

UNIVERSITY OF CAPE TOWN
SUSTAINABILITY
AND THE
SDGS 2022



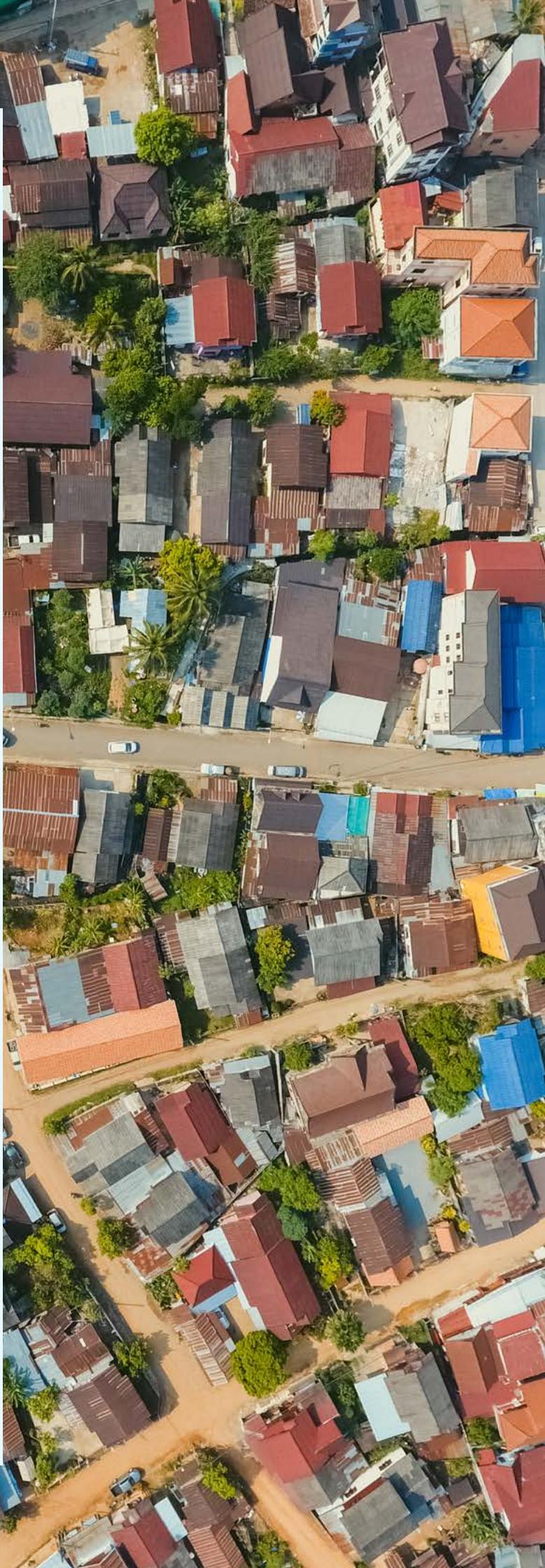


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www.uct.ac.za/research-innovation/uct-and-un-sustainable-development-goals



Addressing the Sustainable Development Goals as an African university

**Vice-Chancellor
interim, Emeritus
Professor Daya Reddy**



The United Nations (UN) Sustainable Development Goals (SDGs) and the African Union's Agenda 2063 pose challenges of particular magnitude for the Global South. Africa is furthest away from meeting the SDG targets. This places a special onus on universities and scholars on the continent. The University of Cape Town (UCT), in its Vision 2030 strategy, commits itself to being an institution in Africa and for Africa, working for the good of the continent, through our excellent research and teaching, and our strong continental and global partnerships.

As an African institution, the challenges of the goals manifest on our campus and therefore influence many of the ways in which we run our university. The social needs of our students are great. Many come from families living below the poverty line. In addition to the material support our students need, they are also under immense pressure to succeed. This pressure takes its toll, and as an institution it is incumbent upon us to support our students through this difficult journey as best we can, providing mental health and academic support, and as they prepare to graduate and leave the university, career support as well. We also work hard to address the consequences of South Africa's history and current appalling inequality among our students and staff, and the communities we serve.

In many ways, addressing the SDGs at UCT is part of our daily life. It is the only way we can be an effective university, working and living in accordance with our values.

But there are also unique opportunities that derive from our location in Africa. Our staff and students' lives are embedded in this continent. Living daily with the development and sustainability questions, and understanding the challenges and opportunities, they are best placed to find the solutions Africa needs. They are also well-placed to work with international staff and students in addition to collaborators around the world to contribute meaningfully to global knowledge.

UCT, as a university in a lower-middle income country, punches above its weight in research and teaching excellence. This means we have strong access to global networks and resources that allow us to support our students and young researchers to achieve their full potential. These pages contain just some of the examples of the innovation, on campus and through research and teaching, that takes place at UCT daily. Our alumni can be found in executive positions at universities, civil society, the private sector, and governments around the world. And we are confident that the students we graduate take with them an ethos of the importance of giving back, of rising together and of sustainability.

While it is difficult to quantify in precise terms the total impact a university can have on sustainable development, we take pride in our efforts and in what we have achieved so far in building a just and sustainable future.

Forging our own path for sustainable development in Africa

**Deputy Vice-Chancellor:
Research and
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Sue Harrison**



The United Nation's Sustainable Development Goals, while not perfect, have created an excellent common global framework for creating a just and sustainable future. This common framework is also useful to benchmark the progress each country or institution is making towards achieving the goals. This report is one small way in which we are holding our university to account.

At the same time, UCT's Vision 2030 strategy focuses on being an institution in Africa for Africa. This means putting the challenges that this continent faces first. Africa does not have the same developmental needs as North America, Europe or even Asia. We are unique in our diversity, our history, and our heritage. It is therefore important that Africa sets its own agenda in a manner that is both sustainable and just.

The AU Agenda 2063

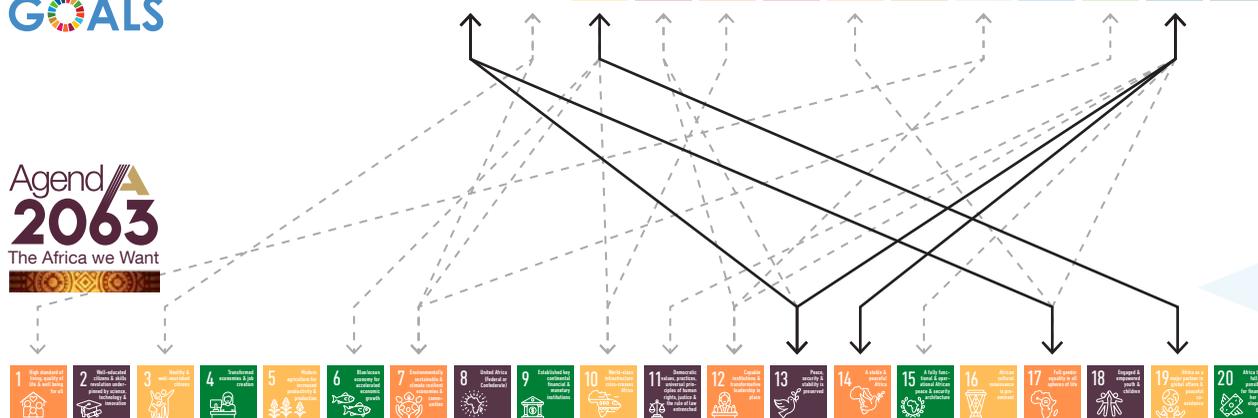
The African Union's Agenda 2063 was developed in 2013, two years before the United Nations created the Sustainable Development Goals. There is an onus on the developed world to use both frameworks to inform action towards solving global challenges. It is even more important for institutions in Africa to do so, given the emphasis of Agenda 2063 on the continent taking ownership in solving its own problems: it is not coincidental that 'Agenda' is in its name.

Recognising the importance of Africa having agency in driving development priorities along with the global agenda of the SDGs, a number of authors and entities

have analysed both frameworks to identify overlaps and gaps. This can help policymakers, funders, and public and private institutions to work towards both sets of goals when addressing challenges on the continent.

Given that Agenda 2063 was developed first, and that the African framework was drawn on heavily in the creation of the SDGs, it is not surprising that there is considerable overlap.





— Strong connection*
 - - - - Medium connection

A transdisciplinary approach

The goals of the SDGs and Agenda 2063 do not sit in silos: while easy to put into neat categories on paper, in reality they are interrelated and deeply complex. Similarly, they do not sit within neat geographic or political boundaries. Transdisciplinary research and multilateral collaboration are necessary to create the sustainable and just development Africa so sorely needs.

This was the intent behind UCT's hosting of the International Summit on the SDGs in Africa 2021. The summit was organised along seven thematic tracks in which UCT researchers joined with the private sector, NGOs, government and other partners. The thematic tracks address cross-cutting complexities and dilemmas to accelerate a just and sustainable process of development in Africa.

These thematic tracks are:

- Ethical, capable, and enduring institutions
- Science, technology, and innovation
- Strengthening circular economies at different scales
- Transdisciplinarity and engaged scholarship
- Building responsive and resilient systems
- New approaches to teaching and building capacity
- Poverty and inequality

During the course of 2022 and early 2023, the groundwork was laid for projects that would develop research along these thematic tracks. A postdoctoral research fellow was appointed for each track to drive work in that area. I look forward to reporting on these efforts in next year's publication.

* SDG infographic reference: Garfias Royo, M., Diep, L., Mulligan, J., Mukanga, P. and Parikh, P. (2022). Linking the UN Sustainable Development Goals and African Agenda 2063: Understanding overlaps and gaps between the global goals and continental priorities for Africa. *World Development Sustainability*, 1, p.100010. doi:https://doi.org/10.1016/j.wds.2022.100010.

Khusela Ikamva

Of course, universities are so much more than just centres of research. We are home to a dynamic and diverse community and have a responsibility not only to our campus but the broader society in which we are embedded.

In 2021, UCT launched the Khusela Ikamva (secure the future) sustainable campus project. The first phase of the project runs from 2021 to 2026. Key to the project is the living lab approach, in which various sustainability solutions can be developed and tested on campus.

The project has four elements, focusing on different aspects of sustainability on campus:

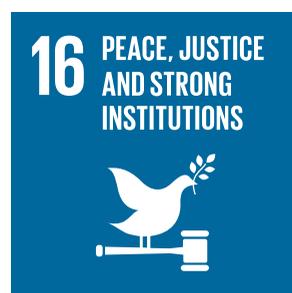
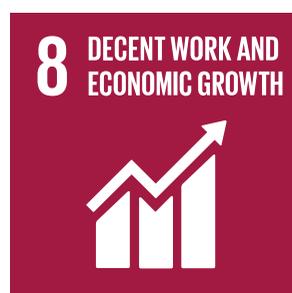
- Energy/carbon footprint
- Sustainable water use
- Waste/energy/food nexus
- Establishing a community of practice

These are covered in this report under the relevant SDG chapters.

Khusela Ikamva is envisioned as a key enabler to transform UCT to become a more sustainable campus, not only through the physical infrastructure but also through its social fabric, which is the campus community.

Universities are often thought of as microcosms of the environments and societies they are embedded in. The external environment has the power to impact the university, but so too can the university's influence have great impact on its broader environment. Through our commitment to Agenda 2063 and the SDGs, and our active initiatives like Khusela Ikamva, we hope to create a butterfly effect, infusing a culture of sustainability into everything we do.

SUSTAINABLE DEVELOPMENT GOALS



Agenda 2063

The Africa we Want



1 High standard of living, quality of life & well being for all

2 Well-educated citizens & skills revolution underpinned by science, technology & innovation

3 Healthy & well-nourished citizens

4 Transformed economies & job creation

5 Modern agriculture for increased productivity & production

6 Blue/ocean economy for accelerated economic growth

7 Environmentally sustainable & climate resilient economies & communities

8 United Africa (Federal or Confederate)

9 Established key continental financial & monetary institutions

10 World-class infrastructure criss-crosses Africa

11 Democratic values, practices, universal principles of human rights, justice & the rule of law entrenched

12 Capable institutions & transformative leadership in place

13 Peace, security & stability is preserved

14 A stable & peaceful Africa

15 A fully functional & operational African peace & security architecture

16 African cultural renaissance is pre-eminent

17 Full gender equality in all spheres of life

18 Engaged & empowered youth & children

19 Africa as a major partner in global affairs & peaceful co-existence

20 Africa takes full responsibility for financing her development Goals

1 NO POVERTY



1 High standard of living, quality of life & well being for all



SDG 1: NO POVERTY

South Africa is a country that suffers from high levels of poverty and inequality. University attendance and graduation, however, is a potential route out of poverty. UCT recognises the financial barriers to education and financial hardships faced by so many of our students who come from the lowest quintiles of the South African economy. The university is committed to enabling access for students where otherwise it would be prohibitive – for example, through financial aid, free transport between UCT campuses, the laptop loan programme, student wellness services, and legal services.

Part of UCT's Vision 2030 includes being a university in Africa for Africa. UCT is dedicated to supporting communities by, among other things, providing mentorship and training in starting up financially and socially sustainable businesses. The case study in this chapter is on the work of the Bertha Institute, which is just one example of this type of support.



Empowering South Africa's grassroots community networks for a sustainable future

Community Action Networks (CANs) sprang up from the grassroots in South Africa to respond to the many and varied humanitarian crises of the COVID-19 lockdowns. These community-driven groups joined together to start food kitchens to feed the hungry and homeless, organised community clean-ups, established food gardens, and worked to address many of South

Africa's most pressing socioeconomic problems at the community level. As the pandemic passed, so did much of the ad-hoc funding that was supporting these CANs, but the socioeconomic needs remained the same. In 2022, UCT's Bertha Centre for Social Innovation and Entrepreneurship worked with around 18 CANs in Cape Town to help them become financially sustainable to continue their good work.

UCT's Bertha Centre is the first specialised centre in Africa dedicated to advancing social innovation and entrepreneurship. As part of this mandate, the Systems Justice & Innovation (SJI) team within the Bertha Centre

worked with Inyathelo, an organisation that works to sustain and strengthen civil society organisations in South Africa, to host monthly events from the end of 2021 to October 2022, to support the CANs towards a path of sustainability. This included monthly workshops to build and grow the necessary skills. Workshops involved topics such as revenue-generating options for CANs, potential markets, and calculating business costs versus profits. Part of the support also included seed funding for CANs who developed business plans during the programme.

Supporting students in need

119 AWARDS

R5 222 584 IN VALUE



Amounts given by the the Postgraduate Funding Office in 2022 assisting students with either tuition, accommodation, meals, travel or all depending on the submission made by the student.

Several units at UCT provide financial support for students in need, who, for whatever reason, do not qualify for national and other scholarship opportunities.

- The Department of Student Affairs provides monthly cash subsistence vouchers for 130 students in specific postgraduate programmes. These subsistence payments were implemented in response to the withdrawal of state funding for students in those programmes of study.
- UCT Postgraduate Funding Office provides several support options for students in need:
 - Postgraduate students who come from households with a family income of below R350 000 (\$18 533) a year are able to claim from UCT's Postgrad Financial Aid scholarship scheme which includes meal allowances, accommodation, travel grants and course tuition.
 - There is further support, through a partial scholarship, for students whose family income falls between R350 000 (\$18 533) and R600 000 (\$31 771) per year.
 - Students in need who are not funded by a UCT scholarship are able to claim a Humanitarian Award which is a once-off award designed to support the student in meeting their basic needs for a period of six months.

Supporting policy for social assistance programmes in South Africa

UCT's Development Policy Research Unit is one of Africa's premier economic policy think tanks. The unit works to inform economic policymaking by conducting academically rigorous research into the socioeconomic challenges faced by South Africa - one of the most unequal societies in the world - as well as sub-Saharan Africa.

2022 policy work:

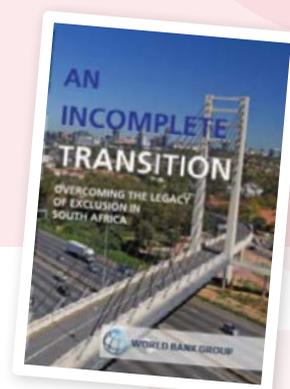


South Africa – Social Assistance Programs and Systems Review - A report by the World Bank

The report was peer reviewed by Professor Haroon Borhat of UCT's DPRU and Servaas van der Berg of Stellenbosch University

An Incomplete Transition: Overcoming the legacy of exclusion in South Africa - A publication by the World Bank

The work of Professor Haroon Borhat was cited in this report.



2 ZERO HUNGER



1

High standard of living, quality of life & well being for all



5

Modern agriculture for increased productivity & production



SDG 2: ZERO HUNGER

UCT recognises that food insecurity is a critical and growing reality for too many people living on this continent. Across the institution there are both research and outreach programmes working to build greater food security in Africa. One example of this is the Seed and Knowledge Initiative showcased in this chapter. The university also recognises that food insecurity is a challenge for many students. UCT is working to address food insecurity on campus through the Food Programme, aiming to provide basic support to enhance student learning and success. The Student Development cluster in the Department of Student Affairs provides monthly grocery packs to students experiencing financial challenges impacting on their food security.



Food parcels to students in need

The Department of Student Affairs runs a Food Sovereignty Programme to enhance students' holistic well-being and academic success. Student care packs are provided which contain a hamper of tinned and dry food, high in nutrients (such as tinned fish and lentils) to support the student's nutritional needs. Also included is a pack of essential toiletries including sanitary products for female students.



In 2022, care packs were provided to **500 students** every second month.

The Nourished Child

Children's health and development are profoundly affected by the foods they eat. But in many developing countries, including South Africa, children are not receiving the diets they need to thrive. The Nourished Child, a project of researchers from the African Centre for Cities (ACC) located in UCT's Faculty of Engineering and the Built Environment, City University London, and Stellenbosch University, shows how the environment in which children live affects what foods they eat. To realise children's rights to healthy, available, affordable and nutritious food, it is necessary to understand how diets are impacted by the food, education, social protection, and built infrastructure systems.

This project ran from March 2020 to September 2022 and included work with local communities in Cape Town as well as policymakers and local officials.

The research findings were used by UNICEF for their 2022 report: [*A systems approach to improving children's diets.*](#)

The UCT research group also reviewed all policy and programme interventions that intersected with the nutrition outcomes of children. This spanned five policy areas: the food system, the health system, the social system, the urban system, and the social services system. An [Intervention Scan report](#) was then compiled for the use of local government officials and published in March 2022.

Left: UCT has feeding projects across its campuses to address student hunger.



The Seed and Knowledge Initiative

Seed embodies life, power, and culture. It provides the mainstay for Africa's 500 million small-scale farmers and is at the heart of rich and varied cultures. But as the world's food and agricultural systems become increasingly industrialised, homogenised and privatised, seed is under threat. UCT's Research Chair on the Environmental and Social Dimensions of the Bio-economy is a founding member of the Seed and Knowledge Initiative (SKI), a regional partnership of 15 organisations committed to securing food sovereignty in southern Africa.

The initiative started in 2013 and continues to grow its network and impact.

In 2022, SKI continued to work with smallholder farmers in South Africa, Zimbabwe, Malawi and Zambia to become more seed, food and nutritionally secure through the support of farmer-led seed systems and agroecological production.

Research projects undertaken by students of the Chair feed into the SKI knowledge base, contribute to ongoing learning and innovation within the SKI to shape strategies and work on the ground. This in turn directly impacts the lives of thousands of smallholder farmers, bringing them closer to a food-secure reality.



3 GOOD HEALTH AND WELL-BEING



3 Healthy & well-nourished citizens



SDG 3: GOOD HEALTH AND WELL-BEING



The health of the UCT community, both staff and students, is a high priority for the institution. The services offered encompass physical and – increasingly – mental health, including access to UCT sports facilities, courses, and counselling. Access is either free or charged according to the facility. The UCT Employee Health and Well-being Programme is a confidential mental health benefit provided by the university for employees and their families at no extra cost.

Students have access to comprehensive wellness services including mental, physical and reproductive health, through the Student Wellness Service. UCT is equally committed to addressing the health problems faced by communities in Africa and South Africa. The Faculty of Health Sciences and its interdisciplinary partners across the university play a vital role in responding to African and global health challenges through training and research. The university’s clinical exchange programmes, education, and extensive research collaborations span Africa and the world.

Staff wellness

UCT has partnerships with Independent Counselling and Advisory Services (ICAS) and the South African Depression and Anxiety Group (SADAG) to provide psychosocial support for UCT staff and their families. The SADAG partnership is specifically to assist UCT staff who are battling with anxiety and depression.



2022 saw an increase in uptake of all the services provided.

Individual usage of the core counselling and advisory services in 2022 at UCT **11.9%**

Individual usage of the core counselling and advisory services in 2021 at UCT **11.5%**



UCT also hosted several staff wellness events across the university's campuses during 2022. During these events, exhibitors provided interactive demonstrations, including screening for blood pressure, cholesterol, diabetes, body mass index, HIV, neck and shoulder massages and clinical breast examinations.

UCT lifestyle challenge

The UCT Lifestyle Challenge programme offers staff support from a dietician, nursing sister and a personal trainer, at a minimal cost. The programme includes a wellness screening and monthly progress measurements. A dietician addresses participating staff monthly on healthy eating and they have access to a personal trainer to assist them with their weekly exercise programme.

Student wellness

UCT's Student Wellness Service offers a range of both proactive and reactive medical and psychological support for students.

Left: Student wellness services being advertised on the Upper Campus plaza

Below: Staff wellness services on display at the Annual Wellness Fair hosted by the HR Department at UCT.



On-campus clinics

Two on-campus clinics were fully operational for the duration of 2022. Both in-person and virtual medical consultations were provided.

8 377

medical consultations were provided for students

833

of these were with a psychiatrist

1 500

were for students seeking contraceptives

In 2022, the Student Wellness Unit was awarded a pharmacy licence and registration with the SA Pharmacy Council and can now operate as a Student Wellness Pharmacy.



Counselling and mental health services



A range of counselling services were offered in 2022

Through apps: Panda App and Ollie Health Platform for **24-hour counselling services**

24-hour counselling service in collaboration with SADAG, which received approx. **400 calls monthly from students**

Virtual online support groups and mindfulness sessions

12 234 counselling sessions

282 callouts to the crisis intervention service

2 800 students who are trained in counselling in their undergraduate degrees support SWS as peer counsellors



Outreach services in 2022

435 students vaccinated during the rollout of a Hepatitis B vaccination

3 000 students attended two campus-wide health promotion campaigns



Community wellness

Khayelitsha Cervical Cancer Screening Project

Over 85% of cases and deaths from cervical cancer occur in low- and middle-income countries (LMICs), particularly in sub-Saharan Africa. Khayelitsha is a densely populated, under-resourced area in Cape Town where women are particularly vulnerable to cervical cancer due to lack of early medical intervention. The [Khayelitsha Cervical Cancer Screening Project \(KCCSP\)](#) is an initiative of the Division of Obstetrics and Gynaecology. It was initiated in 1995 in collaboration with Columbia University, New York and continues today.

The KCCSP screened **1 100** women in 2022. Over **60 000** women have been screened since the inception of the project in 1995.



Desmond Tutu Health Foundation

The Desmond Tutu Health Foundation (DTHF) is a not-for-profit organisation affiliated with the Desmond Tutu HIV Centre (DTHC) within the Department of Medicine. Together they form a Centre of Excellence focusing on research, community awareness, and resource development in the prevention and treatment of HIV/AIDS, TB and related infections.

In addition to their health service research and clinician training programmes, they run several mobile and community-based projects for clinical, operational, and epidemiological research as well as community mobilisation and HIV prevention activities.

2022 projects include:

- Supporting Sustained HIV Treatment Adherence after Initiation (SUSTAIN) Study: this work aims to improve adherence to anti-retroviral (ART) drugs in the South African public sector. In 2022, the study recruited 510 patients at three City of Cape Town ART clinics.
- FASTPrEP Project: Adolescent girls and young women remain at disproportionately high risk of HIV infection in sub-Saharan Africa. Pre-exposure prophylaxis (PrEP) is an effective biomedical tool to prevent HIV infection, but uptake and continued use by key risk groups such as adolescent girls, young women, and men who have sex with men has so far been low in South Africa.
- FastPrEP uses an innovative differentiated approach to roll out and scale PrEP to the key risk groups identified. FastPrEP is funded by the Bill and Melinda Gates Foundation and in 2022 was implemented in the Klipfontein-Mitchells Plain Health Substructure in Cape Town.

4 QUALITY EDUCATION



SDG 4: QUALITY EDUCATION



UCT recognises the important role access to education plays in the development of individuals and economies and strives to take education out to communities, be it in person or digitally.

Lifelong learning for all

In 2022, the UCT Centre for Extra Mural Studies (EMS) offered a free Saturday Summer School outreach programme to provide disadvantaged youth with opportunities to rise above their economic and social circumstances. The programme provides practical short courses and skills to help job seekers and lead to learnerships and internships. EMS also offered an introductory coding course to marginalised high school learners in partnership with the Denis Goldberg House of Hope. This is part of EMS's outreach programme and builds on the transformational aspect of their work: lifelong learning for all.

Top: UCT is working towards improving the quality of basic education and learning outcomes for learners in low-resource Cape Town communities.

Centre for Innovation in Teaching and Learning (CILT)

Through the Centre for Innovation in Teaching and Learning (CILT), UCT began to offer 23 open online courses in 2022, hosted on [FutureLearn](#) and [Coursera](#), some freely available and others for a fee significantly lower than standard rates for higher education. There are no entry requirements and the courses are not for university credit. In some cases, financial aid is available.

Bridging resource access using open textbooks

The [Digital Open Textbooks for Development \(DOT4D\)](#) in the CILT at UCT is a research, implementation, and advocacy initiative exploring the potential of open textbooks to address challenges related to resource access and student empowerment in South African higher education.

To date, more than 50 textbooks authored by UCT academics and students from all faculties and disciplines have been published digitally under an open access licence.

Improving the quality of basic education

UCT's Schools Improvement Initiative (SII), part of Schools Development Unit, draws on the university's broader resources to support the Western Cape Education Department in improving the quality of education in this province. The SII's operational model is based on the development of strong university--school--community partnerships for the purpose of whole-school improvement.

In 2022, SII expanded its network of schools from eight to 10, all located in Khayelitsha, a densely populated, low-resource area in Cape Town. An important part of the SII programme is also psychosocial support for the learners. SII works with two clinical social workers who provide this support.



In 2022, the following number of learners received psychosocial support:

Over **100 learners** across 10 schools through individual consultations

1 348 learners through group and library sessions

The SII also places students from across UCT in the partner schools for their professional learning modules.



In 2022 the following students were placed:

71 students from occupational therapy, speech-language therapy, physiotherapy, and audiology

22 social work students



Teaching the teachers

One of the key objectives of the SII is teacher professional development and support across the grades. In 2022, nine short courses – endorsed by the university-approved South African Council of Educators – were delivered online, covering topics including moderation and assessment practices; language; mathematics; the sciences and psychological support. In total 147 teachers successfully completed one or more of the short courses.



UCT 100UP Project

Based in the SDU, the 100UP Project addresses inequality of opportunity for learners from underserved communities and equips them for higher education. The programme concentrates on broadening access to tertiary institutions by developing academic and life skills. Successful learners enter UCT or another tertiary institution of their choice.

In 2022, 187 learners were enrolled in the 100UP project. 92% of 100UP Grade 12 learners achieved a high school graduation pass rate with university (bachelor's degree) exemption compared to the national pass rate of 80%



SDG 5: GENDER EQUALITY

Diversity is a key feature of UCT's Vision 2030 strategy to ensure that the institution is inclusive and reflective of South Africa's demographic profile in terms of race and gender. To achieve and support this diversity, UCT has a wide range of strategies in place beyond the case studies in this section. UCT is equally committed to addressing, through research and social engagement, gender inequality in local communities, on the continent and globally.

Building a cohort of black women researchers in human evolution studies

The Human Evolution Research Institute (HERI) runs a programme to address underrepresentation of women, particularly black women, in the field of human evolution studies. The programme provides financial support and assistance to PhD candidates. The institute also runs a field camp for final year undergraduate students from two feeder disciplines: geology and archaeology. This is in direct response to studies that have shown that fieldwork is a major barrier to participation and retention in both geology and archaeology.

The aim is to offer young women a positive and enjoyable field-training experience, ultimately encouraging their continued involvement in research. Through this programme, the institute is building a network of researchers in human evolution for young women to draw on at all stages of their careers and to ultimately change the landscape and power dynamics of this research area in South Africa.

In 2022, there were 18 participants in the three-day field camp, including postgraduates from UCT and the University of Johannesburg (UJ).

Women in Law (WiL)

Women in Law (WiL) is a student society started in 2021 at UCT. It aims to provide law faculty students who identify as women with a platform and tools to connect with other female students and lawyers, to enhance their skills and to give back to the community as they navigate their law degree and prospective legal careers.

Local Government Women's Leadership Development Programme

This programme, offered by UCT's Nelson Mandela School of Public Governance in partnership with Zenande Leadership Consulting, was launched in 2022. The programme targets women in council and local government positions, aiming to enhance their leadership capacity and amplify their impact as leaders in various roles in the public sector to improve service delivery outcomes.

More than 450 delegates signed up for the programme in 2022, although only 80 could be accommodated in the first cohort. In response to this overwhelming interest, a range of online webinars and master classes were developed to reach the wider audience.

Driving positive outcomes for adolescents in Africa

By 2050, Africa will be home to half a billion adolescents: Africa's greatest unrealised asset. Despite the incredible potential, many will be trapped in cycles of deprivation and adversity. The [Adolescent Accelerators Research Hub \(AARHub\)](#), based in UCT's Centre for



Social Science Research, works with adolescents in resource-limited settings in Africa, as well as with interdisciplinary research teams, policymakers and NGOs from around the world. Their goal is to make cost-effective interventions to bring about positive outcomes for youth on the continent.

One of its key projects is hey baby, a research programme led by UCT and the University of Oxford. The project assesses resilience-promoting pathways for adolescent parent families living in adversity, including young parents living in resource-constrained, HIV-affected communities. Research questions and analyses directly respond to the needs of policymakers and programme implementers. Purposeful and audience-specific dissemination of research progress and findings with stakeholders is central to the work of hey baby.

Support for women in STEM

UCT offers entrance scholarships to women applying for degrees in the Faculty of Engineering and the Built Environment. This is in recognition of the fact that only 11% of all engineers globally are female.



Right: UCT's open day attracts scores of young people every year. By 2050, half of Africa's population will be young.

Left: Students at UCT's bio-geochemistry oceanography laboratory that opened its doors for the first time in 2022.

Below: HERI anthropologists and geologists in the field.





SDG 6: CLEAN WATER AND SANITATION

In Africa, water is an increasingly precious resource. UCT is dedicated to effective and sustainable management of water on campus and more broadly across society.

To this end, UCT has a task-team advisory group that facilitates water consciousness on campus and drives water-saving activities. UCT prides itself on being a water-wise campus. Staff, students and visitors can access free and safe drinking water from a range of outlets across the university grounds.



Khusela Ikamva: Creating a no-drop-wasted campus

As part of the Khusela Ikamva sustainable campus initiative, a project is underway to transform UCT into a no-drop-wasted campus. A team of researchers from the university's [Future Water Institute](#) are working to create a living laboratory on university grounds by embedding a more holistic approach to water management in line with water-sensitive design principles.

The key aim is to consider fundamental changes to the ways in which water is used on campus, creating a water-resilient university and water-sensitive campus community. This is done through a co-creation approach that centres on knowledge sharing and education.

Some of the sustainable water management projects undertaken in 2022 included:

- Using the internet of things (IoT) to measure water levels, rainfall temperature and relative humidity

- Profiling stormwater quality on campus, with a view to reuse
- Identifying opportunities for sustainable design on campus
- Identifying prospects for rainwater harvesting at UCT, including:
 - An assessment of demand for secondary quality water (i.e. rainwater) by building type
 - An evaluation of potential catchments
 - A long-time series model linking rainfall, storage, and yield for the above
 - Preliminary economic analyses

Fertiliser-producing urinals at UCT

A team of UCT researchers led by Associate Professor Dyllon Randall developed fertiliser-producing urinals and installed them in UCT's New Engineering Building in 2017. This endeavour falls under the no-drop-wasted campus project.

One of these urinals was active throughout 2022, saving around 500 litres of water a day. Fertiliser produced from the urinal was used for further research of the concept.

Stormwater ponds for sustainable and water-resilient cities

In 2022, the Pathways to water-resilient South African cities (PaWS) project – a collaboration between UCT's Future Water Institute and the University of Copenhagen – developed a science-driven tool to discover and assess the possible benefits of stormwater ponds.

These often grassy or dusty depressions create a space to catch stormwater released through an engineered inlet, diverting it into a pond and thus protecting people, property and the environment from the impact of stormwater.

However, these ponds have the potential to be repurposed to provide multiple benefits to their communities as a recreation space, a hotspot for biodiversity, and aquifer recharge. To this end, the PaWS tool identifies strategic 'priority' stormwater ponds where there is high potential to unlock multiple benefits that assist in the move towards more sustainable and water-resilient cities.



Top: Equipment designed for the fertiliser-producing urinals project.

Bottom: Stickers encouraging water-saving behaviour.



[See a story map of the project.](#)



7 AFFORDABLE AND
CLEAN ENERGY



7 Environmentally
sustainable &
climate resilient
economies &
communities



SDG 7: AFFORDABLE AND CLEAN ENERGY

South Africa, despite being a middle-income country, is the world's 14th largest emitter of greenhouse gases. This is largely due to the country's reliance on coal-powered energy. Along with an electricity crisis that has caused scheduled rolling blackouts, referred to locally as loadshedding, these dual issues show the urgent need of a transition to affordable, sustainable and clean energy. UCT is expanding efforts to further this cause both on campus and nationally.

Building capacity in emerging markets

The [Power Futures Lab](#) within the UCT Graduate School of Business works to build capacity in infrastructure investment, reform and regulation in support of sustainable development in Africa.

African Electricity Regulators Peer Review and Learning Network

The Lab facilitates the African Electricity Regulators Peer Review and Learning Network, which aims to build capacity and improve performance of African regulatory agencies through peer review and learning among the CEOs of African electricity regulators. In 2022, the Lab conducted reviews for Uganda and Namibia, which led to changes in the regulatory regimes and policy ambitions of the respective countries.



Education for sustainable energy

The Power Futures Lab also offered three short courses in 2022 focusing on the energy sector in Africa. Delegates were working professionals from national ministries, utilities, regulators and development partners.



Each course has between **70 and 100 delegates** from **20+ African countries**.

Energy Systems Research Group

The Energy Systems Research Group (ESRG) at UCT combines modelling of energy and economic systems with policy analysis and field-based research to generate and enhance knowledge of energy systems at sectoral, regional, national and sub-continental scales. Their work has had significant policy impact supporting South Africa and the region towards a net-zero future.

Pathway to a net-zero campus

Meeting the IPCC targets of halving greenhouse gas emissions by 2030 for a net-zero goal by 2050 will be an immense challenge for UCT, given the low base rate from which the university starts and the financial challenges faced as a learning institution in the Global South. As a first step in this direction, the ESRG, as part of the Khusela Ikamva (securing our future) campus-wide sustainability project, developed a cost-optimal pathway for UCT to achieve the net-zero goal.

The work, undertaken in 2021 and 2022, resulted in the development of an energy systems model which represents the entirety of the university's energy use. The model allows UCT to predict its future CO₂ according to different scenarios. This allows the institution to effectively plan for a carbon-neutral future.

Exploring net-zero pathways for South Africa

While South Africa has made the aspirational commitment of moving towards the goal of net-zero carbon emissions by 2050, the country has not yet taken steps to make this a reality. The ESRG undertook a study exploring net zero pathways for South Africa, as part of a larger body of technical work, to support the South African government in its achievement of this commitment.

This study, published in 2022, provides an initial exploratory modelling analysis of what a net-zero economy in South Africa could look like in 2050, and what potential pathways there may be towards such an economy.

ESRG work in policy

The work of the ESRG was cited in the following policy documents published in 2022:

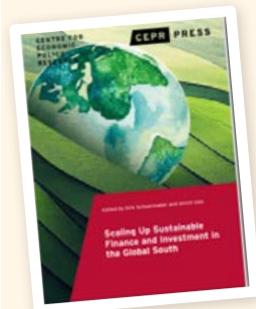


South Africa's Just Energy Transition Investment Plan

Released by the Presidency of South Africa, the plan sets out the scale of need and the investments required to support the decarbonisation commitments made by the government of South Africa

Greenhouse gas mitigation scenarios for major emitting countries

A policy document by PBL Netherlands Environmental Assessment Agency



Scaling Up Sustainable Finance and Investment in the Global South

A policy brief by the Centre for Economic Policy Research

South Africa Country Climate and Development Report

A policy document by the World Bank



Emissions Gap Report 2022: The Closing Window – Climate Crisis Calls for Rapid Transformation of Societies

A report by the United Nations Environment Programme

8 DECENT WORK AND ECONOMIC GROWTH



SDG 8: DECENT WORK AND ECONOMIC GROWTH

In 2022, South Africa had the highest rates of unemployment in the world. UCT has research groups dedicated to exploring the dynamics of unemployment and the labour market in South Africa like the [Development Policy Research Unit \(DPRU\)](#), that has a strong relationship with government and policymakers to support evidence-informed policy in South Africa.

Supporting and expanding South Africa's informal economy

South Africa's unemployment crisis is partly driven by a very small informal sector compared to other developing economies.

In 2022, the DPRU in the Faculty of Commerce collaborated with Harvard University's GrowthLab on a project called 'Supply-Side Economics of a Good

Type', which explores the reasons for South Africa's low rate of informality within the context of its high level of unemployment, and a formal sector that is unable to generate employment at the levels required.

Core to this work has been engagement with officials within local government to understand the constraints to informal sector activity, and how appropriate regulation and policy could be used to encourage economic participation within the informal sector.



Ensuring decent livelihoods in post-mining economies

The mining sector is a major employer in South Africa, but mining is a destructive industry that often leaves communities destitute when a mine closes, unable to earn a living from the degraded land in the region.

The Towards Resilient Futures Community of Practice is an interdisciplinary project involving researchers from UCT's Faculties of Law, Engineering and the Built Environment and Commerce to remediate degraded mining land and produce bio-products from the land, establishing both a low-skill agriculture job market as well as a higher-skill processing job market.

The project started with phase one in 2017. Phase two continued into 2022, exploring to what extent the cultivation of fibre-rich crops can lead to enhanced economic complexity through the manufacture of primary and secondary products and the establishment of a fibre micro-industry.

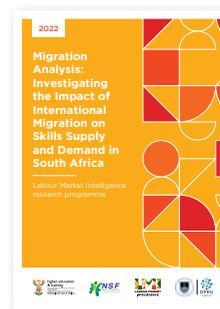
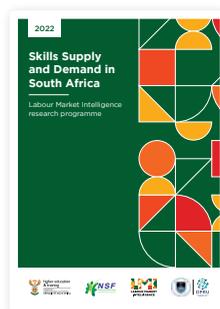
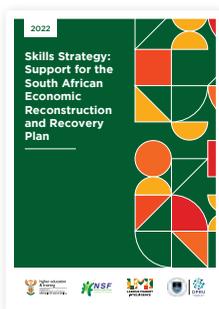
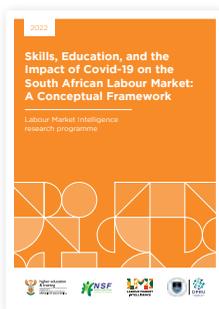
This interdisciplinary project, involving researchers from numerous faculties at UCT, is working to remediate degraded mining land and produce bio-products, establishing both a low-skill agriculture job market as well as a higher-skill processing job market.



The Labour Market Intelligence research programme

The University of Cape Town (UCT), and specifically the Development Policy Research Unit (DPRU), act as Project Managers for the Labour Market Intelligence (LMI) research programme, an initiative of the government's Department of Higher Education and Training (DHET) with support from the National Skills Fund (NSF). The aim of this programme is to establish a credible institutional mechanism for skills planning.

Below: In 2022, this collaboration between government and UCT produced several papers.



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



4 Transformed economies & job creation

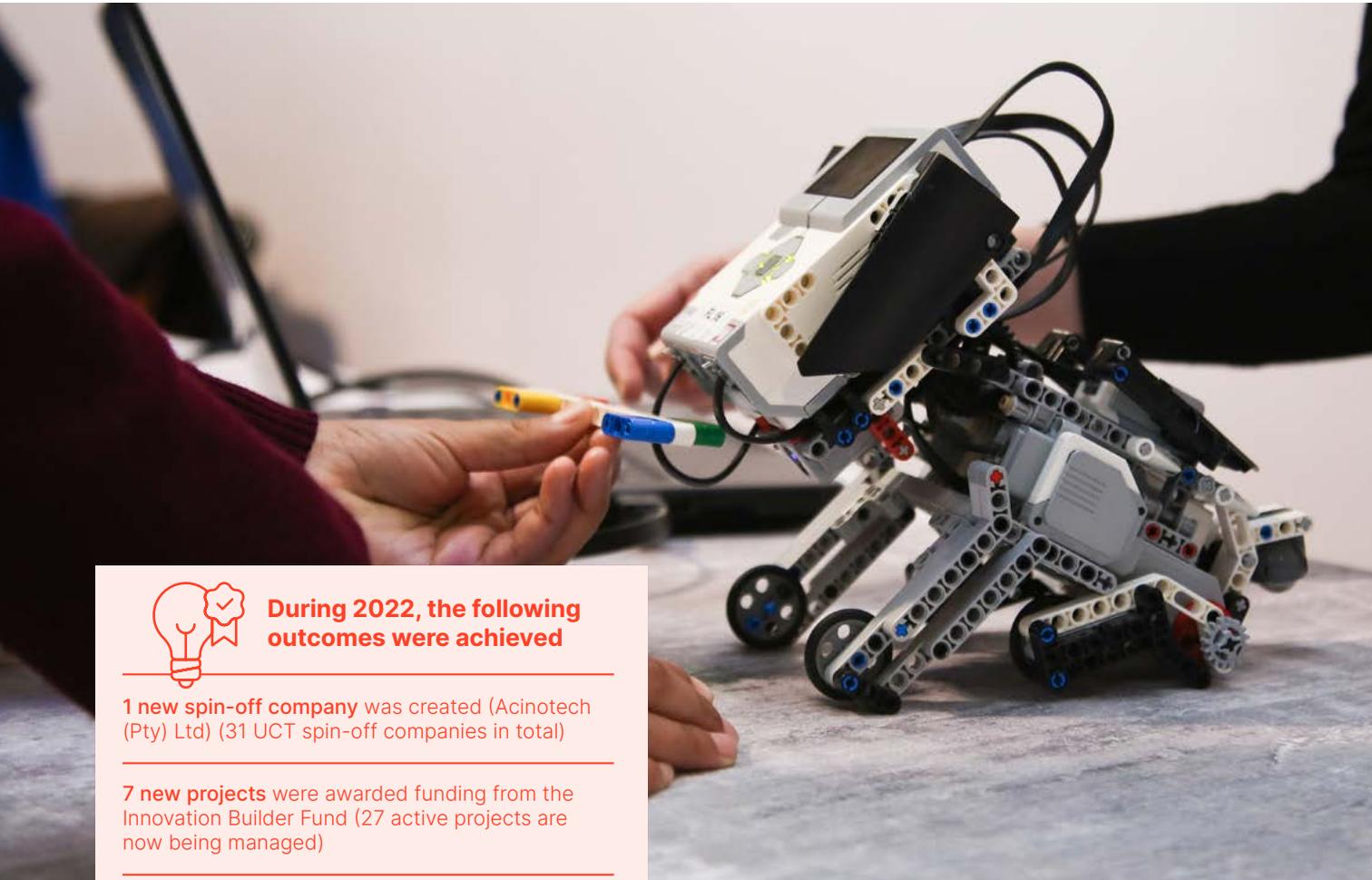


10 World class infrastructure criss-crosses Africa



SDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE

Universities are hubs of innovation: if the intellectual property stemming from that innovation can be effectively protected and commercialised, the positive impact reaches across society through new industry, infrastructure and jobs.



During 2022, the following outcomes were achieved

1 new spin-off company was created (Acinotech (Pty) Ltd) (31 UCT spin-off companies in total)

7 new projects were awarded funding from the Innovation Builder Fund (27 active projects are now being managed)

45 licences were issued

29 new invention disclosures were received

46 new patent applications were filed

35 patents were granted in different countries

Research Contracts & Innovation

UCT's Research Contracts & Innovation (RC&I) office supports UCT innovators in protecting and patenting their inventions and building spin-off companies to grow South Africa's economy and competitive edge.



Acinotech

Launched in 2022, UCT's most recent spin-off company is an excellent example of the value of cross-disciplinary research. A collaboration between the African Robotics Unit in the Department of Electrical Engineering and a neuromuscular physiology researcher in the Division of Exercise Science and Sports Medicine at UCT's Faculty of Health Sciences resulted in an advanced 3D force-sensing system with potential uses in biokinetics.

Towards a sustainable production of aquatic animals

MariHealth Solutions, a marine biotech and UCT spin-off company, was officially launched in October 2021 but gained real momentum in 2022, as the founders from the Molecular and Cell Biology Department at UCT's Faculty of Science began to engage key stakeholders in the global aquaculture industry.

The company currently has two products that are ready to go to market: a probiotic for enhancing the health, survival, and growth of hatchery-produced abalone, as well as proteomic biomarkers for measuring environmental stress in these farmed environments. Proteomics involves the systematic analysis of proteins that are present in cells at a particular time under certain conditions.

As land-based agriculture is under immense pressure and aquaculture witnesses a global boom, the work of MariHealth Solutions can make the commercial production of aquatic animals more sustainable.

African Centre for Cities

The African Centre for Cities (ACC) is an interdisciplinary hub at UCT conducting research into issues faced by cities in the Global South. One of their many initiatives is the African Infrastructure Futures Conference.

African Infrastructure Futures Conference

Achieving sustainable urban infrastructure requires engagements with public and private operators and decision-makers around infrastructure investment. The African Infrastructure Futures Conference took place in November 2022 and fostered a frank dialogue between social partners; governments, investors, businesses, academia, civil society organisations, and cultural practitioners.

Above: The award-winning, green star-rated Hasso Plattner School of Design Thinking Afrika (d-school Afrika) building at UCT.

Far left: UCT supports its innovators by protecting and patenting their inventions.



SDG 10: REDUCED INEQUALITIES

South Africa is notorious for having the highest levels of inequality in the world, which impacts all aspects of life. Given the country's history, racial inequality remains a significant challenge, although all inequality is intersectional. UCT works with both our on-campus community and broader society to combat inequality of all kinds.



Income comparison tool

South Africa is one of the most unequal countries in the world, but most people are wrong about where they are located in the income distribution. The South African Labour Development Research Unit (SALDRU) has developed an income comparison tool to help people see how income is distributed from the poorest to the richest in South Africa. This tool was designed to help people understand the nature and extent of South Africa's inequality.

In four clicks, people can find out where they are in South Africa's income distribution and how they compare to the rest of the population. SALDRU's research finds that 50% of South Africans are chronically poor. Only 20% of South Africans belong to the stable middle class, whilst 4% belong to the elite. The rest belong to the transient poor (11%) and the vulnerable middle class (15%).

Support for the next generation of black South African leaders in academia

The [Accelerated Transformation of the Academic Programme \(ATAP\)](#) was launched in October 2021 and works to identify, support and develop the next generation of black South African academic leaders, deepening the pool of candidates available for academic positions at UCT and other institutions. One programme participant described ATAP as a "guiding light on a sometimes-rocky journey".

Diversifying the professoriate

The Next Generation Professoriate (NGP), launched in September 2015, is an ongoing programme aimed at diversifying the UCT professoriate by increasing the

representation of black and female staff members in associate and full professor positions. Since its inception, there have been 39 promotions, including nine from associate professor to full professor and 30 from senior lecturer to associate professor.

The initiative cultivates a nurturing network of academics through diverse activities. These include retreats, workshops, social events, coaching sessions and individualised guidance. Within the NGP community, peer support is robust, encouraging the sharing of resources, knowledge and emotional support among its participants.

In 2022, NGP member Zarina Patel was selected for the Norwegian cCHANGE Transformational Leadership for Sustainability Programme and Amir Patel was awarded the 2022 Oppenheimer Memorial Trust (OMT) Sabbatical Award.

Capacitating early-career academics to grow their research

Established in 2003, the Emerging Researcher Programme (ERP) is the Research Office's flagship capacity-building programme. The ongoing programme targets early-career academics to grow their research capacity, amplify their productivity, and provide an enabling environment that contributes to transformation and retention. One of the programme's goals is to retain black South African academics, while also growing the pipeline of black and women academics as well as academics with disabilities.

In 2022, 65 new members were recruited to the ERP, bringing its cumulative membership to 1 143, a jump from 45 at its inception in 2003.

Top right: Associate Professor Amir Patel at the UCT Mechatronics lab.

Left page and bottom right: A graduation ceremony at the Sarah Baartman Hall, UCT.



Reducing Racial Inequality

Data collected in 2022 also shows the effectiveness of the ERP in reducing racial inequality among academics at UCT:

76%

proportion of researchers at UCT who are South African

88%

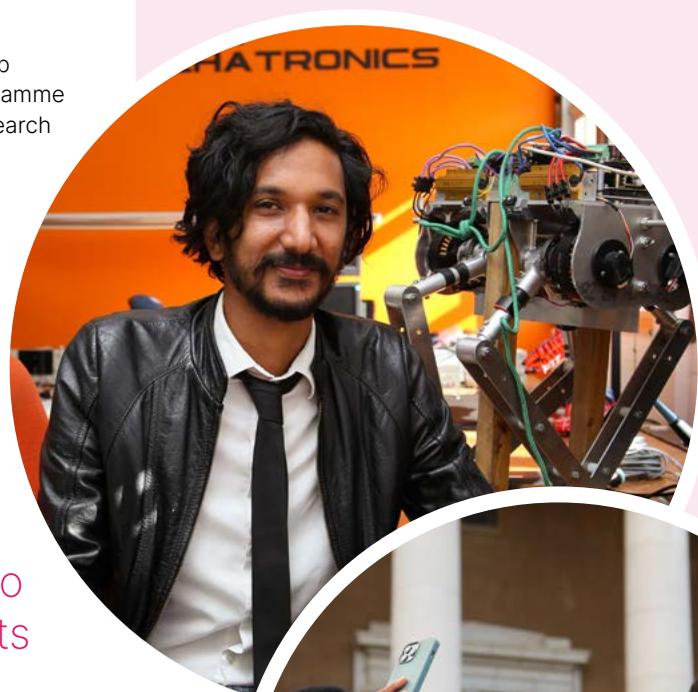
proportion of UCT researchers enrolled in the ERP who are South African

37%

proportion of researchers at UCT who are black South African

61%

proportion of UCT researchers enrolled in the ERP who are black South African



Inclusive education for children with disabilities

UCT's Including Disability in Education in Africa (IDEA) Research Unit was created in response to a call to address the exclusion and poor-quality education of children with disabilities in South Africa. The unit is engaged in research, networking and training to strengthen inclusive education for learners with disabilities.

In 2022, IDEA's work was included in the following publications:



A Landscape Review of ICT for Disability-Inclusive Education

A report by the World Bank citing IDEA research



Global Report on Assistive Technology

A World Health Organisation – UNICEF joint report

Fostering an environment of inclusivity and change

UCT's Office for Inclusivity and Change (OIC) hosted a webinar in collaboration with the International Labour Organization (ILO) and Business Unity South Africa (BUSA) to unpack an extensive global study undertaken by the ILO. The webinar created a platform for a rigorous exchange on enterprise approaches to diversity and inclusion (D&I).

The OIC was borne out of the need for the University to establish, develop and foster an environment where everyone feels included and change is respected, encouraged, and celebrated. Their services range in the areas of disability; cultural change, prevention, and education; and sexual assault, sexual harassment, and client management.

To mark the end of the 16 Days of Activism for No Violence Against Women and Children, the OIC, in partnership with the Faculty of Health Sciences, coordinated donations from staff and students to produce care packs.

This was a heed to a public call by the Sparrow Society, an empowerment non-profit organisation that works to provide optimal economic opportunities to restore power to women. The 'Power Packs' help Community Intervention Centres and Rape Crisis Centres provide survivors of sexual and gender-based violence (SGBV) – women, men, children, and queer folk – with the essential items needed, while conveying a message of hope and dignity. During the 16 Days of Activism, the OIC collected thousands of toothbrushes, tubes of toothpaste, soap, deodorant, sanitary pads, and other items for the packs.

Understanding how continental and global inequalities can be overcome

ACEIR is a centre of excellence of a research network: the African Research Universities Alliance (ARUA). UCT hosts both ACEIR's operational hub and the South African research node at the Southern Africa Labour and Development Research Unit (SALDRU). Two further research nodes are based at the University of Ghana



and the University of Nairobi. ACEIR contributes to deep, multidimensional, and interdisciplinary understanding of inequality specific to each country's context. This includes a continental and global understanding of how inequalities can be overcome.

Over the last five years, various nodes of the African Centre of Excellence for Inequality Research (ACEIR) have published three inequality diagnostics in South Africa, Ghana, and Kenya. The diagnostics summarise existing knowledge on inequality trends in different African countries by using available national survey data and take stock of future data needs to help inform policies to tackle inequality. Once published, the report serves as a country-specific guideline on inequality trends and is used to explore the implications of the data analyses in partnership with local institutions, especially national statistical offices.

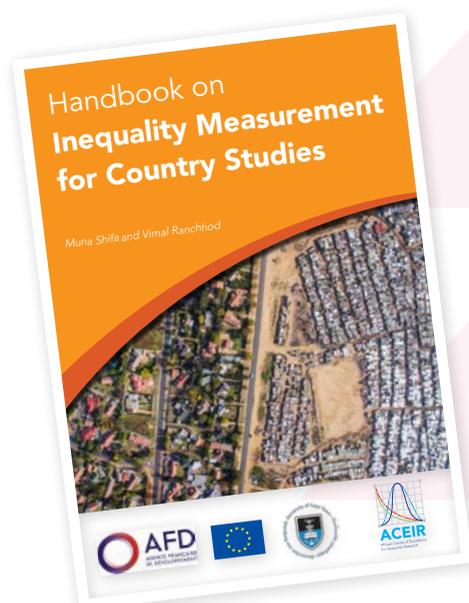
In 2022, ACEIR commenced data collation and analyses for two new inequality diagnostics for Mali and Mozambique. ACEIR is working with researchers from the Institut National de la Statistique (INSTAT) Mali to produce the Malian Inequality Trends Report.

Top: Staff and students prepare care packs from the thousands of donations that were collected to support survivors of sexual and gender-based violence.

Right: The Handbook on Inequality Measurement for Country Studies was developed by ACEIR to empower researchers within their particular country, and to facilitate the comparability of results and findings across countries.

For the Mozambique report, ACEIR is working with the Instituto de Estudos Sociais e Económico (IESE), an independent Mozambican non-profit organisation that conducts and promotes interdisciplinary scientific research on problems of social and economic development in Mozambique and southern Africa.

ACEIR researchers from the SA node were consulted for input on the World Bank's report entitled "Inequality in Southern Africa: An assessment of the Southern African Customs Union".





SDG 11: SUSTAINABLE CITIES AND COMMUNITIES

Africa is the fastest urbanising continent. Ensuring cities people live in are safe, healthy and sustainable in the face of climate change is a critical priority. So too is preserving our African heritage in a globalising world.

UCT has several projects dedicated to preservation of African cultures, particularly pre-colonial histories and the writings of prominent African intellectuals which were sidelined during the colonial and apartheid eras.



Addressing urban crises in the Global South

The African Centre for Cities (ACC) is an interdisciplinary hub at UCT that conducts meaningful research in how to understand and address urban crises in the Global South. Since most urban challenges—for example, food security, climate change adaptation, economic inclusion, cultural vitality, and tolerance—are inherently interdisciplinary and spatially layered, ACC nurtures the co-production of knowledge between academia and other social sectors.

African Mayoral Leadership Initiative

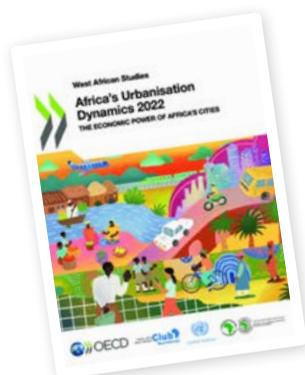
In 2022, the ACC laid the groundwork for the [African Mayoral Leadership Initiative \(AMALI\)](#). This initiative will provide tailored support to African city leaders, drawing on the insights and experience of a distinguished group of coaches including former heads of state, government ministers, and mayors with a legacy of transformation and innovation. The ACC secured a first round of funding in 2022 to prepare support for this first cohort of African leaders.

UTA-Do African Cities Workshop

The phrase 'uta-do' is commonly used in Nairobi, Kenya which can be translated as "what are you going to do about it?". The [UTA-Do workshops](#), the first of which was hosted in Nairobi in May 2022, are part of the strategy by the ACC to develop a richer dialogue among African scholars on issues of African urban change.

ACC work in policy

In 2022, the ACC's work had significant policy impact, including:

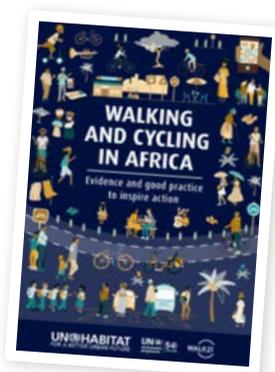


Africa's Urbanisation Dynamics 2022: The economic power of Africa's cities

A report by the OECD and United Nations

Walking and Cycling in Africa: Evidence and Good Practice to Inspire Action

A report by the United Nations Environment Programme



UCT as a green space

UCT, nestled at the base of Devil's Peak and Table Mountain National Park, boasts not only beautiful views and green spaces, but also important historical sites and museums. As part of the university's open campus policy, members of the public can access the campus to enjoy these spaces.

Recording and preserving our cultural heritage

The Bleek and Lloyd collection – a vast array of notebooks, drawings, photographs and lexicons compiled by Wilhelm Bleek and Lucy Lloyd in the 1800s – records the cosmologies (the social belief systems humans have held at different times and in different places about the order of the world, the universe and themselves in it) and languages of the !xam and !kun people who were amongst the earliest inhabitants of southern Africa.

This collection offers insight into precolonial times and the lives of people – including those in the Kalahari, Northern Cape, northern Namibia, Angola and Tanzania – about whom little else would otherwise be known. UCT's Centre for Curating the Archive (CCA) has been working since the early 2000s to digitise and publish the collection.

In 2021, the CCA secured funding to make the collection widely accessible beyond scholarly study. In 2022, the CCA were able to continue their work to make the Bleek and Lloyd Collection a 'living collection', taking copies of the watercolours and drawings to the present-day communities from which these documents originated. This allowed the descendants of the original communities to give feedback and insights, documenting how life has changed for these communities over generations.



Above: In 2022, UCT's historical Irma Stern Museum invited Grade 11 learners doing Visual Art and Design to participate in a "Rethinking Irma Stern" project.



Other projects working to preserve African heritage at UCT in 2022 include the following:

[The Five-Hundred Year Archive](#): a digital research platform making available resources from the last 500 years of southern African history.

[IsiXhosa Intellectual Traditions Digital Archive](#): the isiXhosa Intellectual Traditions Project, entailing digitising, archiving, preserving, and researching early isiXhosa texts (especially newspapers and books) produced in the 1800s and early 1900s.



SDG 12: RESPONSIBLE CONSUMPTION AND PRODUCTION

Campus recycling is an important aspect of UCT’s sustainability strategy. The institution uses a two-stream waste policy. Bins are sorted and identified for recyclable dry waste and non-recyclable wet waste. Organic waste from the student housing facilities goes to a fly farm (the maggots serve as food for the fish-farming industry) or to a pig farm, depending on demand. Garden waste is composted on site and used in the campus gardens.



Khusela Ikamva: Integrated food–water–energy system

This project, launched in 2022, seeks to develop a campus-wide, integrated food–water–energy system based on the anaerobic digestion of organic waste with concomitant technologies to produce valuable products. This work is led by the Centre for Bioprocess Engineering Research (CEBER).

Using this approach, UCT can produce renewable energy (biogas), fit-for-purpose water, and fertilisers. These products can then be used to support existing systems through the provision of energy to kitchens, and the supply of clean water and fertiliser to maintain UCT grounds.



In 2022, UCT had the following breakdown of waste.

Waste to landfill:	1 134 tons
Waste recycled: (16.7% of total)	136 tons
Organic waste:	189 tons

Research into construction and demolition waste in South Africa

In a [paper published](#) in 2022, two researchers in the Department of Chemical Engineering set out to quantify how much construction and demolition waste is generated annually in South Africa. This waste, produced from the construction, renovation, repair and demolition of the built environment, is one of the largest waste streams and is generally not well documented or understood.

The findings were that the actual construction and demolition waste output was significantly higher than what is reported in official national statistics.

This finding is important because without a proper understanding of the scale of construction and demolition waste, sustainable and effective waste management practices cannot be implemented.



Award-winning postgraduate dissertation on plastic waste

South Africa ranks 11th among the world's worst contributors to marine plastic waste, with single-use plastic making up the bulk of it. Kirsten Barratt's [master's thesis](#) in environmental law examines legal regulations around plastic waste and suggests incentives to reduce, reuse and recycle this useful but pervasive commodity.

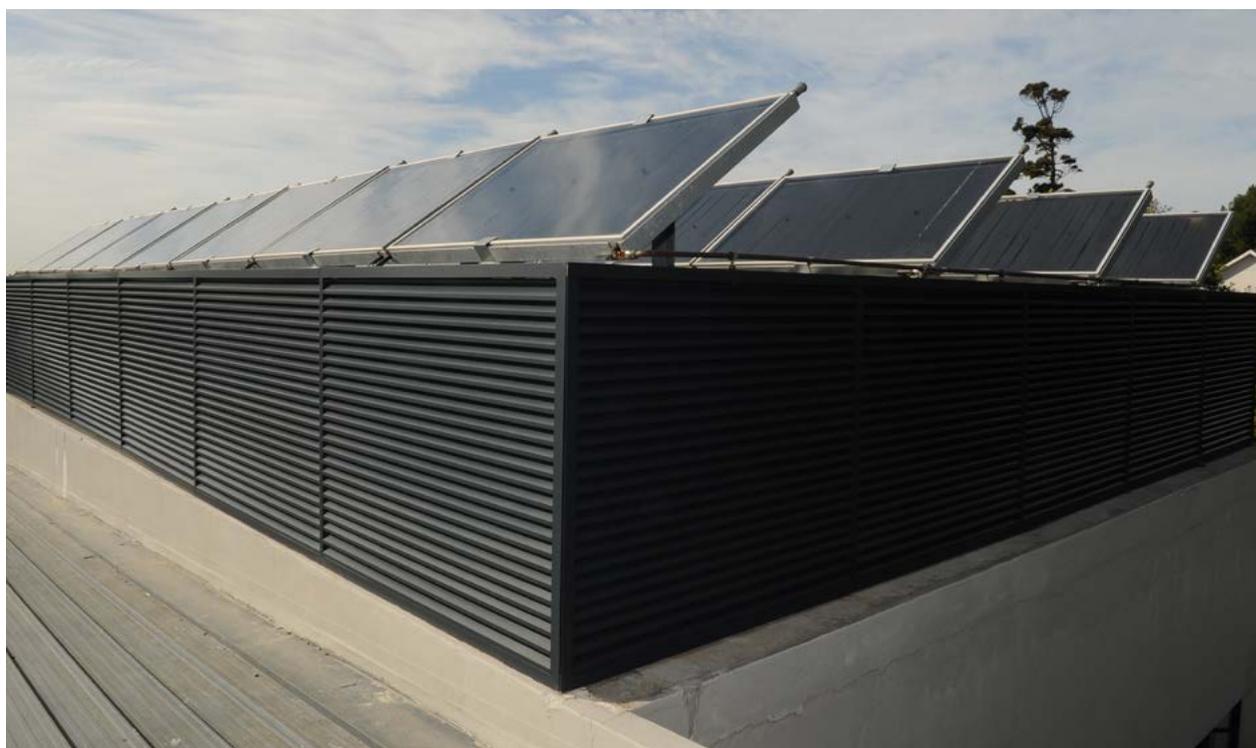
Barratt graduated in December 2022, but prior to her graduation she co-authored an essay with fellow UCT student Koale Monaheng and Rhodes University's Megan Mannion. The essay was based on Barratt's dissertation and won a silver medal in the COP27 Climate Law and Governance Day essay competition in November 2022.

13 CLIMATE ACTION



SDG 13: CLIMATE ACTION

Climate change is predicted to impact on all aspects of human life. However, it will not play out in the same way across regions. As different areas are affected differently, there needs to be appropriate planning and adaptation measures in place, and these locally appropriate measures need to be driven by robust research. UCT is home to several high-impact climate change research units that work with both communities and government to drive evidence-informed policy in South Africa and Africa.



African Climate and Development Initiative

The African Climate and Development Initiative (ACDI) is an inter- and transdisciplinary research and training institute. The ACDI brings together academics and researchers from UCT and other higher education and research institutions with business, civil society and government actors to co-produce and test new insights, evidence and innovations that will help to solve Africa's climate and development challenges.

Climate Resilient Development Pathways for South Africa

In 2022, ACDI researchers completed a process of knowledge-development and engagements with the South African Presidential Climate Commission (PCC) on

how a Climate Resilient Development Pathways (CRDPs) approach could be operationalised in various South African contexts to navigate a just climate transition.

The team explored the potential application and value-add of a CRDPs approach in the contexts of eThekweni and Saldanha Bay, which led to a set of four high-level proposals for taking the CRDPs work forward.

A review of CRDPs approaches implemented elsewhere in the Global South was also published in the journal *Current Opinion in Environmental Sustainability*. This foundational work has led to further collaborative engagements with Western Cape and Eastern Cape government colleagues and consultants working to implement the CRDP framework in their planning processes, as well as co-designing a peer-to-peer learning exchange for municipal officials.



Teaching the environment: Environmental Humanities South

The Environmental Humanities South (EHS) at UCT is a multi- and transdisciplinary research and teaching centre. In response to a global and institutional call for the decolonisation of research, teaching and practice, EHS has provided integrated and responsive curricula that enables 'big picture thinking' to students around environmental issues and tackling climate change.

Since 2015, 50 postgraduate students from more than 15 African countries have come through the UCT Environmental Humanities South research and teaching centre.



Pathways for a Just Urban Transition in South Africa

South Africa is a fast-urbanising country. Recognising the co-dependence between the national climate ambition and a just urban transition, South Africa's Cities Support Programme, the Presidential Climate Commission, and the World Bank jointly commissioned UCT's African Centre for Cities to compile a Just Urban Transition discussion paper.

Pathways for a Just Urban Transition in South Africa

This paper, published in 2022, marks the start of a process to determine what South Africa's cities might contribute to a just transition, why this matters, and how it can be achieved.



Left: Solar panels at the UCT Graça Machel women's residence.

14 LIFE BELOW WATER



6

Blue/ocean economy for accelerated economic growth



SDG 14: LIFE BELOW WATER

Oceans are crucial for human health and well-being. Unfortunately, the health of our interconnected oceans and fresh water is under threat. UCT is increasingly taking a global leadership role in ocean observations to monitor the health of aquatic ecosystems in southern Africa.

On campus, UCT strives towards [sustainable water management practices](#) and aspires to be an internationally recognised community of water-wise individuals; this includes [water-sensitive waste disposal](#) and an action plan for properly disposing of plastics on campus.

Fitzpatrick Institute of African Ornithology

Waste plastics that are not disposed of properly pose a serious environmental threat. Plastic litter has been accumulating in the oceans and wetlands for decades, where it entangles and is eaten by a wide variety of aquatic fauna. UCT's Fitzpatrick Institute of African Ornithology, based in the Faculty of Science, started documenting the impact of plastics in the 1980s, and more recently has been focused on understanding environmental plastic origins and fate with a view to policy change to reduce leakage of plastics into the environment.

In 2019, researchers at the FitzPatrick Institute developed the approach of using bottles to identify the main sources of litter in marine systems, highlighting the ongoing illegal dumping of plastic waste from ships. This tool has now been adopted by research teams based in Australia, Spain, Norway and the UK, and the findings from these studies are feeding into the UN Plastic Treaty negotiations.

Despite this, most litter in South Africa (and most of the global south) comes from local sources. 2022 was the culmination of a three-year project assessing the flux of street litter and assessing the use of simple litter interception devices to stem the flow of waste plastic into the sea.

Knowledge contributions:

In 2022 the work on plastics influenced several research publications, including:



Impacts of plastic in the oceans on marine species, biodiversity and ecosystems

Emeritus Professor Peter Ryan of the Fitzpatrick Institute was one of the reviewers of this WWF commissioned study

Monitoring of Floating Marine Macro Litter: state of the art and literature review

A technical report for the European Commission



Liesbeek River clean-up

The Liesbeek River is a key waterway in Cape Town's southern suburbs, where the UCT campus is located. In February 2022, dozens of UCT staff and students took part in a Liesbeek River clean up, carried out in partnership with UCT's Future Water Institute, the Dutch Consulate in Cape Town, the City of Cape Town and local residents. This is an annual exercise, which has expanded from a simple goal of cleaning the canal to converting canalised sections back into a river, so that it can support ecological systems.



South Africa's floating university

SEAmester is a unique shipboard programme for South African students that integrates interdisciplinary coursework, hands-on ship-based experiences, and interaction with leading South African marine researchers. By aligning with core peer-reviewed scientific objectives, SEAmester allows students to collect data in an oceanic region of global importance and to be part of an international programme with data standards and protocols. Greater awareness of the ocean's physical, biogeochemical, and ecological response to climate change, highlighted through ship-board experiences, has already started to inspire and attract students into the marine sciences.



The 2022 cruise had on board **46 students from 21 universities**, which brings the total number of students who benefited from this experience to **222 students**.



15 LIFE ON LAND



SDG 15: LIFE ON LAND

Environmental sustainability is a top priority for UCT. Efforts are constantly underway to educate the campus community on more sustainable living, and supporting them to do so through initiatives such as the colour-coded recycling bin system that has been in place at UCT for over a decade to keep campuses clean and stop waste from entering the surrounding ecosystems.

UCT is also a living laboratory for students and academics who wish to test sustainability projects. These also contribute to a campus that is more sensitive to supporting land-based ecosystems.



Khusela Ikamva: The wildlife-waste-food nexus

One of the focuses of the Khusela Ikamva campus sustainability project is the wildlife, waste and food nexus on campus. UCT is nestled at the base of Devil's Peak, which forms part of the city's Table Mountain National Park, and so occupies an important position on the urban fringe. This means the institution has a responsibility to ensure minimal human-wildlife conflict and impact on the area's natural biodiversity.

Food waste is an important element of this. Poorly disposed food waste on campus leads to rodents

breeding, which is then fought with toxic pesticides, which in turn find their way into the precious remaining wildlife in the national park. The work around the wildlife-waste-food nexus involves the monitoring of wildlife and rodents on campus with motion-sensitive cameras, to better understand UCT's relationship with nature. These cameras have revealed the presence of animals such as caracals, porcupines, mongooses and domestic cats.

This component of the project also has a strong educational focus through action research and by employing innovative art to support recycling, waste reduction and integrated pest management of external spaces on upper campus.

Wildfires: Anticipating a global increase of extreme fires

Wildfires disproportionately affect the world's poorest nations, increasing social inequality. Impacts persist long after the flames subside, impeding progress towards the SDGs due to effects on health, loss of infrastructure, degradation of watersheds and soil erosion.

Researchers in UCT's Plant Conservation Unit, part of the Faculty of Science, contributed significantly to a report released in 2022 by the United Nations Environment Programme: [Spreading like Wildfire – The Rising Threat of Extraordinary Landscape Fires](#). The report finds an elevated risk of wildfires and calls on governments to adopt a new 'Fire Ready Formula'. To prevent wildfires, authors call for a combination of data and science-based monitoring systems with indigenous knowledge and for stronger regional and international cooperation.

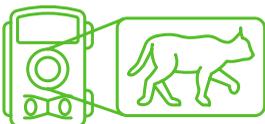
The contribution of the UCT team included work on the social and ecological fire dynamics in the African savannas. The research drew on past and present fire-management practices and perceptions of the Khwe (former hunter-gatherers) and Mbukushu (agropastoralists) communities as well as government and non-government stakeholders in combination with satellite data in Bwabwata National Park in north-east Namibia.



Rediscovering plant species believed to be extinct

A UCT master's student [rediscovered the longleaf fountain bush \(*Psoralea filifolia*\)](#) in March 2022 on a walk in the Kirstenhof wetland in Cape Town. This plant was thought to be locally extinct. The last time the species was recorded in the region was in the 1830s.

This discovery had important implications for local biodiversity protection as it raised awareness of the risks of wholesale vegetation clearing which was ongoing in the area.



Left page & Right: Cameras on campus installed as part of the Khusela Ikamva project have revealed the presence of caracals, porcupines and Cape grysbok among others.



16 PEACE, JUSTICE AND STRONG INSTITUTIONS



11 Democratic values, practices, universal principles of human rights, justice & the rule of law entrenched



12 Capable institutions & transformative leadership in place



13 Peace, security & stability is preserved



SDG 16: PEACE, JUSTICE AND STRONG INSTITUTIONS

UCT provides a safe and neutral space for thinkers and speakers from a variety of political backgrounds to hold frank discussions on contemporary challenges in South Africa today.

As part of UCT's Vision 2030 goal to be an institution unleashing knowledge in, for and from Africa, there is also much work done to support democratic institutions and good governance in South Africa and on the continent.



The Chair of the Academic Freedom Committee,
Professor Pierre de Vos,

together with

the Vice-Chancellor of the University of Cape Town,
Professor Mamokgethi Phakeng,

invite you to the

2022 TB Davie Memorial Lecture

Protecting academic freedom

Academic freedom is enshrined at UCT and actively protected by an [Academic Freedom Committee](#).

A flagship initiative springing from this value is the annual TB Davie Memorial Lecture on academic freedom. This was established by UCT students and is organised by the Academic Freedom Committee. The lecture is delivered by distinguished speakers who are invited to speak on a theme related to academic and human freedom. In 2022, Professor Fran Baum (University of Adelaide) delivered the [56th TB Davie Memorial Lecture](#) titled, "[Activism and the corporate university: incompatible or possible?](#)".

Part of the culture of academic freedom is to foster public debate and engagement. The Vice-Chancellor's Open Lecture series was established to enable anyone in the community, whether they are connected to the university or not, to have the benefit of hearing first-hand from academics, researchers, and innovators from South Africa, but particularly from those around the world, who have distinguished themselves in their areas of expertise. Attendance to the lectures is free of charge, as the series is one of the ways that UCT seeks to give back to the Cape Town community.

Democratic Governance and Rights Unit

The Democratic Governance and Rights Unit (DGRU) works towards achieving access to justice and fair, accountable, independent, and transparent judiciaries and justice systems in Africa. This is done through three main pillars of work: research and advocacy; ongoing professional development of judges; and free access to the law.

Judicial Institute for Africa

Ongoing professional development for judges is essential to ensure that they remain competent, ethical, up to date with legal and societal developments, and capable of making fair and informed decisions. It ultimately strengthens the legal system and upholds the rule of law. The Judicial Institute for Africa has been providing UCT-certified short courses to judges across Africa since 2016. The courses are developed by judges supported by academic and other experts.



In the 2022 short courses provided to judges across Africa by the Judicial Institute for Africa:

1 200 judges completed short courses

150 judges were trained



Judges Matter: monitoring of the judiciary in South Africa

Judges Matter is a unit within the DGRU committed to fostering transparency, accountability and excellence within South Africa's judiciary. Part of their work involves building public awareness of professional appointments. They do this through publishing profiles of judicial candidates and making public the processes of the Judicial Services Commission (JSC), which appoints judges in SA.



Other activities undertaken by Judges Matter:

Monitoring judicial conduct tribunals

Researching the appointment process for acting judges

Examining the criteria used by the Judicial Service Commission (JSC) to nominate candidates

Scrutinising magistracy governance, and investigating judiciary-related statistics





SDG 17: PARTNERSHIPS FOR THE GOALS

With its extensive continental and international networks and partnerships, UCT plays a key role in connecting the Global North with the Global South to build and share African knowledge and expertise. Through these valuable collaborations, UCT is a leading partner in driving the international research agenda.

To contribute most meaningfully to global partnerships for sustainable development, UCT recognises the need to go well beyond these international networks of academia, partnering with government, the private sector, and civil society at all levels.



Partnering to create sustainable aviation fuels

Aviation accounts for about 2.5% towards global CO₂ emissions but has a far larger warming impact due to the non-CO₂ gases and particulates it emits at high altitudes. With the world racing to reduce global heating to 1.5°C, it needs to have hit net zero CO₂ emissions by 2050. This has had a huge impact in the world's global energy systems as demand for the technology needed to develop sustainable fuels soars.

In 2022, a team of [UCT researchers](#) from the DSI-NRF Centre of Excellence in Catalysis at UCT's Department of Chemical Engineering partnered on the Catalyst Research for Sustainable Kerosene (CARE-O-SENE) project. Led by Sasol and Germany's Helmholtz-Zentrum Berlin (Helmholtz Centre for Materials and Energy, HZB), the project worked to develop new technology to produce green kerosene on a commercial scale.

This three-year research project has seen government, research universities, and the private sector working together on fuel catalysis research and technology development to make large-scale production of green aviation fuels possible by 2025.



Pioneering a mobile TB diagnostic clinic

South Africa accounts for 3.3% of the global TB burden. Government targets are to reduce the country's TB incidence by 90% in 2030 and TB mortality to almost zero by 2030. However, TB eradication efforts have been severely slowed down by HIV and more recently by the COVID-19 pandemic. Over 7.7 million people live with HIV, and over 60% of those with TB also have HIV.

A multistakeholder partnership between [UCT's Lung Institute](#), global healthcare company Novartis, the national Department of Health and a non-profit organisation, TB HIV Care resulted in the launch of the first-ever mobile TB diagnostic clinic in Cape Town. The clinic targets undiagnosed TB carriers – often asymptomatic – in underserved communities in the Klipfontein and Mitchells Plain districts.



Using its mobile TB diagnostic clinic, this community-based active case-finding initiative screened **12 000 people in 2022**.

Partnering with community film makers to drive social change

The UCT Centre for Film and Media Studies (CFMS) partnered with Sunshine Cinema to create the [Film and Impact Facilitator online short course](#). Over the span of six months, the course empowers young people to harness the power of film to drive positive change within their communities. The course also gives young people access to a network of expert producers in film and social change strategy to draw inspiration from. Sunshine Cinema is a non-profit solar-powered media network working through Southern Africa to address youth unemployment. The network equips young entrepreneurs with a mobile solar cinema kit called the Sunbox and imparts skills needed for them to become media facilitators, generate an income and leverage storytelling as a tool for driving social change.



