practices in 2023, but were unable to release any updates according to departmental spokesperson, Bongani Lukele.

AN OPPORTUNITY TO ACT

A new bill, which was passed in France on 14 March, is aimed at curbing the production and consumption of low-quality apparel, by implementing measures such as banning fast fashion advertisements and imposing escalating fines. This is according to a news report



Out of the 100 billion fast fashion garments made annually, 92 million tonnes wind up in landfills, according to Earth.org, an environmental news website. PHOTO: Ubaid Abrahams

on 15 March by France24, a state-owned international news television network based in Paris.

"The fast fashion bill is a bold move by France, setting a precedent for sustainable fashion practices globally," said Karen Nkatha, an environmental journalist at GreenPeace.

Nkatha proposed that countries like South Africa can follow France's lead by enacting legislation to promote sustainable clothing alternatives through grants and tax incentives to support eco-friendly production practices.

Legislative change is an opportunity to enact transformation by protecting the environment and nurturing local creativity, said Christi van der Westhuizen, a sociology professor at Nelson Mandela University.

TURNING NO WATER INTO WINE

ERINMA NEDUM

The Cape Winelands are known as one of the world's best regions for the creation of exquisite wines, according to Jenny Falls, a writer at *Travel Beyond*.

According to experts interviewed by *SMF News*, recent droughts and inconsistent weather patterns significantly varied the quality and production of wine.

"Vines, as the saying goes, do not like wet feet. They will perform poorly in wet soil and the fruit will be [diluted]. On the other hand, warm, dry weather is likely to give smaller grapes with more concentrated flavours," said prof Alex Maltman, an expert on wine geology and a professor at Aberystwyth University in Wales.

During the Western Cape drought, which lasted from 2015 to 2018, Catherine Marshall Wines, a winery in Elgin, harvested some of their best wines of the decade. This is according to the winery's director and winemaker, Catherine Marshall.

"Regenerative farming was part of why we ended up with these high-quality wines with intense flavours and colours [...] but also being in Elgin, where we are elevated almost 400 metres above sea level, surrounded by mountains. The area was very key to the results we saw [as] it is a humid environment with a lot more water," said Marshall.

HARVESTS HAMPERED BY DROUGHT

In other areas, such as Stellenbosch, the drought made growing vines difficult, according to Dirk van Zyl, cellar master and African sales manager at Glenelly Estate on the outskirts of Idas Valley.

"Even though there was very little soil moisture [...] to begin with during those seasons, irrigation water was also limited and that depleted very early on," said Van Zyl.

"[Wine farms based in Stellenbosch and Malmesbury] had grapes that were raisined and when that happens, the quality of your wines goes, because all your acids drop out and as a result you get very unbalanced wines," said Marshall.

According to Van Zyl, several grape farmers in Stellenbosch

had to let go of a significant amount of grape bunches in an attempt to get through the drought period.

"In vintages like this you must be very careful, because if you get a day of intense heat, a vineyard could fall apart and throw off the season," said Van Zyl.

UNBALANCED ENVIRONMENT

The most recent wine seasons of 2023 and 2024 have been more catastrophic for the wine industry than 2018, as a result of extreme and contrasting weather conditions, according to Marshall.

Increased rainfall during harvests causes wine to be light in colour and diluted, because vines absorb all the water and dump it into the grapes, said Marshall.

"The constant dryness of the drought is better than having relatively extreme weather on both sides of the spectrum," said Marshall.

"A balanced environment is the best environment to grow grape vines that produce quality wine and in the last few years we haven't seen a lot of that," said Van Zyl.



GRAPHIC: Maliza Adendorff

WHEN THE WASTE PILES UP

NTOKOZO KHUMALO

The City of Johannesburg (CoJ) is grappling with a pervasive problem of waste being discarded unlawfully across its neighbourhoods, streets, and public spaces. This is according to Neuren Pietersen, the councillor of ward 118, region F. The ward includes Denver, Cyrildene, Bruma, Kensington South, Malvern, Dewetshof, parts of Cleveland, and Kensington.

Areas in this region have become dumping hotspots, according to Dudu Lushaba in an article for *Joburg Newsroom*, published in April 2023.

“[DUMPING] CREATES A CULTURE WHERE PEOPLE ARE PUTTING THEIR REFUSE OUT ON A DAILY BASIS

THE CAUSE OF DUMPING

“The problem with illegal dumping is that it occurs every day; it creates a culture where people are putting their refuse out on a daily basis, and no municipality collects refuse on a daily basis,” said Pietersen.

Waste in Johannesburg is managed by one company – Pikitup. According to the company’s latest figures, they dispose of 1.4 million tonnes of domestic waste per year, which they collect once a week on different days around the city.

Sanuse Gxaka, a resident of Hillbrow, claims that there is a need for more refuse disposal facilities in the city.

The CoJ is overpopulated and has an issue of waste overflow, according to Dalu Cele, the founder and CEO of Clean City SA, a non-profit company that advocates for environmental justice in Johannesburg.

POLICING OF ILLEGAL DUMPING

“Dumping is a bylaw issue, and must be reported to the

Johannesburg Metropolitan Police Department (JMPD) or via the Pikitup illegal dumping line,” said Pietersen.

Pikitup received 278 calls reporting illegal dumping in region F in February 2024. While 131 cases were resolved, 147 remain unresolved, according to a service delivery report by the office of the city manager.

While the JMPD does issue arrests, very few are made as illegal dumping is a crime that is usually committed when there are no witnesses present, according to Kgothatso Moloi, a dispatcher at JMPD.

If he catches someone dumping on camera, Pietersen makes the footage available to the JMPD.

“I make sure that [the] JMPD goes [...] and issues a citation with the evidence that I give them,” said Pietersen.

COJ PAYS THE PRICE

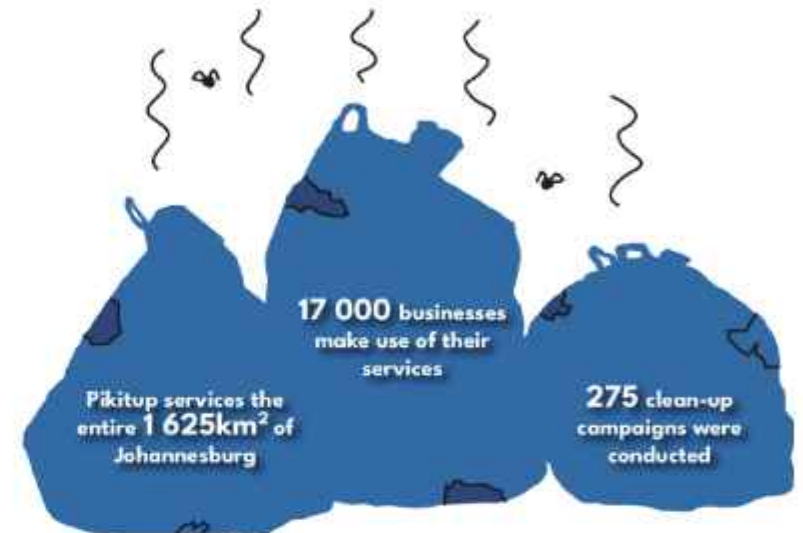
Illegal dumping costs the city and its residents R80 million per annum, according to

Pikitup’s latest available figures.

The economic impacts of illegal dumping include decreased land and property value, as well as low potential for ecotourism according to a 2023 article in the *Environmental and Public Health Journal*. The department of environmental

affairs stated, in a 2011 summary document, that the city’s tourism and property prices have been negatively affected by illegal dumping.

The knock-on effects of dumping are not evident at first glance, but have a lasting imprint on the city, according to Pietersen.



An illustration of Pikitup figures for refuse collection provided in the City of Johannesburg (CoJ) during the 2022 to 2023 fiscal year, according to the annual report of the CoJ. Graphic: Lara Smith/Rachel Jonker

KUNSTENAARS KOESTER DIE NATUUR DEUR KREATIWITEIT

RACHEL JONKER

“Kunstenaars is bewus van die impak wat van die produkte wat hulle gebruik [op die omgewing het],” het Paula Dubois, ’n kunstenaar van Kaapstad gesê. Baie kunstenaars oorweeg meer omgewingsvriendelike metodes, volgens Dubois.

Die Universiteit Stellenbosch (US) se departement van visuele kunste fokus op volhoubaarheid deur studente bloot te stel aan onkonvensionele materiale.

Dit is volgens Ashley Walters, kursuskoördineerder en dosent in fotografie en nuwe media aan die US. In hul eerste jaar moet studente byvoorbeeld met bestaande, herwinde en weggooi-materiale ’n *stop-motion* animasie maak.

Hout vir studente se hout-beeldhouwerke word by ’n houtskrootwerf verkry. Volgens Ledelle Moe, senior dosent in skone kunste aan die US, word die skaafsels wat geproduseer word tydens die standbeelde se produksie, aan hoenderplase geskenk sodat die hoenders daarop kan slaap en dit kan eet.

IMPAK VAN KUNSMATERIALE
In sommige kuns-dissiplines is dit makliker om meer



Verfverduunners stel gevaarlike dampe vry. Akrielverf word gemaak van sintetiese materiale wat mikro-plastieke bevat en die omgewing besoedel, volgens Paula Dubois, ’n kunstenaar van Kaapstad. FOTO: Rachel Jonker



“Die natuur is die inspirasie vir kuns en dikwels selfs kultuur in die breër sin,” het Stephen Rautenbach, ’n Stellenbosch-gebaseerde koperbeeldhouer, gesê. Rautenbach se kunstwerke beeld dikwels bedreigde spesies en mitologiese figure uit. FOTO: Ubaid Abrahams

omgewingsvriendelik te wees. “Veral met ink ook probeer kunstenaars meer natuurlike pigmente [van] klip en plante maak,” omdat dit ’n kleiner omgewingsimpak het as tradisionele ink, het Dubois gesê.

Dubois het vertel van die impak wat kunsprodukte op kunstenaars en die omgewing het. Verfverduunners, wat gebruik word as kunstenaars met olieverf werk, stel gevaarlike dampe vry.

Akrielverf word gemaak van sintetiese materiale wat mikro-plastieke bevat en die omgewing besoedel, volgens Dubois.

Die verpakking van kunsmateriale lyk dalk meer omgewingsvriendelik, maar Rachel Burger, ’n aankoper vir ’n landsweye kuns- en skryfbehoeftes-kettinggroep, het haar kommer uitgespreek oor kunsprodukte self. “Ek kan nie agterkom dat die verskaffers klem plaas op die produk self se omgewingsvriendelikheid nie.”

TWEDE LEWE VIR KUNSMATERIALE

Deesdae skep sommige kunstenaars kuns uit weggooi-materiale.

’n Voorbeeld is die werk van die fotograaf Vanessa Cowling, wat ’n

meestersgraad in fotografie aan die Universiteit van Kaapstad verwerf het. “Ek het ligsensitiewe papier wat al verval het, gebruik om foto’s te maak,” het Cowling gesê.

Omgewingsvriendelikheid was ’n groot oorweging in haar tesis. Cowling het saam met die US se Botaniese Tuin gewerk om plante te bekom, en mengsels van hierdie verskillende plantmateriaal is gebruik om die foto’s se kleur te ontwikkel.

DIE STREWE NA BEWUSMAKING

Die sentrale rol wat die natuur speel in die kunswêreld, word gereedlik deur kunstenaars erken. “Die natuur is die inspirasie vir kuns en dikwels selfs kultuur in die breër sin,” het Stephen Rautenbach, ’n Stellenbosch-gebaseerde koperbeeldhouer, gesê.

Rautenbach het vertel dat die onderwerpe van sy beeldhouwerke dikwels bedreigde spesies soos renosters is, om standpunt in te neem teen die onreg van stropery.

“Koperbeeldhouwerk is nie ’n ‘groen’ kunsvorm nie. Daar is olie en vuur daarby betrokke, maar ek probeer spaarsamig daarmee omgaan,” het Rautenbach gesê.

GREEN HYDROGEN: NOT A QUICK FIX

EMMA HAMMAN

Green hydrogen is a promising form of energy production, but despite its promises of renewability, it may not prove to be a quick-fix for the South African energy landscape.

This is according to Ray Howard, retired ESKOM employee in electricity distribution and power reticulation.

Green hydrogen refers to the use of water electrolysis for the production of hydrogen, which can then be used as fuel for electricity production without the use of fossil fuels, or their byproducts. This is according to Janse Rabie, the Head of Agri SA's Natural Resource Centre of Excellence.

"What makes it green [...] is that the energy you need to develop that hydrogen, [through electrolysis], is generated by renewable energy sources," said Rabie.

THE NEED FOR CHANGE

South Africa's reliance on coal-fired electricity is not sustainable, according to an article by Steven Mathetsa, a lecturer at the African Energy Leadership Centre of the University of the Witwatersrand.

According to Mathetsa, coal-fired power plants supply 72% of South Africa's electricity, but their maintenance is neglected, and plants frequently experience technical failures. Switching to renewable energy is, however, not a simple task, said Mathetsa.

"It is always the goal to have solar and wind powered electricity, but wind is not consistent and the sun goes down every evening," said Howard.

NOT A SOLE SOLUTION

"I see green hydrogen being an option; not a sole solution, but as a way to store excess power from solar

and wind to be converted to electricity later," said Judhi Rens, an electrical engineering masters student at Stellenbosch University. It is currently believed that hydrogen fuel cells are quite inefficient and lead to power losses, so extensive research is still necessary, said Rens.

NOT A PERFECT SOLUTION

Green hydrogen is not an energy cure-all. South Africa does not have the infrastructure to store green hydrogen, so it is expected that it will be exported rather than used locally, according to Rabie.

The agricultural sector has also raised concerns about the large amount of water used in the electrolytic process to produce hydrogen.

Rabie said that the agricultural sector has raised questions about where the water will be sourced and what the influence could

be on processes such as irrigation.

In spite of this, environmental concerns may be outweighed by the benefits that green hydrogen provides, according to Howard.

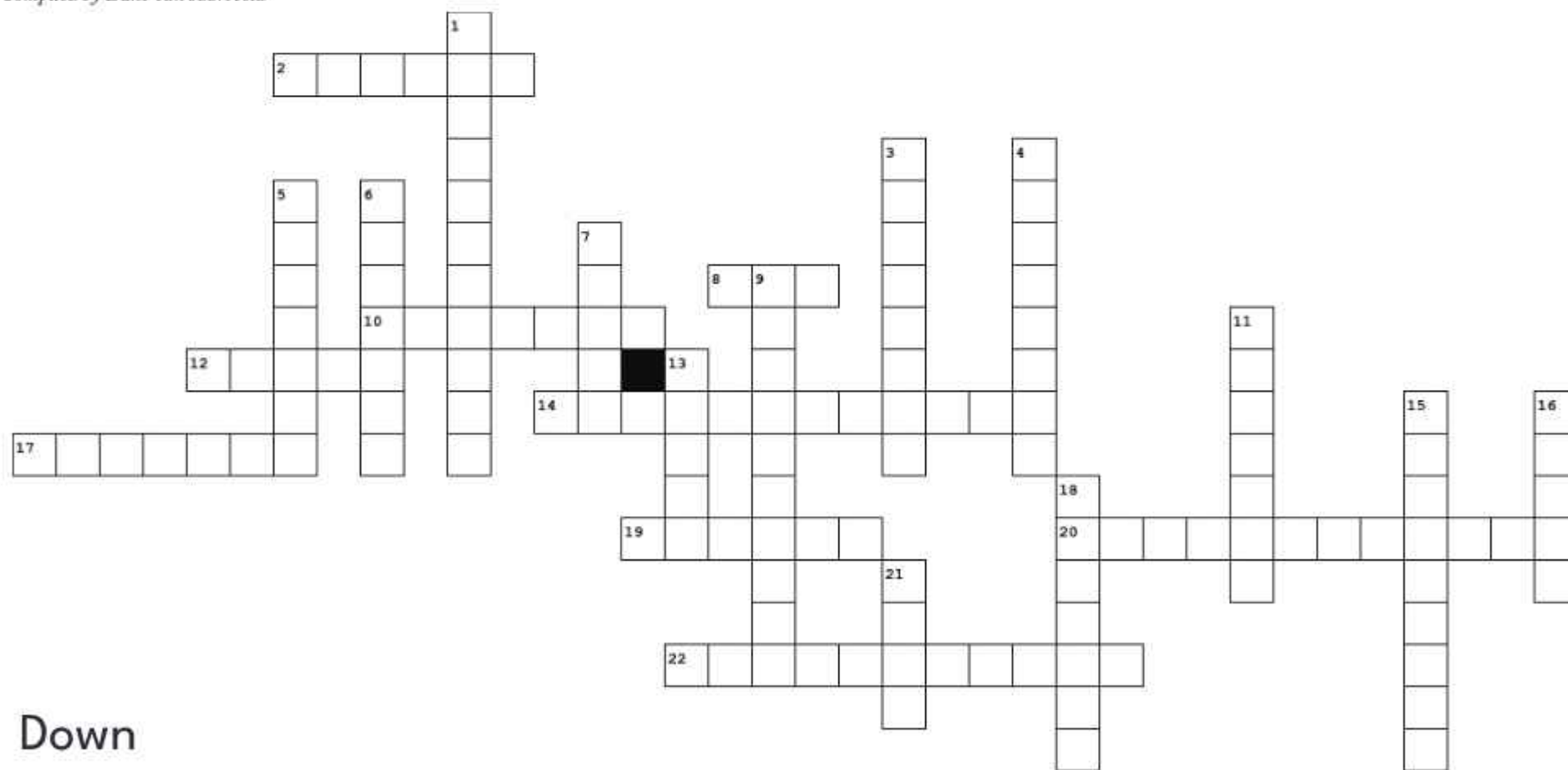
"When you drill a hole into the ground and take something from the earth there will always be an aspect that's not good for the environment, but that has to be measured through comparison," said Howard.



GRAPHIC: Rachel Jonker

CROSSWORD

Compiled by Duné van Jaarsveld



Down

1. Surroundings in which organisms live and interact.
3. Air, fire, water, earth.
4. Illegal hunting or capturing of wildlife.
5. Divisions of the year marked by changes in weather and daylight.
6. Long-term weather patterns of a region.
7. H₂O, vital for life on Earth.
9. Native to a particular region or environment.
11. Current atmospheric conditions.
13. The third planet from the sun, our home.
15. Chemical substance used to kill pests.
16. Animal life of a particular region.
18. Study of interactions between organisms and their environment.
21. Combustion producing heat and light.

Across

2. Homo sapiens, the dominant species on Earth.
8. Essential for breathing.
10. Extinct elephant-like species.
12. Plant life of a particular region.
14. Process of population shifting from rural to urban areas.
17. Individuals involved in cultivating crops or raising livestock.
19. Alteration or modification from one state to another (with 6 across).
20. Preservation and protection of natural resources.
22. Act of returning something to its original condition.